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Analysis the Effective Components on Participation of Villagers in Implementation of Watershed Management Projects in Mahabad Dam Watershed

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Abstract

The general purpose of this descriptive-correlation study is to analysis the effective components on participation of villagers in implementation of watershed management projects in Mahabad Dam watershed. The data collection tool was a questionnaire. Validity and reliability of the questionnaire were confirmed. The statistical population of this study is supervisors of rural households that living in Mahabad catchment area (N = 2458). By using the Cochran formula 175 people were selected as simple size and randomized cluster sampling use as statistical sample method. The results of correlation coefficient showed that there is a positive and significant relationship found between the viewpoint of respondents about participation in water management projects and economic, socio-cultural, managerial, official, educational and ecological components. Therefore, it can be stated that according to the content of each component, effective measures should be taken to strengthen each component and attract the participation of villagers in the implementation of watershed management projects. Also the amount of determination coefficient indicates that about 74.1 percent in the participation in the implementation of water management projects could determined by economic, socio-cultural, educational, managerial, official and ecological components.

Keywords: Component, Effective, Participation, Watershed Management, Mahabad

1. Introduction

According to many experts' viewpoints, the water crisis is one of the most important current challenges on the earth, especially in Iran. Given this fact that Iran is located in a dry and semi-arid region and rainfall is lower than the global average, the problem of water scarcity will become more acute. It is necessary to take the necessary actions to prevent problems in the future. The rate of atmospheric rainfall is 411 billion cubic meters per year. Of this, only 120 billion cubic meters are available as renewable sources of water, of which 90% is consumed in the agricultural sector. According to the Environmental Protection Agency in Iran about 80 percent of the second-grade watersheds are under water stress. Therefore should be prepared and implemented programs to control and reduce water consumption (Environmental Protection Agency, 2019).

Due to the lack of efficient and proper management system in the field of soil and water resources in the Iran agricultural sector, the process of destruction of soil and water resources has increased. In addition to these issues, the problems of the slope, the areas of loose and fragile stones, floods and the introduction of sediments in dams, reservoirs and irrigation networks, led the owners to seek solutions to prevent erosion and destruction of water and soil resources. This is the beginning of the formation of a new science under the name of Watershed. Watershed management refers to a set of mechanical, biological and management measures in

a watershed to improve the economic and social conditions of the residents of the area and with regard to the sustainable exploitation of their resources (Sadeghi et al., 2004).

Watershed management can prepare people with proper management of the living conditions (watershed) to preserve vital elements (water and soil) and at the same time, to make proper use of these resources in order to increase the production of agricultural products Comes with the help of human beings (Ghanbari and Ghodsi, 2008). Also, watershed management can be properly managed life conditions (Ghanbari and Ghodsi, 2008). The watershed can be attributed to the utilization of these resources (water and soil) in order to increase agricultural production, and watershed management is essential for sustainable livelihood of rural people for increase their income (Yganand and Gebremedhin, 2006), increase soil moisture levels (Shah, 2001), increased crop diversity (Renfro, 2004), erosion control (Kerr et al., 2002), employment for rural people (Reddy et al., 2004), increases the ground water levels (Wani et al., 2005), and reduce the migration of rural people to urban areas (Yganand and Gebremedhin, 2006).

Soil erosion involves the transfer of soil by factors such as water and wind, which leads to the loss of soil and water and nutrients in the soil. Soil erosion in Iran is about 16 tons per hectare per year. But in the world the average soil erosion is about 6 tons per hectare. This figure is very high relative to the world average. Iran is located in ranked first in the world in the terms of soil erosion. These subjects have been told by many environmental and natural resources officials. According to the Forests, Rangelands and Watershed Organization, the damage caused by the annual erosion of soil is more than $ 10 billion. The question is, why should Iran be the world's first soil erosion? (Environmental Protection Agency, 2019).

Watershed management plan were depending on the success of public participation in decision-making, implementation and maintenance of a project. Evaluation of projects shows that when people in different stages was participated, and conducted to the different needs of rural people, were succeed and continuity. People's participation in various projects such watershed management projects greatly has increases the successful projects rate (Mosaey, 2009).

Yganand and Gebremedhin (2006) in the same study showed that 60 percent of the watershed projects participants are convinced that stakeholder participation was essential to the success of watershed management project. Duram and Brown (1999) have reported the success of watershed management projects don't dependents to the government support or a particular structure, but that popular participation was very essential.

Regardless of the importance of watershed management, it is a question of what factors affect the participation of villagers in water management plans. The Capacity of Mahabad natural resources is 190,000 hectares, of which 50,000 hectares is a livestock ranch. Early grazing, plowing of pastures and unbalanced rangeland capacity with a population of 100,000 livestock in the villages of Mahabad city has led to a decrease in the number of rich and classy rangelands each year. This is despite the fact that the number of livestock in this city is more than 300 thousand heads and in fact multiplier capacity of the pastures and natural resources of the city, which has a great harm to the natural areas of the city of Mahabad, and that the stockbreeders should be aware of this situation (Pato, 2019).

Mahabad catchment Dam is the most important source for drinking water for citizens and agriculture sector. Increasing livestock farming activities in the Mahabad river watershed in West Azerbaijan province has caused ecological and environmental pollution problems. The amount of different fertilizers used in the Mahabad river (60,000 hectares) is about thousands tons of chemical fertilizers and agricultural pesticide consumption of over 45 tons. The agricultural waters contain soluble salts, pesticides residues and herbicides and chemical fertilizers, especially nitrates (Rasouliazar and Hesami (2014); Rasouliazar, 2019).

Mahabad Dam Lake is one of the important sources of drinking water supply for citizens and farmers due to soil erosion, rangeland degradation and unplanned plowing in the course of 40 years from 230 million cubic meters to 180 million cubic meters, so that about 50 million tons of sediment in the lake has lived. In addition to the severe erosion of the soil and the reduction of the useful life of the dam, this will be irreparable damage to the region's economy, especially the agricultural products of the Mahabad and the supply water to the people (Rasouliazar, 2019).

Considering the mountainous nature of this region, the waters caused by the ascents cause floods in these areas, as this year some parts of the villages of Abdullah-Korde, Achi-Dareh, Ozan-Dareh, Ile-Timur, Oznatosh, Ghale-Jogheh and Haji Mamyan in the watershed They suffered a lot. Pirebabi the head of the agricultural extension service center that located in the watershed catchment area, poses some of these problems to unnecessary use and degradation of pastures, misuse and early misuse of livestock and unskillful encounters with nature. Therefore, in recent years, several watershed management plans have been biologically (seedlings, forage, hulling, pasture

grazing, dipping and bunkering) and mechanical (construction of mortar, gabion, Ghein and Chapry) in the villages located in the area (Pirebabi, 2018).

In this regard, the unconventional harvest of medicinal plants in the region and other herbs and plant coverings that are used for sale and sale to local markets by rural peoples in the region has led to the delicate vegetation and most of the activities carried out by the Natural Resource organization in Mahabad will remain ineffective and the problem of erosion of water resources and soil in the region will be intensified every year than last year. Based on this, it is necessary to study the effective components on participation of villagers in implementation of watershed management projects in Mahabad Dam watershed.

Success in watershed management plans depends on the extent to which people participate in decision-making, implementation and conservation of the plan. Participation of people in various projects in general and watershed management in particular, greatly increases their success rate (Mosaey, 2009). Therefore, the type of management implemented by the executive authorities and the participation of local people will also have a significant role in the improvement and effectiveness of such management (Azizi-Khalkheili and Zamani, 2009).

Yganand and Gebremedhin (2006) in the study showed that 60 percent of the watershed projects participants are convinced that stake-holder participation was essential to the success of watershed management project.

Duram and Brown (1999) have reported the success of watershed management projects don't dependents to the government support or a particular structure, but that popular participation was very essential.

The results of Khaleghi and Ghasemi research (2004) indicated that knowledge and the effect of education, level of awareness, social structure, ownership and income level of livestock households have an impact on the future participation of livestock breeders in rangeland rehabilitation and improvement projects.

Sadeghi et al (2004) shows that practices have a positive effect in reducing the amount of water flowing. According rural point's watershed projects in the production of crops, migration of people, the vast barren lands, respectively, 63%, 55% and 37% has been effective. Also it is not significant the effects of watershed management projects on production, migration, and the extent of barren land in the study area.

Hematzadeh and Khaliqy (2006) showed that 87.70 percent of stakeholders don't participate in watershed projects. These issues caused to non-participate in watershed management projects include: Don't have any knowledge about project, lack of capital and lack of awareness of the benefits of the project.

Bagaey et al., (2006) also points to the reasons for non-participation in watershed management projects in the rural: The difficulty in obtaining loans, the content isn't consistent with the needs of rural projects, financial inability, lack of respect and lack of trained manpower and skilled experts.

The results of the research of Arayesh and Faraj-Allah Hosseini (2010) indicated that there is a relationship between political-legal, socio-cultural factors, Extension agent's capabilities, structure and planning of extension organization, economic, psychological variables and people participation in projects. The results of regression analysis showed that among the seven variables only socio-cultural factors has a role in the Participation of people.

Mahmoodzadeh and Sabouri (2014) in their research found that there is a positive and significant relationship between the willingness of farmers to participate in productive economic activity. These scholars have identified factors such as educational-social, social, and government's role in creating farmers' interest in setting up social organizations and practices.

Merghasemi (2014) states that attention that low awareness and unknowingness of local utilities, low income and marginalized people and greedy greed caused to distribution on natural resources in Iran. Therefore emphasizes on socio-cultural, environmental and good governance considerations can play a significant role in protecting these valuable and vital resources.

Hossenpour (1993) showed that the economic, social, cultural, education-advocacy, policy making and formulation of poorly designed (in terms of purpose, content, implementation, etc.) were affective components on rural people non-participation in watershed management plans.

Pourshriati et al (2011) in their research determined that one of the success factors in implementing rangeland and water management projects is to create an incentive for participation among residents of the watershed. Factors affecting the participation and lack of participation projects include: ambiguity of the objectives of the plan, regardless of the short and long-term benefits of the people, not considering their advisory opinions and the lack of adequate training and extension classes in the region. Also, the main reasons for their participation in projects: economic interest, occupation, positive attitude towards the plan, the degree of adaptation of the plans to the villagers'

needs and the motivation to obtain credit for the participants in the implementation of the projects.

Azkia and Firoozabadi (2004) Research has shown that trust among members of the community, the norms of mutual bargaining among members, and the trust, obedience and respect of local leaders have a positive impact on the production unit of the bit in terms of better understanding, good management of production, and increased participation rates. It has been manufacturing

Mirdamadi et al., (2010) findings showed that there is a positive and significant relationship between the participation rate of people in different stages of the project and creating social groups, increasing responsibility, increasing family income, increasing production, obtaining new credits, increasing the volume of extracted water, Conservation of natural resources and prevention of flood and soil erosion. Also, there is no significant relationship found between the participation rate in different stages of the Hublehrood project in Tehran province with the immigration from the village, increasing the facilities, creating social cohesion, access to new inputs, increasing the number of job opportunities.

Rasouliazar (2019) states increasing livestock farming activities in Mahabad River had caused ecological and ecological environmental pollution problems.

The results of the study Mutekanga et al. (2013) have shown that agricultural activities have caused erosion in the watersheds. Soil and water conservation management measures will not be possible without the participation of stakeholders and stakeholders. The experiences gained from the implementation of the program have shown that breakthroughs in plans and programs without community involvement are not possible.

Bagaey et al. (2006) also points to the reasons for non-participation in watershed management projects include: The difficulty in obtaining loans, the content isn't consistent with the needs of rural projects, financial inability, lack of respect and lack of trained manpower and skilled experts.

2. Materials and methods

The methodology used in this research involved a combination of descriptive and quantitative research and included the use of correlation and descriptive analysis as data processing methods. The target population of this study consisted of all householders who lived in Mahabad's dam catchment (N=2458) out of which, according to Cochran's formula 175 people were selected using cluster sampling in a simple randomization method (n=175). Cronbach's Alpha coefficient was 0.84 which demonstrated that the questionnaire was highly reliable. The questionnaire was an instrument to collect data. The instrument was divided to two sections. The first section focused on advantage and benefits of participation in Dam catchment in watershed management projects (15 items). The Second section focused on affective components on participation of respondents' in Dam catchment in watershed management projects (54 items). The third section was designed to gather data about of respondents' characteristics such as sex, age, educational level and etc. In both of two section five-point Likert-type scale was used to quantify responses which ranged: 1=very low, 2=low, 3=medium, 4=high, and 5=very high. The face validity was established by a panel of experts consisting of faculty members in natural resources and extension-education specialist in university and agricultural officers of Mahabad Township. The data were coded and analyzed by using the Statistical Package for the Social Science (SPSS 21) for windows. Descriptive statistics (frequencies, means, standard deviation, range, minimum, and maximum) were used to describe analyzed data. Also, person coefficient and multiple regression was employed to identify effective components on rural people's participation of Mahabad's dam catchment in watershed management projects.

3. Results and discussion

3.1 Demographic Characteristics

The average age of respondents was 36 years. Respondents' agricultural experience was 24 years. Also, finding showed that the average cultivated land by respondents was 7 hectare. In addition, the average of respondents' education was 5 years; also 31.4 percent of them were illiterate. Other findings showed in table 1.

3.2 Prioritizing respondents' viewpoints about the important advantages and benefits of the effects of the implementation of watershed projects

The results showed that the increase in occupational level in the catchment area and the reduce pastures degradation and also the prevention of flood were considered as the most important the impacts the important advantages and benefits of the effects of the implementation of watershed projects. Other findings showed in table 2.

3.3 Prioritizing the viewpoints of respondents about the effective components on the participation of villagers in implementing of watershed management projects

The results indicated that having economic incentives for the government as a result of the implementation of the plan (CV= 291) and the " Sharing income and benefits from watershed management" (CV= 0.317), Also "Improvement cultivates land due to the implementation of watershed management" (CV=0.320) were considered as the most important economic components that affecting the participation of the villagers in watershed management projects. Also the results showed that "the culture making among peoples for the conservation of water resources" (CV= 238) and the terms "religious beliefs about doing things through participation" (CV= 0.241), and "sense of empathy and responsibility for the maintenance of water resources among people" (CV=0.247) were identified as the most important socio-cultural components that affecting the participation of the villagers in the watersheds management projects.

The results showed that "planning of the organization for implementation of watersheds" (CV= 0.287) and applying and training the skilled workforce in the watersheds management projects (CV= 0.291) as well as the" evaluation of the implemented watersheds "(CV=0.340) were introduced as the most important management factors affecting the participation of the villagers in watershed management. Also the results indicated that "the use of mass media such as radio and TV and communication channels" (CV= 0.244) and the visiting villagers from the watershed activities "(CV= 0.250), as well as "Use of education and culture to implement water management plans" (CV=0.251) was introduced as the most important educational component affecting the participation of villagers in watershed management.

Also the results showed that "performed all officials affairs of the implementation of the watershed management in the city" (CV=0.255) and the no-discrimination clause in granting credits for implementation of watersheds (CV= 0.262), and "Monitoring and evaluating actions by relevant organizations" (CV=290) were introduced as the most important officials factors affecting the participation of the villagers in watershed management.

Also the results indicated that "Maintenance of water-dependent ecosystems and tourist, recreational and recreational areas" (CV=0.256) and the "Maintaining diversity and plant variety" (CV=261) as well as the "Topography ground" (CV=0.228) were identified as the most important ecological components affecting the participation of the villagers in the watersheds. Other findings show in Table 3.

Table 1. The Demographic Characteristics of Respondents

Variables	Level of variable	frequency	percent	Mean	Standard Division	Min.	Max.
Age (year)	28-40	52	29.7	45.82	8.22	28	66
	41-53	85	48.6				
	54-66	38	21.7				
Agricultural experience (year)	3-17	62	35.4	23.65	12.40	3	46
	18-32	65	37.1				
	33-66	48	27.4				
Land under cultivated (ha)	2-13	102	58.3	7.12	4.31	2	27
	14-25	63	36				
	26-36	10	5.7				
Education level	Illiterate	55	31.4	-	-	-	-
	Elementary	36	20.6				
	Guidance school	37	21.1				
	High school	30	17.1				
	Diploma	10	5.7				
	University degree	7	4				

Table 2. Prioritizing Respondents' Viewpoints about the Important Advantages and Benefits of the Implementation of Watershed Management Projects

	Mean	SD.	CV	Rank
Increases employment in the catchment are	3.78	0.926	0.247	1
Reduce pastures degradation	3.75	0.948	0.352	2
Prevents flooding	4.02	1.05	0.261	3
Increases drainage of springs	3.82	1.01	0.264	4
Gains a new experience	3.81	1.01	0.265	5
Reduces the migration of villagers	3.43	0.919	0.267	6
Significant reduction in water problems in rural areas	3.69	1.02	0.276	7
Reduces soil erosion	3.53	0.983	0.278	8
Reduces production costs in agriculture	3.69	1.03	0.279	9
Raises the village in different dimensions	3.50	0.999	0.285	10
It keeps soil and water resources	3.77	1.12	0.297	11
Raises land prices	3.57	1.07	0.299	12
Raises land prices	3.20	1.00	0.312	13
Creates social solidarity	3.28	1.05	0.320	14
It makes the village more prestigious than other villages	3.56	1.17	0.328	15

Table 3. Prioritizing Respondents' Views Points about Affective Components on the Participation of Rural People in the Implementation of Watershed Management Plans

		Mean	SD.	CV	Rank
Economic components	Having economic incentives form government as a result of the implementation of the plan	3.64	1.06	0.291	1
	Sharing income and benefits from watershed management	3.24	1.03	0.317	2
	Improvement cultivates land due to the implementation of watershed management	3.24	1.04	0.320	3
	Optimal use of water resources as a result of water management projects	3.56	1.16	0.325	4
	Improve the financial situation of the villagers	3.21	1.25	0.389	5
	Insurance of active households in watershed management	3.20	1.28	0.400	6
	Lack of land and resources in rural areas	3.08	1.24	0.402	7
	Access to government loans and credits	3.09	1.25	0.404	8
	Granting grants for participation in water management plans	3.05	1.34	0.439	9
	Private investment in implementation of watershed management	2.47	1.30	0.537	10
Socio-cultural components	Culture making among peoples to preserve water resources	4.08	0.973	0.238	1
	Religious beliefs about doing things through participation	3.74	0.902	0.241	2
	Sense of empathy and responsibility for the maintenance of water resources	3.73	0.923	0.247	3
	The interest in participating in the watershed between people	3.91	1.01	0.258	4
	Collaborative group for solving village problems	3.78	0.980	0.259	5
	Establish and strengthen watersheds cooperatives	3.50	0.915	0.261	6
	Attracting people's participation in the implementation water management plans	3.43	0.912	0.265	7
	Co-operation and solidarity among rural communities	3.65	0.993	0.272	8
	Maintaining local values and traditions	3.73	1.02	0.273	9
	Proving suitability and competence to others	3.65	1.03	0.283	10
	Improving relationships with other people in the village	3.63	1.06	0.292	11
	The existence of cooperative spirit among people	3.61	1.08	0.299	12
	Connect with people in the village	3.26	0.993	0.304	13
	Selected as a village farmer	3.66	1.13	0.308	14
	Importance and position of watersheds among people	3.45	1.11	0.321	15

		Mean	SD.	CV	Rank
	Existence of social communication among villagers	3.53	1.15	0.325	16
	Acquiring social credit for the region due to participation and implementation of the plan	3.54	1.16	0.327	17
	Acquiring social influence among the people of the village	3.49	1.17	0.335	18
Management components	Organization planning for implementation of water management plans	3.65	1.05	0.287	1
	Applying and training the full force of watershed activities	3.64	1.06	0.291	2
	Evaluation of Watershed Implementation Projects	3.44	1.17	0.340	3
	Attention of authorities to the development of watershed plans	3.68	1.29	0.350	4
	Identification of watershed management capacity in rural areas	3.44	1.27	0.369	5
	Participation of managers in the development plan of watershed management	3.25	1.23	0.378	6
Educational components	Use of mass media such as radio and television and communication channels	3.89	0.953	0.244	1
	Visiting villagers from the watershed activities	4	1	0.250	2
	Use of education and culture to implement water management plans	3.85	0.970	0.251	3
	Extension contacts with people through relevant organizations	3.74	0.951	0.254	4
	Distribution of educational films to increase the motivation of the villagers	3.71	0.952	0.256	5
	Providing advice on a variety of watershed designs	3.66	0.956	0.261	6
	Using watersheds experts to familiarize with the principles of water and soil management	3.69	0.992	0.268	7
	Conducting classes and training courses on the development of watersheds	3.86	1.07	0.276	8
	Performing visits to introduce watersheds and motivate villagers	3.44	0.956	0.277	9
	Presenting content and concepts to the villagers learning about importance of watershed	3.81	1.14	0.299	10
Officials components	Carrying out all administrative affairs of watershed implementation in the city	3.86	0.988	0.255	1
	Non-Discrimination in granting credits to implement watersheds	3.24	0.852	0.262	2
	Monitoring and evaluating actions by relevant organizations	3.58	1.04	0.290	3
	Bail assistance to obtain watershed management facility	3.45	1.01	0.292	4
	Reduce the length of the filing process to get the facility to implement the plan	3.48	1.13	0.324	5
Ecological components	Maintenance of water-dependent ecosystems and tourist and recreational areas	3.90	1	0.256	1
	Maintaining diversity and plant variety	3.72	0.973	0.261	2
	Topography ground	3.72	1.05	0.282	3
	Use of suitable cropping methods among farmers	3.67	1.08	0.294	4
	Observe crop rotation	3.57	1.16	0.324	5

Table 4. The Relationship Between variables

Variables	r	Sig.
Economic component	0.754**	0.000
Socio-cultural component	0.691**	0.000
Educational component	0.726**	0.000
Managerial component	0.528**	0.000
Officials component	0.780**	0.000
Ecological component	0.523**	0.000

p<0.01**

Table 5. Regression Equation Coefficients between Independent Variables and the Effects of Participation in the Implementation of Watershed Management Projects

Variables	B	Sd.	Beta	t	Sig.
Constant	8.30	1.62	-	5.12	0.000
Economic component (x_1)	0.573	0.259	0.596	2.21	0.001
Socio-cultural component (x_2)	0.256	0.118	0.383	2.16	0.001
Educational component (x_3)	0.561	0.183	0.438	3.06	0.000
Managerial component (x_4)	0.301	0.097	0.371	3.10	0.000
officials component (x_5)	0.624	0.249	0.672	2.50	0.001
Ecological component (x_6)	0.204	0.058	0.267	3.51	0.000
R=0.861	R^2=0.741	R^2_{Adj}=0.683	F=67.04		Sig=0.000

3.4 Analytical Findings

The results of Spearman correlation coefficient shows that there is a positive and significant relationship between the economic, socio-cultural, educational, officials, managerial and ecological components and respondents' viewpoints about the effects of participation in the implementation of water management projects. The findings are shown in Table 4.

By using multiple regressions the contribution of independent variables in the explanation of the dependent variable is simultaneously investigated and analyzed. In Table 5 R, R2 and R2adj are showed. Also the level of relation between research variables is relatively strong. The amount of determination coefficient indicates that about 74.1 percent of the dependent variable variation is determined by economic, socio-cultural, educational, managerial, officials, and ecological components (Table 5).

The results of the analysis of variance showed that the regression equation is significant and based on the results of table 5 we can write the regression equation based on the coefficients b and β as follows:

$$y = 8.30 + 0.573x_1 + 0.256x_2 + 0.561x_3 + 0.301x_4 + 0.624x_5 + 0.204x_6$$

$$y = 0.259x_1 + 0.118x_2 + 0.183x_3 + 0.097x_4 + 0.249x_5 + 0.058x_6$$

As we see in the above regression table, we find that among the independent variables introduced in the regression equation with respect to the t value and its significant level, we find that the economic, social, cultural, educational, managerial, officials and ecological components have direct impact on the dependent variable of research. Also, the coefficients (beta) shows that among the variables entered in the regression equation, the officilas and economic component are most important in the variation of the participation in the implementation of the watersheds projects in Mahabad.

4. Conclusion and recommendations

The results of this study showed that increase in occupational level in the catchment area and the reduce pastures degradation and also the prevention of flood were considered as the most important the impacts the important advantages and benefits of the effects of the implementation of watershed projects. Based on these results, it can be concluded that, fortunately, the villagers are well aware of the effects of the watershed management projects and have a positive attitude towards the implementation of watershed management plans. Therefore, it is necessary to explain the notifications, as well as to organize courses and training courses, and any other activities that would increase farmers' awareness of the implementation of watershed activities. Also, as much as a person has a positive and favorable attitude towards an issue, by providing other fields, his level of participation in activities increases.

The results also showed that having economic incentives for the government as a result of the implementation of the plan and the sharing income and benefits from watershed management and also improvement cultivates land due to the

implementation of watershed management were considered as the most important economic components that affecting the participation of the villagers in watershed management projects. Therefore, it is imperative that the government pay attention to providing villagers with incentives to implement watershed management plans and take effective measures in this regard. On the other hand, due to the nature of the public participation of the villagers in the watershed management, the implementation of these plans should be such as to have a general interest for the majority of the inhabitants of a region.

Also, the villagers are interested in seeing the results of the projects as soon as possible. Therefore, it is essential villagers see and achieve to benefits of the implementation of watershed projects in a short time. The results were investigated by Khaleghi and Ghasemi (2004), Hematzadeh and Khaliqy (2006), Amirnezhad and Rafiei (2009), Mahmoud Zadeh and Sabouri (2014), Mosaey (2009), Bagaey et al (2006), Duram and Brown (1999), Mutekanga et al. (2013).

The results showed that the culture making among peoples for the conservation of water resources and the religious beliefs about doing things through participation and sense of empathy and responsibility for the maintenance of water resources among people were identified as the most important socio-cultural components that affecting the participation of the villagers in the watersheds management projects. Social and cultural issues were always considered as one of the bases for developing rural activities. Because any project in rural areas is unwittingly affected by the common social and cultural context among rural people. On this basis, investing in cultural and social fields can have long-term and sustained impacts on rural development projects. Therefore, it is necessary with every facility and activity to institutionalize the important issues, since the importance of protecting the sources of production, such as water and soil among the rural people. On the other hand, considering the religious background that is taking place among the rural people, it is possible to point out the importance of protecting natural resources with standards in the Quran and the words of the elders. And these remarks can be an effective motivator to engage the rural people in implementing watershed management projects.

On the other hand, it is imperative that authorities increase the sense of responsibility and strengthen empathy among the villagers. Therefore, by attracting public participation can increase the sense of responsibility among villagers to protect and participate in the implementation of watershed management plans. The results were compared with the studies of Bagheri (2004); Azkia and Firoozabadi (2004); Khaleghi and Ghasemi (2004); Hematzadeh and Khaliqy (2006); Amirnezhad and Rafiei (2009); Mahmoodzadeh and Sabouri (2014); Pourshriati et al., (2011); Hossenpour (1993); Duram and Brown (1999) and Mutekanga et al. (2013).

The results showed that planning of the organization for implementation of watersheds and applying and training the skilled workforce in the watersheds management projects and the evaluation of the implemented watersheds were introduced as the most important management factors affecting the participation of the villagers in watershed management.

Point to management is of particular importance in the implementation of activities. The management position cannot be ignored in any project or activity. Important projects will be faced to failure by the lack of proper management.

In the context of water management projects, this component is also significant. Therefore, it is necessary to plan the implementation of watershed management plans accurately. And implementation of this program is requires the presence of a committed and skilled manpower that is involved in the implementation of the plan. The selection of human resources by project managers should be done in great care. And utilizing them to improve their skills and provide them with training. The place of evaluation in activities is undeniable. In watershed management projects, it is essential that valuation measures be carried out continuously and continuously before and after the implementation of the plans. In each stage, any deficiencies that cause the project to be removed from the project are identified and appropriate measures are taken to correct and rebuild it. The results are consistent with the researches of Amirnezhad and Rafiei (2004) and Hosseinpour (1993).

Also the results indicated that the use of mass media such as radio and TV and communication channels and the visiting villagers from the watershed activities and use of education and culture to implement water management plans was introduced as the most important educational component affecting the participation of villagers in watershed management. Education is the infrastructure of development. Without training and using it in any activity, each project will fail. Therefore, considering the importance of watershed projects in rural areas, it is necessary to introduce any type of action that will increase the level of knowledge and skills of villagers. In the meantime, the use of mass media such as radio and television, due to the wide coverage and attractiveness of the audience, can be useful

programs to strengthen and encourage the participation of villagers in the watersheds activities.

In the city of Mahabad, due to the TV Broadcast center can be in part of the programs distributed to the region, activities and programs of watershed management, the introduction of various types of watershed activities, and consequences and effects of projects has been shown to the rural people. Undoubtedly, considering the importance of water and soil resources in the last decade for the general public, the creation of such programs in the broadcast of the Mahabad Media Center will be welcomed by the audience. Due to the subcultures commonly used among them, villagers hesitate to do so in order not to observe the objectivity of an action and phenomenon. Therefore, it is essential to visit the villagers' participation in the implementation of the watershed plans to visit the areas where such similar projects were carried out and to see the results closely from the villagers. The results are compared with the study of Khaleghi and Ghasemi (2004), Amirnezhad and Rafiei (2009); Heydari et al. (2010); Arayesh and Faraj Allah Hosseini (2010); Merghasemi (2013); Mosaey (2009) and Hosseinpour (1993).

The results showed that performed all officials' affairs of the implementation of the watershed management in the city and the no-discrimination clause in granting credits for implementation of watersheds and "Monitoring and evaluating actions by relevant organizations were introduced as the most important official's components affecting the participation of rural people in watershed management projects. The bureaucracy always plays a major role in attracting popular contributions to public projects. Therefore, it is necessary to facilitate any form of removal of state and administrative bureaucracy in view of the nature of the development projects in the watershed management. The issue of financing credits plays a major role in the implementation of watershed management plans. This is more important when project implementation is done in partnership and even private. Therefore, it is necessary to provide the funding and provide it in proper and timely manner to rural people. Also it is necessary supervisory water management companies in the implementation of practices on the consumption of credit resources and individuals who take loans and credit resources. If companies and individuals feel that they are under the supervision to how spend on overseeing credit, they will surely work harder and more responsive to their plans and projects. The results are consistent with the researches of Amiri and Heydari et al., (2010); Arayesh and Faraj Allah Hosseini (2010); Pourshriati et al. (2011) and Hosseinpour (1993).

Also the results indicated that maintenance of water-dependent ecosystems and tourist, recreational and recreational areas and the maintaining diversity and plant variety and the topography ground were identified as the most important ecological components affecting the participation of the villagers in the watersheds. Any action taken to develop and implement watershed activities will be implemented in around the lives of villagers. Therefore, due to the importance of preserving habitats and the environment, research studies teams should conduct detailed surveys and studies in water management plans. By reviewing the major issues of the cost of opportunities for implementation projects and the impact on the climate change, provide a acceptable framework for the implementation and non-implementation of watershed management projects. Obviously, a plan that has gone unnoticed and has had bad results, in addition to environmental degradation, has reduced the level of motivation and participation of villagers in future projects. In implementing watershed management plans, it should be fully committed to maintaining the plurality and diversity of crops and agricultural products that exist in the ecosystem around rural settlements. And the slightest negligence and neglect will have many environmental consequences. The results are consistent with Sadeghi et al. (2004); Rasouliazar and Hesami (2014) and Bhaskar et al., (2014).

The results of pearson correlation coefficient shows that there is a positive and significant correlation between economic, socio-cultural, managerial, officials, educational and ecological components, and participation in implementation of water management projects. Therefore, it can be stated that according to the content of each component, effective measures should be taken to strengthen each component and attract the participation of villagers in the implementation of water management plans.

The results of multiple regression test showed that the level of relation between research variables is relatively strong. The amount of determination coefficient indicates that about 74.1 percent of the dependent variable variation is the participation in the implementation of watershed management plans by economic, socio-cultural, educational, managerial, officials and ecological components. For further investigation of the effects, other components of future research should be investigated.

Obviously, as much as more variables and components are identified, a larger percentage of the main variables, ie participation in the implementation of watershed plans, will be determined. Economic,

socio-cultural, educational, and managerial, officials and ecological components have a direct impact on the dependent variable in this research. Also, the beta coefficients show that among the variables entered in the regression equation, officials and economic components are most important in the dependent variable variations.

Therefore, it is necessary to pay more attention to the strengthening of the economic and financial component in encouraging the villagers to implement water management plans. In addition, reducing official's steps and facilitating watershed activities in government offices can be significantly improved.

Based on the findings of this research, the following suggestions are made regarding the level of participation of rural people in Mahabad Dam:

• Promoting villagers' awareness about the consequences of water and soil erosion in rural areas.

• Provide training on the concepts of watershed management and the training of watershed practices.

• Conduct villagers' visits to areas where water management plans have been implemented.

• Providing economic and supportive incentives for villagers to implement water management plans.

• The use of common social-cultural backgrounds among villagers to engage in water management projects.

• Using the Mahabad Broadcasting center to raise awareness and attract people's participation in watershed activities.

• Remove official's bureaucracy to facilitation the implementation watershed projects by rural people.

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