

INVESTIGATION ON THE MOTIVATION OF RURAL PEOPLE TO PARTICIPATE IN WATERSHED MANAGEMENT PROJECTS

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Abstract

The main purpose of this study was to investigate the motivation of rural people to participate in watershed management projects in Mahabad Township. A field survey based on a questionnaire was used as the main instrument in this research. The validity of questionnaire was confirmed by the panel of specialist group of academic member and natural resources experts. The population included in this study consisted of people who lived in Mahabad's dam catchment. By Cochran's formula 175 people were determined as sample size. The results showed that rural people has an economic and social motivation to participate in watershed management projects. Also the results show that the sharing of income and benefits from watershed management was the most important economic motivation priority and religious belief about doing things by participating for the most important social motivation priority. In this research also the finding shows that a large variety of information sources must be used about watershed design and educational programs related to watershed management from TV and talking to propagators or natural resource experts in the village about watershed design were the important resource to increase awareness of rural people about watershed management.

Key words: motivation, participation, watershed management, Mahabad

INTRODUCTION

Management of water supply and development has been formed as a dynamic and effective factor in policy making, planning and creating the necessary resources for utilizing water resources from a number of years ago [28]. Currently, nearly 94% of the water consumed by the country is devoted to agriculture. Low productivity of agricultural production has reduced water productivity in agricultural sector. While increasing the productivity of water use in agricultural lands plays an important role in food survival and security [13].

Accordingly, attention to increasing productivity and improving agricultural productivity has become inevitable. A sustainable agricultural system should meet the needs of the present generation without compromising the needs of the next generation [2].

Natural resources are the basis for life and sustainable development of the country and the backing of the agricultural sector. The role

of natural resources in the production and maintenance of soil, food supply, oxygen production, and air purity are quite clear. Regarding the concepts of sustainable development, natural resources are not our past heritage, but the lending of future generations. Which must be preserved, developed and exploited [21].The three problems have made water resource constraints one of the biggest problems in the country: such as annual rainfall shortages, rising evapotranspiration and unsustainable rain distribution. In recent years, water problems have caused irreparable damage on the natural resources and financial resources to farmers.

The Minister of Agriculture Jihad said: We need to manage more groundwater aquifers. We store water in the tables. Increase vegetation cover. Prevent evaporation of excess water. The most vital task is to feed groundwater aquifers. The best way to manage water resources is through methods such as aquaculture and flood spreading. In recent years, the excessive withdrawal of

groundwater has disturbed the balance of the tables, so that water consumption has always been more than water supply in the aquifers [15]. In Iran due to inappropriate exploitation and excessive water resources, there are serious challenges in providing agricultural water. This problem faces the agricultural sector with various challenges [10, 11]. The economic growth and development of the country, especially the agricultural sector, depends on renewable natural resources such as forests, pastures, water and land [1]. Iran has an area of more than 164 million hectares, of which 12.4 million hectares of forest land, 90 million hectares of pasture, 43.2 million hectares of desert and desert, and about 18.4 million hectares of arable land and gardens. It is worth noting that only 3.9 million hectares are classified among the rangelands of Iran's entire rangelands [28 ,11].

Watershed is concerned as one of the most important actions has primary role to the management of land, water and vegetation resources, optimal operation of resources and the protection of fundamental wealth [30]. Watershed management could be correctly managed our life situation [12]. The watershed can be recognized to the operation of water and soil resources to enhance agricultural production [33] and enhance soil moisture levels [31], control of soil erosion [18]. Watershed management can employments in rural area [29], increase and maintenance the groundwater levels [32], and decrease the migration of rural people [33].

Watershed management projects depending on the success of rural people participation in decision-making, implementation and maintenance of projects. When Rural People's has participated in projects like watershed management caused to increases the successful projects rate [23].

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 [28].

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 [25].

Yoganand and Gebremedhin in the study showed that 60 percent of the watershed projects participants are convinced that stakeholder participation was essential to the success of watershed management project [33].

Duram and Brown have reported the success in watershed management projects don't dependents to the government support or a particular structure, but that popular participation was very essential [8].

The results of Khaleghi and Ghasemi research 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 [19].

Sadeghi with his Colleagues shows that there is no significant relationship found between the effects of watershed management projects on production, migration, and the extent of barren land [30].

Hematzadeh and Khaliqy showed that lack of awareness and knowledge about watershed project, poverty and lack of same projects in Region caused to people Don't participation in watershed management projects [19].

Bagaey et al., 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 [7].

The results of the research of Arayesh and Faraj-Allah Hosseini 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 [5].

Mahmoodzadeh and Sabouri 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 [20].

Merghasemi 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 [21].

Hossenpour 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 [16].

Pourshriati et al., 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 [26].

Azkia and Firoozabadi Research has shown that trust among members, the norms of mutual bargaining among members, 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 [6].

Mirdamadi and salehi findings showed that Non-governmental organizations have a positive role in preserving and restoring natural resources.

Also increasing population growth, the need for alternative job opportunities, lack of development resources, and lack of effective developmental patterns caused to excessive pressure on renewable natural resources [22].

Rasouliazar states increasing livestock farming activities in Mahabad River had caused ecological and ecological environmental pollution problems [28].

The results of the study Mutekanga et al., 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 [24].

Bagaey and his Colleagues in their research shows that lack of investment, lack of loans, not appropriate extension workshops, lack of natural resource experts caused the important reasons rural people to non-participation in watershed management projects [7].

MATERIALS AND METHODS

This is an applied research. In terms of collecting data, this research is descriptive and survey type. The purpose of this research was to investigation the motivation of rural people to participation in watershed management projects. Library and field study method was used to collect data. The data gathering tool was a questionnaire. The validity of the questionnaire determined by panel of faculty members and natural resource experts. The statistical population of this research includes rural people who lived in Mahabad's dam catchment ($N=2458$). The Cochran's formula were used to determine the sample size ($n=175$). The cluster sampling method was used in this research. To determine the reliability of the questionnaire, Cronbach's alpha was used. The calculated Cronbach's alpha was 0.84 that indicating the research

tool was suitable. SPSS 21 software was used to analyze the data. Descriptive statistics and inferential or analytical statistics were used to analyze the findings and to achieve the research goals.

RESULTS AND DISCUSSIONS

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 % of them were illiterate.

Distribution of awareness about the necessity implementation of Watershed Management projects

The results of the research showed that 50.3% of the respondents had a high level of knowledge about the types of soil erosion and their causes in the village. Also, 28% of respondents are aware of the high level of flooding and surface runoff and its causes in the village, and 26.3% of respondents have stated that they have a high level of awareness about the reduction of table water underground and its causes.

Table 1. Frequency distribution of awareness about the necessity implementation of Watershed Management projects

	Non f	Non %	Very low		Low %		Average		High %		Very High %	
Knowledge about types of soil erosion and their causes in the village	6	3.4	23	13.1	18	10.3	40	22.9	75	42.9	13	7.4
Awareness of flooding and surface runoff and its causes in the village	-	-	17	9.7	15	8.6	94	53.7	31	17.7	18	10.3
Awareness of the reduction of groundwater aquifers and the causes of its emergence	9	5.1	8	4.6	32	18.3	80	45.7	28	16	18	10.3
Awareness of the destruction of forests and rangelands and the causes of their destruction	3	1.7	11	6.3	11	6.3	42	24	90	51.4	18	10.3
Awareness of the objectives and economic effects of Watershed management plans (increasing the level of cultivation, increasing income, etc.)	3	1.7	12	6.9	27	15.4	34	19.4	80	45.7	19	10.9
Awareness of social goals and effects (reduction of immigration, increasing social solidarity ...) Watershed management plans	3	1.7	14	8	39	22.3	28	16	78	44.6	13	7.4
Knowledge of technical and engineering methods of water management (using gangways, pools, slopes, terraces, etc.)	26	14.9	20	11.4	19	10.9	96	54.9	4	2.3	10	5.7
Knowledge of biological methods of watershed management (rangelands, seedlings, etc.)	26	14.9	8	4.6	28	16	94	53.7	9	5.1	10	5.7

Source: Research findings

Also, 61.7% of them have indicated that they are aware of the destruction of forests and pastures and the causes of their destruction, and 56.6% of them have high level of

objectives and economic effects of watershed management (increased area of cultivation, Increase in income and ...). On the other hand, 52 percent of the respondents have social

goals and impacts (reduced immigration, increased social solidarity, etc.). Watershed management plans have a high level of awareness. And 54.9% of the respondents are aware of the technical level and watershed engineering (use of gangways, pools, slopes, terraces, etc.) and 53.7% of them are in A relatively moderate level of awareness of technical and water management techniques (using gangways, ponds, slopes, terraces, etc.). Other results are shown in Table 1.

Frequency distribution of respondents' views on types of Information Resources on watershed management projects

The results showed that 55.4 percent of respondents observed the study programs related to watershed management of television as one of the major sources of information on watershed design. Also, 58.9% of respondents have heard of educational programs related to Watershed Management from Radio as another source of information about Watersheds. On the other hand, 61.1% of respondents in this study have used visits from other watersheds as one of their sources of information. As well as 56.5% of the respondents, they have seen the plans of villagers and other regions as the source of other knowledge and information.

Table 2. Frequency distribution of respondents' views on types of Information Resources on watershed management projects

	Very low f	Low %	Average f	High %	Very High f	Very High %
View the training programs related to the watershed management of the TV	14	8	12	6.9	52	29.7
Listen to training programs related to Watershed Management from Radio	12	6.9	14	8	46	26.3
A visit to watershed management plans in other areas	10	5.7	14	8	44	25.1
A visit to the watershed management plans by the villagers	5	2.9	12	6.9	59	33.7
Study of educational-extension publications on watershed management plans	6	3.4	22	12.6	56	32
Watch educational videos-Extensions related to Watershed Designs	10	5.7	10	5.7	49	28
Participate in educational excellence classes - Extension of Watershed Design	7	4	7	4	53	30.3
Talks with Marines and Watershed Experts at the Service Center on Watershed Design	5	2.9	12	6.9	45	25.7
Talk with local breeders and trustees about Watershed Design	8	4.6	14	8	52	29.7

Source: Research findings.

In this study, 52% of respondents identified the study and use of promotional publications as sources of their knowledge and information. While 60.6% of respondents identified the use of educational films as sources of other information, 61.6% of them identified the training as another source of information and information. Also, 64.5 percent of respondents have talked with promoters and watershed management experts at the service center about watershed management as another source of information and information.

Also, 64.5 percent of respondents have talked with promoters and watershed management experts at the service center about watershed

management as another source of information and information. It was also found that only 57.7% of respondents identified the conversation with local breeders and local trustees about the watershed design as another source of information. About 55.5% of respondents have also talked with other local operators as an important source of awareness of water management initiatives. Other results are shown in Table 2.

Prioritizing respondents' views on a variety of information sources about watershed management projects

The results showed that "conversation with propagators or natural resources experts about watershed management plans" (CV = 266)

and the "participation in the educational-extension training plans for watershed management" ($CV = 269$) Also, "Visit of Watershed Management Plans by Villagers" ($CV = 0.273$) was introduced as the most important sources of information about watersheds. On the other hand, respondents identified TV programs related to watershed management plans ($CV = 0.326$) as the least important source of information. Other results are shown in Table 3.

Table 3. Prioritizing respondents' views on a variety of information sources about watershed management projects

	Mean	SD.	CV	Rank
Talk with extension agents or natural resource experts about water management	3.79	1.01	0.266	1
Participate in educational excellence classes - Extension of Watershed Design	3.78	1.02	0.269	2
A visit to the watershed management plans by the villagers	3.69	1.01	0.273	3
Talk with other utilities about Watershed Design	3.60	0.987	0.274	4
Talk with local breeders and trustees about Watershed Design	3.66	1.08	0.295	5
Watch educational videos-Extensions related to Watershed Designs	3.75	1.13	0.301	6
A visit to watershed management plans in other areas	3.69	1.12	0.303	7
Study of educational-extension publications on watershed management plans	3.59	1.11	0.309	8
Listen to training programs related to Watershed Management from Radio	3.64	1.16	0.318	9
See training programs related to watershed management from the TV	3.25	1.07	0.329	10

Source: Research findings.

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

Table 4. Prioritizing respondents' viewpoints about the advantages and benefits of the implementation of watershed management projects

	Mean	SD.	CV	Rank
Increases employment in the catchment area	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
Creates social solidarity	3.20	1.00	0.312	13
It makes the village more prestigious than other villages	3.28	1.05	0.320	14
	3.56	1.17	0.328	15

Source: Research findings.

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 4.

Prioritizing the viewpoints of respondents about the economic components affecting the Motivation in the 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. On the other hand, respondents of the study "introduced the private sector investment in implementing water management plans ($CV = 0.537$) as the least important economic components affecting the participation of the villagers in the watersheds. Other results are shown in Table 5.

Table 5. Prioritizing the viewpoints of respondents about the economic components affecting the Motivation in the watershed management projects

Economic categories	Mean	SD.	CV	Rank
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

Source: Research findings

Prioritizing the viewpoints of respondents about the socio-cultural components

affecting the Motivation in the watershed management projects

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" ($CV= 0.241$) were identified as the most important socio-cultural components that affecting the participation of the villagers in the watersheds management projects.

Table 6. Prioritizing the viewpoints of respondents about the socio-cultural components affecting the Motivation in the watershed management projects

	Mean	SD.	CV	Rank
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
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

Source: Research findings

The "sense of empathy and responsibility for the maintenance of water resources among people" ($CV=0.247$) was also find to be a very important socio-cultural component which affects the villagers' participation in the watersheds management projects.

On the other hand, respondents of the statement "introduced social penetration among the people of the village ($CV = 0.353$) as the least important elements of the socio-cultural components affecting the participation of the villagers in the watersheds." Other results in Table 6 it has been shown.

CONCLUSIONS

The results indicated that "the government's economic incentives as a result of the implementation of the watershed management" and the "sharing of the income and benefits of the watershed management plans" as well as the "improvement of the land crops in the area through the implementation of the project" Watershed design "was introduced as the most important economic factor affecting the participation of the villagers in watersheds. On the other hand, respondents of the study "introduced the private sector investment in implementing water management plans as the least important economic factors affecting the participation of the villagers in the watersheds.

The economic component has always had a significant impact on villagers in rural development projects and projects. Regarding the issue of participation in watershed management, the issue of attention and strengthening of economic components can play a major role in promoting the level of participation of villagers in watershed activities. Therefore, it is imperative that the government pay attention to providing villagers with incentives to implement water 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 the plans should be such as to have a general interest for the majority of the inhabitants of a region.

This will spontaneously promote the level of participation of villagers in implementing projects and protecting implemented projects. Also, the villagers are interested in seeing the results of the projects as soon as possible. Therefore, it is essential that the implementation of water drainage projects and projects is such that the villagers achieve the objectivity of the plans in a shorter time frame. The results were investigated by [13,3,19,14,4,20,23,7,8,24].

The results showed that the category "Culture-building among peoples and farmers for the conservation of water resources" and the terms "religious beliefs on doing business

through participation" as well as the "sense of empathy and accountability for the conservation of water resources" as the most important item. The economic components affecting the participation of the villagers in the watershed were introduced in the watersheds. On the other hand, respondents called "social inclusion among the people of the village as the least important elements of the economic components affecting the participation of the villagers in the watersheds in the watersheds.

Social and cultural issues are always considered as one of the bases for developing rural activities. Because any project that runs in villages 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, and in particular on watershed management. Therefore, it is essential to protect the production of resources such as water and soil among the villagers with every facility and activity to institutionalize important issues. On the other hand, considering the religious and 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 hadiths, verses of the Quran and the words of the elders. And these words could be an effective motivator to engage the villagers in the implementation of water management plans.

On the other hand, it is imperative that authorities increase the sense of responsibility and strengthen empathy among the villagers. These measures are more important in the context of water management plans, because most of the water management plans are indispensable for their public nature and require villagers to take responsibility for their maintenance and conservation. Therefore, by attracting public participation, one can increase the sense of responsibility among villagers to protect and participate in the implementation of water management plans. The results were compared with the studies of [6,19,14,4,20,26,17,16,24,27,9].

Based on the findings of this research, the following avenues for improving the level of participation of villagers in Mahabad Dam basin in Mahabad city are presented:

- 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.
- Holding classes and training courses by experienced and experienced experts for the watershed villagers.
- 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.
- Proper management of watershed management by organizations and trustees, as well as monitoring activities and activities carried out in the region.
- Using the Mahabad Sound and Measurement Capacity to raise awareness and attract people's participation in watershed activities.
- Teaching children and adolescents in village-level schools to foster the sense and responsibility of protecting and preserving natural resources.
- Remove administrative bureaucracy and carry out all steps in the city.

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