INVESTIGATION ON EFFECTIVE FACTORS OF PARTICIPATION OF PEOPLE IN MANAGEMENT OF IRRIGATION NETWORKS

ENQUÊTE SUR LES FACTEURS EN VIGUEUR DE LA PARTICIPATION DU PEUPLE DANS LA GESTION DES RESEAUX D'IRRIGATION

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ABSTRACT

Today, planners are looking for creating a spirit of cooperation and collaboration between the villagers so that their involvement in the management of the resources and infrastructure created by the government would reduce the government's financial and management burden. Sork area is located in the province of Chahar Mahal and Bakhtiari. In this area, dam and its network of irrigation is one of the projects that provide agricultural water for the villagers. The government tends to bring management, protection and maintenance of these networks to the villagers and this work will be done through the formation of cooperatives in each region. Therefore, this study was done to identify the factors, which are effective in ensuring peoples' participation.

The Dezak village was chosen for this study as this is one of the villages that will be benefitted by the dam. Questions were asked from 80 individuals that live in this village. Results indicate that due to low awareness, lack of trust and empathy between people, this village may not form effective cooperatives.

Key words: *cooperative water user, Dezak village, networks of irrigation.*

RESUME

Aujourd'hui, les planificateurs sont à la recherche de créer un esprit de coopération et de collaboration entre les villageois afin que leur implication dans la gestion des ressources et l'infrastructure créées par le gouvernement réduirait la charge financier et de gestion. La zone

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de Sork est située dans la province de Chahar Mahal et Bakhtiari. Dans cette zone, le barrage et son réseau d'irrigation fournit l'eau agricole aux villageois. Le gouvernement essaie de donner le contrôle de la gestion, de la protection et de la maintenance de ces réseaux aux villageois, et ce travail sera effectué par la création des coopératives dans chaque région. Par conséquent, cette étude a été menée pour identifier les facteurs efficaces pour assurer la participation du peuple.

Le village de Dezal a été retenu pour cette étude, car il s'agit d'un village qui sera bénéficié du barrage. Les questions ont été posées à 80 individus qui vivent dans ce village. Les résultats indiquent qu'en raison de la faible sensibilisation, du manque de confiance et de l'empathie des gens, ce village ne sera pas en mesure de former les coopératives efficaces.

Mots clés : *Usagers de l'eau coopérative, village de Dezak, réseaux d'irrigation.*

1. INTRODUCTION

Iran is located in one of the most arid areas in the world and always faces water scarcity problems, heavily inconveniencing agriculture development. Since agricultural activities are the important part of water usage, planners keep looking for new ways to deal with this problem. The main strategies to overcome this problem are protection, save, and proper division of water sources. Therefore, recently attentions have been drawn to manage the surface water. Unfortunately, a huge amount of available water is wasted due to incomplete development of irrigation networks and lack of management in conservation and irrigation networks operation. International experiences indicate that the participatory management of irrigation networks and also transferring irrigation networks ownership to villagers could be effective steps in solving this problem. Several studies indicate that paying attention to organizations of water users is the fastest way to achieve the participatory management. These organizations have important role in the proper utilization of water resources and reducing waste of water.

Transfer policy and villagers participation in the management, utilization and maintenance of irrigation networks has been considered from the end of 1980s, mainly because of government's inability to collect the water charges for use in maintenance of the irrigation networks. Witnessing the success of water cooperatives in over 20 countries such as Mexico, Colombia, America, Philippines, New Zealand, Indonesia, China, India, Turkey, Sri Lanka, and Nepal, this has now been included in the policy of the Government of Iran.

Peoples' cooperation in construction, maintenance, and operation of water projects have a long past history in Iran. After land reform in 1961, new elements entered in social and economic life of villages; the most important ones were the government and public institution interference. From this point onwards, traditional patterns of participation in villages have been diminishing gradually; because rural development programs were not coordinated with traditional working patterns of the villagers. By putting water users away from management, new problems appeared for government. For example the government incurred heavy charges on investment, upkeep and utilization of project. Since the revenue collection by the government was poor, it started looking forward to transfer networks to people and as a consequence, reduce the burden of the government. Legal basis was framed to constitute farmers' associations. Since then, the management of some irrigation networks in different

states has been under the water users' associations, some of which were successful and others were not. Studies show that a variety of reasons behind success or failure of the associations in network management. For example one important reason is insufficient scientific studies on the networks and confusing land records to identify which villages qualify to form one association. Hence, in order to have a successful network transfer and more villagers' participation in the construction and maintenance of networks a series of essential studies should be done in surveying the area.

Shahrekord organization of regional water is constructing dam and irrigation networks for dealing with water shortage problem in eastern Kiar where there is a great interest in the network management transfer to farmers. But as mentioned above, before the transfer, it should be surveyed enough from the outlook of user participation. This study has followed up with survey of factors affecting participation in rural irrigation associations. The purpose of this research is to identify main factors needed to provide background for a greater users' participation.

2. METHODS

The study area is eastern Kiar comprising Charmahal and Bakhtiari provinces. Apparently, because of high population all of the villages cannot be contacted for interview. However, a high populated Dezak village was choosen. Then a questionnaire containing 50 questions was designed. After considering validity and reliability of the questionnaire, it was distributed among 10 percent of people in the village. Afterwards, data was extracted from questionnaires and were analyzed using SPSS software.

3. RESULTS AND DISCUSSION

According to Table 1, among all questioned people, the inclination to participation of 9 persons were very high, 25 persons high, 6 persons average, 2 persons low, and 1 person very low. Overlay, people had high participation interest. This indicates that the farmers have full knowledge of the issues involved and have high inclination to participate.

Table 1- rate of participation

Factors	Abundance	Per cent
very high participation	9	20.9
high participation	25	58.1
average participation	6	14.0
low Participation	2	4.7
Very low participation	1	2.3

Effective factors in rate of participation

In order to identify effective factors in the rate of participation in the studied area, linear regression was used and coefficients of each factor were calculated. The results showed that

among all effective parameters, the relatively more significant were: literacy rate, membership rate of the rural grassroots organizations, motivation, and satisfaction of government activities (satisfaction implies trust on government activities). Therefore, empathy and trust between villagers in addition to these factors could explain 70% of the variation in participation rate.

$$y = 9.9 - 0.196x1 + 0.017x2 - 0.102x3 + 0.276x4 + 8.20x5 + 0.216x6 + 0.029x7 + 0.615x8$$

Table 2. Effective factors in the participation rate

Factors	coefficient	T	significant
Constant factor	9.9	6.486	.000**
Age	-.196	-1.720	.083*
Literacy	.017	.110	.10*
Land size	-.102	-.816	.424
Rate of membership in Non-governmental organizations (NGO	.276	2.107	.048*
Motivation	.820	4.014	.001**
Satisfaction of governmental activities	.216	1.894	.073*
Empathy	.029	-.269	.095*
Trust to each other	.615	5.610	.000**

** Significant at 1%; * Significant at 5%

- **Age:** there is a negative relationship between age and participation. The participation rate decreases when age increases. It makes sense because older people are risk averse then it is harder to make agreement with them.
- **Literacy:** obviously, education level has a significant positive relationship with the participation rate. This subject indicates that the participation rate will increase among villagers with higher education level.
- **Land size:** size of irrigated land is not an effective factor. According to Table 1 although the villagers are aware of this fact that more vast land gathers more water, all villagers are willing to take part in.
- **Rate of membership in Non-governmental organizations (NGO):** being a member of NGOs in the village is an effective factor in participation rate. Definitely, this item lifts the spirit of collaboration and cooperation.
- **Motivation:** motivation factor is also one of the most effective factors. Villagers need water of dam because other water sources were lost. Therefore, this problem can be very effective in participation. On the other hand, who invite them to participate is important in the motivation factor.
- **Satisfaction of governmental activities:** if people are not satisfied with governmental activities and plans, they will not take part in project that is performed from government side. Hence, optimistic view to governmental activities is another factor that influences on the participation rate.

- **Empathy:** if people are not unanimous, their participation will reduce because they cannot work together. In other words, participation requires empathy of all participants in networks creation.
- **Trust to each other:** if people trust one another, participation rate will be more in the project. But if people do not trust each other they cannot form groups. Even they form a group, it cannot work properly because the members are always worry about being abused by other members.

Reducing factors in participation rate

Several factors can cause lack of participation of villagers. According to Table 3 among these factors, from villager's point of view, the most important factors that cause to reduce the participation rate are lack of correct information, local differences, and unawareness of networks operation. Moreover, pessimistic view to governmental activities is another inhibiting factor that will reduce the participation rate.

Table 3 - Reducing factors in participation rate

Factors	Abundance	Percent
Bad dealing by government agents	6	14.0
Lack of correct information	13	30.2
Unawareness of networks utilization	9	20.9
Absence of farmers	4	9.3
Local differences	11	25.6

4. CONCLUSIONS

- **Age:** there is a negative relationship between age and participation. The participation rate decreases when age increases. It makes sense because older people are risk averse then it is harder to make agreement with them.
- **Literacy:** obviously, education level has a significant positive relationship with the participation rate. This subject indicates that the participation rate will increase among villagers with higher education level.
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