ESTABLISHMENT OF WATER USER ASSOCIATIONS: CASE STUDY IN TILAKAN DAM IN FARS PROVINCE, IRAN

CREATION DES ASSOCIATIONS D'USAGERS D'EAU: ETUDE DE CAS DU BARRAGE TILAKAN DANS LA PROVINCE DE FARS, IRAN

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ABSTRACT

The people and government in the countries facing water scarcity require optimum allocation and utilization of the limited water resources for food production. Iran is one of the countries facing the multiple challenges such as rapid population growth, limitation in freshwater availability and over-exploitation of ground water. The agricultural sector is the most important consumer of water in Iran. So, finding approaches to reduce water consumption and increase water use efficiency in agricultural sector is very important.

The main objective of this study is to evaluate the traditional associations and establishment of Water Users Associations (WUAs) in irrigation and drainage network in Tilakan district, for better management of water and land in Fars Province.

The traditional arrangements for agricultural water management have worked as informal community organizations in villages. In Iran, Some old-fashioned cooperatives have been named Boneh or Haraseh and Sahra. Boneh (or Haraseh) is a multi-family group. Boneh was very successful in efficient management of scarce production resources, such as water and land in peasant society. Although traditional systems make the socio-economic position of the peasants strong, they have disadvantages. Usually they lead to unequal and unfair water sharing arrangements which causes of conflict among farmers. Thus the government encourages promotion and creation of Water Users Associations to devolve irrigation system management responsibility and authority at the local level.

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RESUME

Le peuple et le gouvernement des pays affrontés par la pénurie d'eau exigent l'allocation et l'utilisation optimale des ressources en eau limitées pour la production alimentaire. L'Iran est l'un des pays qui relèvent des défis multiples tels que la croissance démographique rapide, la disponibilité limitée d'eau douce et la surexploitation des eaux souterraines. Le secteur agricole est le principal consommateur de l'eau en Iran. Donc, il est important de rechercher les moyens pour réduire la consommation d'eau et augmenter l'efficience d'utilisation de l'eau dans le secteur agricole.

Cette étude vise à évaluer les associations traditionnelles et la création des associations d'usagers d'eau (AUE) dans le réseau d'irrigation et de drainage de Tilakan pour une meilleure gestion de l'eau et de la terre dans la province de Fars.

Les dispositions traditionnelles de la gestion des eaux agricoles ont travaillé comme les organisations communautaires informelles des villages. En Iran, certaines anciennes coopératives ont été appelées Boneh ou Haraseh et Sahra. Boneh (ou Haraseh) est un groupe des familles. Boneh a connu du succès dans la gestion efficiente des ressources de production limitée telles que l'eau et la terre. Bien que les systèmes traditionnels aident beaucoup la situation socio-économique des paysans, ils aient des inconvénients. Normalement, il donne lieu à un partage inégal des eaux qui cause à son tour des conflits parmi les agriculteurs. Donc, le gouvernement encourage la promotion et la création des associations d'usagers d'eau pour transférer la responsabilité de la gestion du système d'irrigation et l'autorité au niveau local.

Mots clés: *Association traditionnelle, Association des usagers d'eau, réseau d'irrigation et de drainage, gestion d'eau.*

1. INTRODUCTION

Scarcity of water resources and increasing water pollution, along with the rapid increase in demand for water, has created a wide range of water crises around the world (Castelletti & Soncini, 2005). Statistics show that the agricultural sector is the highest water consumer in all countries.

With population growth, water consumption increases in the agricultural sector. Developing and established industries also require water and so does the growing population. This creates competition and conflict for water resources allocation. Therefore, managing and developing water resources to achieve sustainable agriculture in areas facing water shortages are essential.

Iran is one of the countries, which has been facing all of the above problems. In the background of limited fresh surface water availability, groundwater is getting over-exploited.

These challenges will be more complicated with emerging competition for water consumption among agriculture and non-agricultural sectors.

The agricultural sector is the most important consumer of water in Iran. Water consumption and irrigation efficiency in agricultural sector are 90 % and 40 %, respectively. So, finding approaches to reduce water consumption and increase water use efficiency in agricultural sector is necessary.

One of the ways of optimal use of water resources in agriculture is farmers' participation in the construction, maintenance and operation of irrigation and drainage networks. Farmer's participation in management of irrigation networks, in addition to reducing government spending for these works, causes increased sense of ownership of the assets among the farmers and their willingness to manage and maintain the assets.

Results from studies indicate that the development of water users' associations (WUAs) is effective and important step in sustainability of water resources and increasing water use efficiency in agricultural productions (Tanaka & Sato, 2003).

Studies in India confirm that members of WUAs are very satisfied respect to performance of these units. The farmers are willing to cooperate and invest for increasing water use efficiency (Vermillion, 1997).

Iran has a rich history of consumer participation in utilization of agricultural water resources from the ancient times. Containment and use of surface and underground water sources were prevalent and from beginning the common system of water supply with precision and elegance. The philosophy behind this was to strike a balance between demand and supply of water.

In the past in Iran, water consumers were organized in associations such as "boneh", "Haraseh", "Kateh", "Khish", and so on. This organization in addition to water management, could also lead the other activities such as planting, weeding, irrigation and harvesting working together as a group. These traditional organizations operated efficiently in managing scarce resources such as land and water in rural communities.

On the other hand, in the past decade, the Iranian government has begun various policies to improve land productivity and water resources. One of these policies has been transfer the leadership management to farmers in the form of water users associations.

So in the fourth development plan, establishing systems of agricultural water utilization and accelerate the creation of water users association were as one of the important tasks of government organization. Increasing water productivity, reduce costs and prevent land degradation and waste of resources are among the main aims of institutionalizing these organizations.

Tanaka and Sato (2005) studied management of irrigated land areas in Japan and concluded that the use of traditional customs can play an important role in successful transfer management.

Rusmialdi (1998) in their study in Indonesia showed the role of local leaders is very high in rural participation in the formation of interest groups of water users.

Studies in Asia, Africa and Latin America suggest that attention to social and economic characteristics of farmers and local leaders and communication with them in many cases, has facilitated the formation the cooperatives of water users Narayan (1995).

Ahmadvand et al (1388[6]) studied the formation of water user's cooperatives in Kavar district in Fars province in Iran. They concluded that the social context, including social capital, willingness to participate and participation background of farmers are favorable factors in forming the water user's cooperatives.

The main objective of this study is to evaluate the role of traditional associations in establishment of Water Users Associations (WUAs) in irrigation and drainage network in Tilakan district, in Fars Province.

2. MATERIALS AND METHODS

For people involved in development programs, exist the several participatory approaches. One of their most famous is participatory rural assessment (PRA), so development firms, have paid special attention to it.

This approach, consists of a set of tools and techniques that their basic goal is to empower people in expression and analysis of real life situations, designed and developed the desired measures and evaluation results of programs.

Any planning or decision making about rural community should occur with enough knowledge of it. Without recognizing the present situation of needs and desires of a community one cannot take correct decision about the changes in the future. Information is the first thing needed for this process.

Data can be gathered from different sources such as documents, observations, interviews and census. These methods in a rural study can be combined and used together. In this study data were collected by using PRA method in villages in the study area.

3. PROFILE OF THE STUDY AREA

The study area (Tilakan district) is located in Korbal Lowland. The area of this lowland is 58,000 hectares. Korbal is located within 70 km of Shiraz to the northeast.

The population and number of household of Tilakan district was 10,287 and 2537, respectively, in 2009. Average annual precipitation is about 200 mm. The study area comprises 20 villages and farms.

The only source of irrigation water in Korbal lowland is Kor River. Currently water of this river

6 All years starting with 13 are according to Iran calendar. To get the corresponding year according to English calendar, add 621 to the Iran calendar year.

is distributed in the lowland by Amir, Faizabad, Tilakan and Mavan dams, and traditional channel that transfer water from river to agricultural land. The irrigation water need of the Korbal low lands comes from the reservoir of the Tilakan dam. The area is 11,151 ha with 7038 ha of agricultural land at the left side and 4013 ha at the right side. The remaining small area is occupied by the river and rocky hills.

A total of 22 traditional creek branch from upstream of Tilakan dam; 9 in the right side, and 13 in the left side. Total length of these channels in the right side is 70 km, and in the left side 135 km. Due to dusty and high growth of grass and bamboo in canal, transferring water from the canal is very difficult and has very high water loss. To get rid of this problem, farmers join together to dredge channels at least annually or once in two years. Due to problems related to traditional channels as well as droughts in the past decade in the region, irrigation and drainage network project of Tilakan is on the agenda for Water organization in order to use of water resources efficiently for proper agricultural development.

4. TRADITIONAL ORGANIZATIONS IN TILAKAN DISTRICT

Cooperative systems have relatively wide and deep roots in traditional agriculture in Iran. Traditional forms under the titles; Boneh, Sahra, Haraseh, etc are widespread in various regions in Iran.

According to field data, in the past, traditional farming association in the villages was Haraseh. According to opinion of local leaders, these traditional organizations were established about 8 to 15 years ago and most of these organizations exist.

In the Working system in Haraseh, farmers have the right to use water. They divide in a few groups and share agricultural activities. Border of agricultural lands is not identified. Anyone worked as a group of people in designated parts of the farming activities segment. In each group someone who has more experience and expertise in agricultural matters, had been chosen as leader of Haraseh. The task of this person was supervision and management on task of groups. The Haraseh leader advises in various stages of planting, harvesting, management and coordination of matters such as division of labor and irrigation water. Now all the old laws of Haraseh, such as the selection of leader are performed, with the difference that border of agricultural land is now clearly defined.

The Traditional System of Water Resources Exploitation Within the Study Area

In the wet period, water resource is not limited. But during drought period first the water delivered to leader of Haraseh by the Mirab, who is the representative of the irrigation organization, in the next step, water divided among the farms those are the member of joint group. Water is divided between farms by time criteria. Based on the specified hours of water delivery, irrigation time is identified by agreement between the joint groups.

At present farmers with the aim of setting management and water sharing in joint groups are working traditionally. Each village has several farms and each farm is divided into joint groups.

Farmers elect capable and experienced persons from among their group as representative of farm. Representatives are connector between local farmers and water organization. The tasks of representatives are 1) Contract with water organization for delivery of water, 2) collect water price from farmers and pay it to water organization 3) coordinate the dredging traditional creeks and 4) solve the problems and disputes occurring in the distribution of water.

Although traditional systems make the socioeconomic position of the peasants strong, they have disadvantages. Usually the traditional water sharing system leads to unequal and unfair water sharing arrangements which causes of conflict among farmers, because the system does not support the actual water requirement by the different villages. The government, thus, encourages the promotion and creation of Water Users Associations to devolve irrigation system management responsibility and authority at the local level, whereby the traditional local authorities would be able to coordinate water management within their community and be part of the WUA at the (sub) system level.

To the official operational formation of water users associations, after months of continuous activity and presence in the region and group interaction and face to face with local farmers, local authorities, village elders and influential parties, as well as gather information and statistics and several exploratory meetings, decisions ultimately based, water users association action plan developed and implemented the following were:

1. Make mental preparation and transmission of basic concepts and help to build the general culture.
2. Compiling and preparing and distributing brochures for Introduce water users cooperative.
3. Session for poll from farmers about water users association.
4. Elected founding board members as representatives to track establishing water users association, as well as representing the people to participate in decision-making meetings, resolution dispute people, working with experts and consulting engineers for the liberation of path, determine the appropriate path channel, field Survey to review the channel path.

In this processes, we used experience of traditional system and the representatives of farm that acceptance among farmers, had the greatest role in forming the initial core of new association

The history of peasant's participation in Boneh and Haraseh in Tilakan district made these traditional institutions very successful in WUAs establishment, since this participation is an influencing cultural factor in different development programs. In fact the historical root existed in villager's life and good feeling obtained from this participation result in this moral. So, in this situation, participation leads to logical and good. Responsibility to new organizations needs to empower components association in order to get ready in various fields. According to the common meetings and consultations with joint group of farmers and for capacity building in order to transfer the management to water users associations need to be implemented the following:

1. Planning for the visit of representatives of organizations from successfully manage an irrigation system by water consumers.
2. To convince farmers about the importance and necessity of establishment of new organizations and its impact on the study, implementation and maintenance plans of irrigation network.

3. Conducting special education classes for representatives of organizations about organizational and administrative issues, financial and management issues related to operation and maintenance of network applications such as determining irrigation water distribution among the consumers and legal issues in irrigation management.
4. Determination of appropriate methods and schedules for transfer of network management tasks to organizations, monitoring water users and signing agreements.

5. CONCLUSIONS

Based on the results, any traditional public organization leading to increased collaboration of farmers will facilitate creation of new entities. To achieve this condition the first step is that the features of association be known and its strengths and weaknesses are analyzed.

Using of representatives or leaders of traditional organizations increases the rate of success of this process, as occurred in the new organizations in the Tilakan region.

REFERENCES

Ahmadvand, M., E. Zare, and M. Bidmeshky. 2009. Formation of water user's cooperatives in Kavar district in Fars province: a survey. First conference on new approaches of people's participation in operation and maintenance of irrigation and drainage networks. Fars Regional Water Authority, Shiraz.

Castelletti, A. and S. R. Soncini. 2005. A procedural approach to strengthening integration and participation in water resource planning. *Environmental Modeling & Software*, 21(10), 1455-1470.

Narayan, D. 1995. The contribution of people's participation: evidence from 21 rural water supply projects. International Bank for Reconstruction and Development, Washington DC.

Rusmialdi, S. 1998. Factor related to the rate of participating of the village leader in guiding the water use farmer group in Central Lampung University, Indonesia: Lampung University.

Tanaka, Y. and Y. Sato. 2003. An institutional case study of Japanese Water Users Association: toward successful participatory irrigation management. *Paddy Water Environ, 1, pp. 85-90.*

Tanaka, Y. and Y. Sato. 2005. Farmers managed irrigation districts in Japan: Assessing how fairness may contribute to sustainability. *Agricultural Water. 77, pp. 196-209.*

Vermillion, D. L. 1997. Management devolution and the sustainability of irrigation: results of comprehensive versus partial strategies. Presented at the FAO/World Bank Technical Consultation on Decentralization and Rural Development, Rome.