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PARTICIPATORY IRRIGATION MANAGEMENT ACTIVITIES IN TURKEY

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SUMMARY - According to decrees of law number 6200, General Director of State Hydraulic Works (DSI) carries on the operation, maintenance and management responsibilities of irrigation schemes that constructed and developed by DSI or transfers to various institutions and organizations according to 2nd article (k) paragraph. As the irrigated lands expand, DSI has wanted farmers' participation and local management for the responsibilities of operation, maintenance and management of schemes, moreover, has also design to cut expenses by forming an autocontrol mechanism. DSI has carried on transferring activities starting from its foundation date for these above seasons, DSI has accelerated transferring activities after 1993. DSI transferring activities are performed based on the demands of beneficiaries of DSI schemes and willingness principle. This principle needs to be realized in two points of view. First: willingness to undertake the responsibilities of operation, maintenance and management of irrigation schemes. Second: willingness to choose the form of organization (cooperative or association). DSI, on this point, is interested only the legal structure of the legal personality holding organization which demands to undertake the responsibility and representative capacity of this organization for the irrigator in the command area of the scheme. The course of the activities after this reached positive point in transferred area amount has been evolving to "Sustainability of participatory Irrigation Management".

Key words: Participatory Irrigation Management; irrigation management transfer; Turkey.

INTRODUCTION

It is necessary to evaluate the applications carried out until today toward the development and preservation of water and soil resources, which are the main items on economical development of Turkey, and also to determine the new approaches and policies to meet the current needs. Mostly urgent and solution required problems in agricultural sector have to be evaluated within the frame of renewed strategies and applied economic policies. Effective resource utilization should be evaluated via a healthy and stronger approach reducing the foreign dependency and various approaches should be brought out in this issue. DSI (State Hydraulic Works), working in conjunction with GDRA (General Directorate of Rural Affairs), is one of the two main state bodies working toward soil and water resource development and management. DSI is in charge with the development of soil and water resources and putting these resources into the use and benefit of the public for various purposes. In this scope, DSI constructs irrigation, flood control, energy, and drinking and utility water facilities as defined in its establishment laws and also executes operation and maintenance services for some of them. In irrigation management in Turkey, there are two main approaches followed toward the operation and maintenance responsibility. First one of them is **a)** Irrigation operation by the state and the other is **b)** Irrigation operation by local administrations and associations established by the beneficiary.

DSI defines the general principles and policies toward irrigation management and either directly take the responsibility of services about irrigation management with its executive units or transfer the responsibility to the real or judicial personalities. Since the establishment of DSI in 1954 to the year 1993, the state operation in irrigation operation was preferred. However, the operation by local administrations and associations established by beneficiary have been preferred since 1993. This preference change is mainly due to the fact that the state has started to move back from the service sector gradually and aims to obtain the full respond for the services supplied. It was also seen that water user associations (WUA) could be more successful in quality of water management, cost effectiveness and sustainability. It was seen from the transferred schemes since 1962 that WUA would be successful even they were in small scales in water management optimization, economic water management practice, because this issue directly concerns them. With the transfer of operation

maintenance and management (O&M), financial responsibility of routine O&M expenses are also taken from the state. This amount then can be allocated to the other services which can not be performed by private sector and also be used toward state irrigation infrastructure. Based on the above explanations, we are defining here a 'successful' management change able to save the state money, enhance the cost effectiveness and increase the productivity of irrigated agriculture. It should be also mentioned that the beneficiary can carry out the services in a more orderly, faster and economical manner. Based on the relevant laws and regulations, the basic rule followed in transfer of irrigation schemes in Turkey is to transfer only the *operation maintenance and management responsibility* and not to the ownership of the facilities. Ownership still stays with the state.

The item of the DSI law relevant to transfer of the schemes states the following on this issue: *"Transfer the facilities to the real or judicial personalities when necessary, establish operation organizations to provide the operation of the facilities which were constructed or transferred and not operated directly by the Ministry of Public Works, or establish joint management via direct or indirect organizations"*.

TRANSFER FORMS

Responsibility transfer forms of irrigation scheme operation maintenance and management in Turkey can be divided into three forms:

- a. *Informal Transfer*: O&M of small earth fill dam irrigations and the other small scale surface irrigation schemes constructed by GDRS are handed over to local organizations or directly to the farmers without any legal agreement. Since there is not any legal agreement, this name is assigned to this form.
- b. *Participation through Joint Management*: This form has been applied since 1960s in irrigation schemes developed and operated by DSI. It provides farmer participation in services. In this form, generally O&M services on secondary and tertiary channels are carried out by the farmers and it is called as "Water User Group" (WUG). WUG can be defined as the organizations established based on the principles defined in an agreement between DSI and water users to carry out water delivery services at some parts of the irrigation facility and some O&M works. Within the water delivery service works, WUG also provides assistance to DSI in some issues such as collection of water demands, prevention of unapproved or out off program water use. They also carry out the maintenance of secondary and tertiary channels and structures and service roads on them as their power allowed to them so.
- c. *Full Transfer*: This form of transfer is the one currently applied. Full transfer can be defined as: *'O&M responsibility of the facilities constructed, under construction or will be constructed by DSI will be transferred to the public or private judicial personalities or organizations established by the beneficiary of the relevant facility in accordance with the agreement mutually signed and approval of the state authority and O&M services will be carried out these organizations.'*

ORGANIZATIONS AND ASSOCIATIONS ABLE TO TAKE RESPONSIBILITY

There are not any legal obstacles in transfer of facilities owned by DSI to Public Law Judicial personalities (Village Judicial Personality, Municipality, Union) or to Private Law Judicial Personalities (Cooperatives) and the transfer is made on voluntary basis with the decision of the organization/association who is taken over the facility. Type of the organization taking over the responsibility will be determined by the farmers based on the conditions of the region in each region.

Organization/association taking over the facility should have some qualifications as following:

- It should have the means to establish a O&M program in accordance with the standards defined by DSI;
- It should represent the majority of the beneficiaries of the facility;
- It should have the confidence of the farmers for the services to be carried out.

The organizations able to take over and the relevant laws are given in Table 1.

Table1. Organization able to take over and the relevant laws

<u>Public Law Judicial Personality</u>	<u>Relevant Law</u>
Village Judicial Personality	442 numbered Village Law
Municipality	1580 numbered Municipality Law
Association	1580 numbered Municipality Law

<u>Private Law Judicial Personality</u>	<u>Relevant Law</u>
Cooperative	1163 numbered Cooperatives Law

- a. *Village Judicial Personality*: It is a local administration form established with 442 numbered Village Law. If the irrigation facility to be transferred is serving only to the lands of a single village, this facility can be transferred to that village judicial personality. In paragraph 11 of Article 14 of Village Law relevant to the items, implementation of which depend on villagers’ requests, “construction of a common channel to irrigate village fields and gardens” expression is use.
- b. *Municipality*: It is subjected to 1580 numbered law. If the irrigation facility is serving for a municipality, this facility can be transferred to the municipality. In Article 133 of 1580 numbered ‘Municipality Law’ following expression is said: “Municipalities and villages can establish an association to carry out the services assigned to them”.
The following expression is stated in Article 26 of Municipality Law: ‘Having the irrigation channels for common vineyards, orchards, fields and gardens to be cleaned, damaged roads to be repaired, cost of these services to be collected from the concerned. Dry out the water ponds in fields, gardens, orchards or have them to be dried out, have the water of public or private pools to be changed or refreshed the from time to time.
- c. *Cooperative*: Based on the 1163 numbered Cooperatives Law, cooperative can be defined as “the organizations with changeable shareholders and changeable capital established by real or public judicial personalities, private administrations, villages, municipalities, societies, and associations to provide the needs and some economical benefits of the shareholders in a mutual support, help or guarantee”.

Except for the underground water irrigation cooperatives established commonly by DSI and GDRS, the cooperatives established by 15 people benefiting from the irrigation facility and have the objective of operation and maintenance of an irrigation facility among its objectives, when the executive committees decided to do so, can take over the responsibility of a transfer.

- d. *Associations*: The associations or referred in relevant law as “Local Administrative Associations” are the organizations established in accordance with 1580 numbered law. Transfer is made more commonly to these organizations.
- e. *Other Institutions*: Apart from the above mentioned four institutions/organizations, even in small numbers, transfer can be made to the universities and research stations.

DETERMINATION OF THE FACILITY TO BE TRANSFERRED

Transfers have been carried out since the establishment of DSI. Until 1993, the facilities, which are far from operational and maintenance units, not completed its organization, and have a small irrigation area, and the facilities, on which state irrigation operation is not possible, were given a priority in transfer. Since then, bigger irrigation schemes were also started to be transferred.

Irrigation facilities can either be transferred as a whole or be separated into units based on the structure of institution/organization and the social structure of the region. The main point in separation into units is not to separate the irrigation into very small units and especially assign the responsibility

of all of secondary and tertiary irrigation channels and drainage channels to the same institution/organization. While forming the units, natural boundaries such as main discharge or river, stream bed should be taken as basis. The goal here is to reach the optimum land area serving toward the main objectives. If a transfer were carried out by separating into small units by any reason, these small units can be gathered together by joint work of the organizations.

OBJECTIVES OF THE TRANSFER AND THE FACTORS AFFECTING THE IMPLEMENTATION

The objectives of DSI transfer activities, which have been performed since 1960s and become the current issue for agricultural sector since transfers were fastened and bigger facilities were started to be transferred, have three basic component. These are:

- a. Farmer Participation and In-place Management;
- b. Self-control;
- c. Reduction of Operation and Maintenance Costs.

The following factors are effective in implementation of these components:

- General Directorate of DSI, responsible for operation, maintenance and management of irrigation schemes, considered this change a reform and developed it;
- Seminars and in service training programs were organized for relevant personnel;
- DSI personnel, believing in the benefits of the participatory irrigation management, started to inform the relevant about the organization and participatory irrigation management;
- First pilot regions were selected for initiation of "Fastened Transfer Program", and successful results were obtained in these regions;
- The results from the pilot regions constitute concrete samples for farmers and they also started to discuss about the participatory irrigation management in various angles;
- As a result of the all, works were taken up to today.

PROCESSES FOLLOWED IN FACILITY TRANSFER

Processes followed in transfer of irrigation facilities

In transfer of the O&M responsibility of the irrigation facilities, constructed, under construction or will be constructed by DSI, to the beneficiaries, the facility is thought as a whole with its irrigation channels, drainage channels, service roads, art structures, and the following way is followed:

- a. If the irrigation scheme is to be taken over by an irrigation association, initially the association has to be established. For this formation, the municipalities having lands within irrigation area should take council decision and the villages should take village decision.
- b.
- c. Following these decisions, association statutes are prepared. Sample statutes, prepared by some additions or modifications on type statutes prepared by Ministry of Internal Affairs, is generally used.
- d. After preparation of statutes, all the documents (statutes and decisions) are sent to town administration or governorship for approval. The approved statutes are send to Ministry of Internal Affairs. With the approval of the Ministry and Council of Ministers it is published in The Official Gazette and this way the association is formed.
- e. Following the formation of association, member local administrations should determine association assembly members and the assembly has to met within a month and has to elect the units. Meeting is carried out at a data and place determined by the local administration, elections are performed and decisions are taken.
- f. The above mentioned stages are considered if the O&M responsibility of an irrigation scheme is to be transferred to an irrigation association. If a transfer is to be made to cooperatives, the cooperative should have its formation completed in accordance with the relevant law and should apply to DSI with the decision of executive committee. If a transfer is to be made to

municipality and village judicial personalities, DSI should be applied with an assembly decision. The remaining stages are the same for all 4 institutions/organizations.

- g. Transfer agreement is prepared using the sample agreement. Regional Manager on behalf of DSI and institution/organization chairman signs the agreement.
- h. These documents are sent to General Directorate of DSI (Operation and Maintenance Section) by the Regional Directorate for approval of the Ministry.
- i. Following the approval of the Ministry, a copy of the approval is sent the regional directorate. That will complete the transfer. The official date of transfer completion is the date of Ministry approval.

Processes followed in the transfer of the other facilities

Besides the irrigation facilities constructed by DSI, O&M responsibility of drying, flood control, park recreation facilities can also be transferred. Transfer of these facilities is carried out in accordance with paragraph (k) of Article 2 of Law about “DSI Organization and Responsibilities”. Same processes, as it was in irrigation facilities, are applied for the transfer of these facilities. During the transfer to a suitable institution/organization in accordance with the above mentioned principles, the methods and the way followed are the same, only the “type agreements” are different.

RESULTS OBTAINED FROM TRANSFER WORKS

Small schemes with an area about 2000 ha were gradually transferred to the users until 1993. In addition, DSI established the irrigator groups with limited O&M responsibility and encouraged the participatory approach. 62,000 ha area was transferred to institutions/organizations until the year 1993. Since 1993, “Accelerated Transfer Program” was effectively started to be applied in selected pilot DSI regions. First response to this transfer works came in 1993 by transferring 10,000 ha area in a short time and this was a promising performance toward the upcoming ones. Early in 1994, transfer works carried out in four pilot regions provided a development in irrigation scheme transfer and 195,320 ha transferred within the same year, this was almost twice the planned amount 103,000 ha. The development has continued in the same manner. The amount transferred by the date June 1, 2003 is 1,704,469 ha. This amount corresponds almost 89% of the to total amount to be transferred. Distribution of the transferred schemes within institutions/organizations by the data 01.06.2003 is as given in Table 2.

Table 2. Distribution of transferred irrigation schemes among the institutions and organizations

Institution/Organization	Number	Ratio (%)	Area (ha)	Ratio (%)	Average Irrigation Area (ha)
Village Judicial Personality	214	30.3	34,238	2.0	160
Municipality	134	19.0	56,588	3.3	422
Irrigation Association	299	42.3	1,551,262	91.0	5,188
Cooperative	56	7.9	61,349	3.6	1,096
Other	4	0.6	1,032	0.1	258
TOTAL	707	100	1,704,469	100	2,410

As it can be seen from the table, irrigation associations have significantly higher ratios both in total transferred area and in average irrigation area. Since the most of the irrigation schemes transferred to village judicial personalities are between 15-200 ha, the average irrigation area for them is also low. Areas under responsibility of the associations with an average irrigation area of 5,188 ha can reach up to 20-30 thousand ha.

SUSTAINABILITY

The main point following the success in transfer is the “Sustainability of Participatory Irrigation Management”. Sustainability in services of the institutions and organizations taking over the O&M responsibility of the irrigation facilities will be possible through the following activities: provide farmer participation with new investments, develop modernization and rehabilitation programs for irrigation facilities, provide necessary O&M equipments, perform inland development works, provide necessary consultation and training support about management, organization, investment issues toward the development in facilities and services, provide training programs to the organizations for them to have qualified personnel.

The successful performance levels were obtained mostly with the support of DSI as a transferring authority. However, recent results have proven that same performance would be obtained without the support of DSI.

The support was initially in the form of providing machinery and equipment for maintenance and cleaning, providing consultation and guidance on management, organization, and investment issues to develop the inland development and irrigation services. These support still continue in a decreasing manner.

Without an effective support program of relevant authority, reaching a sustainability will take long time and the organizations will have hard times to carry out their services. For a sustainability and institutionalization it is necessary to:

- Evaluate and renew the legal frames;
- Develop modernization and rehabilitation programs for irrigation facilities;
- Develop a data base for DSI and Water User Organizations to compare the conditions before and after the transfer;
- Provide an enhanced data flow to current monitoring and evaluation system of DSI;
- Apply intense training programs to provide qualified O&M personnel to Water User Organizations and provide the sustainability of these personnel;
- Provide vertical organization of water user organizations and decide about whether the shared facilities and water resource management could be transferred or not.

However, it is almost impossible to provide sustainability in participatory irrigation management even in best irrigation management conditions if there is a disorder in other agriculture related policies.

MONITORING AND EVALUATION OF TRANSFERRED IRRIGATION FACILITIES

All the irrigation projects developed by DSI should be monitored carefully both in planning and implementation phases. That is why, monitoring and evaluation of results of operating irrigation schemes has a significant importance in reaching various conclusions and taking measurements toward the future development of these facilities and solution of the problems of the beneficiaries.

The irrigations operated by DSI are monitored and evaluated carefully for the best preservation of the resources. This process is applied to all of the transferred schemes regardless of the type of the operation organization and it is one of the basic responsibility of DSI as the transferring authority. Monitoring and evaluation process was started in 1995 as an experimental process, and it continued in following years with an extended coverage. Corresponding results were published and provided to use of beneficiaries.

“Monitoring and evaluation” works in transferred schemes are mainly carried out with the values and data obtained with works of direct operating organization. The topics in monitoring and evaluation report are as follows:

Monitoring and Evaluation Report Topics

- A. Descriptive Information
- B. Irrigation Area, Cropping Patter, Water Pricing

- C. Water delivery services
- D. Pricing and Collection
- E. Maintenance and Repair Works
- F. Personnel
- G. Economical Data
- H. Machinery, Equipment-Tool Supply
- I. Facility Supply
- J. Other Information

PARTICIPATORY PRIVATIZATION PROJECT IN IRRIGATION MANAGEMENT AND INVESTMENTS

Loan agreement for "Participatory Privatization Project in Irrigation Management and Investments" carried out DSI, GDRA and WUO with partial financing by International Public Works and Development Bank was signed in 28 October 1997. The agreement also approved by Council of Ministers came into force by publishing in The Official Gazette under Article 23271 in 27 February 1998.

Project objectives in loan agreement are defined as follows:

- 1) Strengthening the institutions related to agricultural irrigation;
- 2) Relief the financing and support load supplied for irrigation O&M on the public sector;
- 3) Initiate the process relieving the financing and management role of public sector on irrigation system investments;
- 4) Encouragement of utility of irrigation systems in an effective and sustainable manner to increase the productivity in agriculture;
- 5) Helping to DSI and GDRA in strengthening of Water User Organizations.

Projects, which have been carried out since 1998 and consisted of foreign credit supplied from International Public Works and Development Bank, Treasury funds, Self-resources of Water User Organizations, have three different components.

a) Operation and Maintenance Equipment

Supply of donation support by DSI to the organizations to provide partial purchasing cost of tools, machinery and equipment to be bought and used in O&M services by Irrigation Associations or Irrigation Cooperatives taken over the O&M responsibility.

b) Strengthening of Irrigation Related Bodies

Supply of consulting services, training and equipment to DSI and Irrigation Associations for the application of part (A) of the project, supply of consulting services, training and equipment to GDRA and Irrigation Association for the application of part (C) of the project.

c) Drip Irrigation System Implementation in Pilot Area and Pilot Rehabilitation Project

Supply of drip irrigation method infrastructure in a pilot area and supply of donation support via GDRA to finance the inland facilities.

Supply of donation support for rehabilitation works to be carried out in facilities taken over by the Irrigation Associations and Cooperatives.

The project is applied by DSI, GDRA and WUO (Irrigation Associations, Irrigation Cooperatives). Communications among the credit institutions, Treasury, Agricultural Bank and applicators are provided by *Project Coordination Unit*. The foreign credit used is not a donation and will be paid in time with applied interest. The donation support is made by the State to the Water User Organizations to strengthen them and to provide sustainability in the processes.

Some changes have occurred during the application phases of the project. While the donation support rates were initially varying based on the location of the Water user organizations and type of water delivery to the region, today a 45% donation support is provided to all of the organizations within the frame of support without any discrimination for tool, equipment and machinery purchases. Even the project has three components, "Pilot Rehabilitation Project" is also started to be applied in pilot regions to support the rehabilitation works of the organizations.

CONCLUSION AND SUGGESTIONS

The main benefit of transfer to the country is relief of O&M costs on DSI, other words on the State. Each unit of land transferred to the users means a reduction in O&M costs to the State and a support to the budget for new investments. Reduction in maintenance costs are mainly due to the fact that farmers are more conscious about the ownership after the transfer.

Due to deficiency in DSI Law in application of late payment fines to the users, late payments of water fees are encouraged and it also decreased the beneficiaries' preference of the transfer.

High-cost systems, especially the pumping irrigations, caused a significant increase in irrigation costs to farmers. Pumping systems come into scene as the most problematic systems. Due to unreasonable energy costs for the irrigation organizations taken over the O&M responsibilities of pumping irrigation facilities, most of their budget is allocated to this energy cost while all the other processes are running well enough.

The planned amount to be transferred has already been reached by fastening the processes. Search for the new approaches toward the Irrigator Organization – DSI relations emerged earlier than expected. These needs were initially to be overcome by legal regulations and "Water User Associations Law Draft" was prepared by DSI Central and Regional Administrations and Association Chairmen. Opinions of about 250 associations were taken; the text of the law draft was prepared and sent to the Ministry.

Expectations from this "Water User Association Law" are: integration of public identity of irrigation association with initiation freedom of the cooperatives; farmer participation in investment; decreasing the role of judicial personalities and assigning more effective role to the private personalities in organization establishment; strengthening the democratic structure in association unit formation; provide a define privatization and participation in service providence; performance of vertical organization at regional, watershed and country level; local or foreign credit supply to the associations and donating them the authority to get into debt.

Following the transfer of O&M services to organizations established by the beneficiaries, duties and responsibilities of the sides are defined in transfer agreement. Both judicial sides are not allowed to perform any application beyond the items of the agreement.

The institution taken over the O&M responsibility of the facilities cannot be seen as a sub-unit of DSI and it has to be seen as a totally separate institution. It should never be forgotten that the ownership still belongs to the State and DSI is directly responsible for in operation and maintenance of their physical states. However, this responsibility should not direct DSI toward the behaviours preventing the administrators of the organizations taken over the facilities from using their authorities fully. While it is not true to be indifferent to the deficiencies in O&M services, it is also not true to utilize all DSI means to prevent these deficiencies.

DSI as relevant public authority should help the organizations with its technical knowledge and experiences should organize training programs and interfere on time to correct the deficiencies. However, it should never be forgotten that these organizations are separate judicial personalities, applications and approaches preventing them standing on their feet should be avoided.

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