

## **TURKEY: TRANSFER OF IRRIGATION MANAGEMENT TO WATER USERS ASSOCIATIONS (PIM) CASE # 57**

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This case describes the process of transferring irrigation management in Turkey from central government to water users' associations and highlights difficulties and successes over the past ten-year programme.

### **ABSTRACT**

#### **Description**

Up to the early 1980s, operations and maintenance (O&M) for irrigation systems was highly centralised, but this was imposing an increasing institutional and financial burden on the government. Contributing factors were: very low ratio of billing and collection rates or no collection at all; very high water consumption, even wastage; no cost recovery for investment; and no local interest by the farmers to protect the infrastructure.

Although some small irrigation schemes had been transferred to users over the years, the pace of change was slow. However, after 1993, with the advice of the World Bank, an accelerated process of handing irrigation O&M over to Water User Associations has been undertaken. The recovery rate for O&M costs increased from less than 40% to more than 80% after the facilities had been handed over to water users' organisations (WUOs). In addition, water overuse and consequent negative environmental impacts (eg salinity) have gradually decreased. After PIM 'the irrigation program that was [formerly] a government program with assistance of the farmers' became 'a farmer program with assistance of the government'

However, the reform has not been accompanied by appropriate legal reform (eg giving title to WUAs) which has caused some problems in investment and purchase of equipment. Furthermore, while WUAs must raise revenues from tariffs, the lack of legal basis has meant that incentive structures are weak.

#### **Lessons learned**

Although there has not yet been a full evaluation of all aspects of the irrigation reform, a number of lessons emerge:

- Farmers and WUOs need continuing support and training to after the transfer to ensure sustainability
- Legal reforms should accompany institutional changes to enable full benefits to be gained
- Political will in government together with financial support are important for achieving major institutional change.

#### **Importance for IWRM**

The case illustrates the role of participation and institutional reform in agricultural water use, and illustrates how the reform process can help water allocation in areas where there is competition for water between several economic sectors (agriculture, tourism, municipal water supply)

#### **Main tools used**

- A2.3-Reform of existing legislation
- B2.2 Training to build capacity in water professionals
- C4.2 Communication with stakeholders
- C7.1 Pricing of water and water services

## **MAIN TEXT**

### **1 Background and issues**

As in the rest of the Mediterranean, the agricultural sector is the major water consumer, averaging more than 70% of the total water consumption. Water scarcity has been a major concern since 1960's and efforts have been made to better manage and ensure the efficient use of water for sustainable agricultural development.

Approximately 1/3 of the Turkey surface area of 28 million hectares of land can be considered as cultivable, of which 8.5 million ha is, in principle, economically irrigable under conventional irrigation methods (although there may be water resource constraints). Up to 2001, irrigation infrastructure serving 4.4 million ha has been developed mainly by the public sector State Hydraulic Works (DSI) and the General Directorate of Rural Services (GDRS), the two government agencies responsible for water and soil resources development and management in Turkey. Their roles and responsibilities are distinct:

- The State Hydraulic Works (DSI), established in 1954 under the Ministry of Energy and Natural Resources (MENR), is the main investment agency responsible for the planning, development and management of water and soil. It is responsible for large water supply and irrigation schemes; that includes construction of dams for flood control, irrigation, power generation, water supply and groundwater development; DSI, based in Ankara operates through its regional directorates situated in 26 river basins. In these regions there are 26 directorates, 56 sub-directorates and 14 project directorates that carry out O&M activities in irrigation through their field units.
- General Directorate of Rural Services (GDRS), established in 1985 is responsible mainly for on-farm development and small (up to 500l/sec) irrigation works. In addition to its headquarters in Ankara GDRS operates through 22 regional directorates.

The Constitution stipulates that water is a national good owned by the State, which makes overall allocations to users (the public, farmers, utilities). Water is not seen as a commercial commodity. DSI is the sole institution responsible for the allocation, exploitation and protection of the groundwater resources. There is no umbrella 'Water Act' covering all the allocation between sectors and, in particular, surface waters, although in practice, surface water allocation is administered by DSI, based on the requirements of different sectors. The local community makes a request for water allocation, eg the municipality for domestic water supply, water users' associations for irrigation water.

### **Issues and problems**

Irrigation schemes developed by the Government can be managed either directly through the Central Government, or by local authorities and Water Users Organizations. Historically, Turkey had adopted the centralized approach so that operation and maintenance was the responsibility of the DIS. Since the early 1950's there had also been some transfer of irrigation systems to users. Up to 1993 some small schemes were gradually transferred to users at a rate of about 2000 ha each year, but these were mainly those, which were difficult and uneconomical to manage centrally.

DSI encouraged a participatory approach to some extent by setting up Irrigation Groups (IGs) or Water User Groups (WUGs) with some (limited) responsibility for O&M. But generally, central government officials were reluctant to adopt a decentralized approach for fear of losing power and control over the management of the facilities. Political interference was also common in irrigation management.

Nevertheless, O&M issues constituted a growing institutional and financial burden on the government. There was a very low ratio of billing and collection rates or no collection at all, with the results that the cost recovery for O&M costs was about 40%. Water consumption and wastage were high; there was no cost recovery at all of investment, and little interest on the part of local farmers in the protection of the infrastructure. Pressures were mounting and then in

1986, the World Bank initiated the participatory process and establishment of water user associations *as a prerequisite for a loan allocation* to Turkey.

## **2 Actions taken**

### **Transfer of irrigation systems**

A combination of growing awareness by government of the difficulties encountered in the management of irrigation systems by central agencies, and persuasion by the World Bank, led the decision makers to adopt a new system of accelerated transfer of irrigation schemes to water user organizations.

Following national working group meetings in 1993, DSI's policy shifted from limited transfer of small schemes to larger ones. With World Bank support, DSI sent more than 50 senior officials to USA and in particular to Mexico in 1993 and in 1994 to investigate the technical, legal and institutional aspects of the transfer of irrigation systems. These visits have had a substantial effect in further encouraging DSI's staff to pursue accelerated transfer. Overall, 2.4 million hectares are to be transferred.

Starting from 1993, DSI took the decision to launch a pilot program of accelerated transfer where water user groups were already existing and operating efficiently. The timely decision was based on the following issues:

- Financial burden on DSI and the government generated by the O&M costs (the cost recovery of O&M was about 40%)
- Political awareness (the government's general policy of decentralized approach was an important contributing factor to speed up the process). Ref. 'Farmer's Participation to Investments in Agriculture and O&M Activities'-National Working Group Report, November 1993
- Satisfactory O&M results of transferred schemes (these positive results had an important role as convincing factor)

Four provinces, namely Antalya, Adana, Konya and Izmir, were selected for the pilot programs of accelerated transfer mainly because the officials of these provinces had shown interest and dedication and the farmers were more receptive in these provinces. The transfer was supported by enhanced internal training including seminars and workshops. A friendly competition among various regions in promoting successful transfer was another contributing factor to the process.

### **Rationale for Participatory Irrigation Management (PIM)**

A key aim of introducing PIM was *to increase farmers' sense of ownership and responsibility for irrigation facilities*. Farmers account for 45% of employment in Turkey, yet before the introduction of a more participatory process, they had neither rights nor responsibilities in the management of irrigation, for example in setting the water tariff, the election of managers or in the decision-making process in general. The introduction of PIM created the sense of ownership by farmers which led to protect the facilities and improve the O&M.

Another important aim was also to decrease O&M costs to the government – since these costs are now borne through the farmers and WUAs. O&M savings are now transferred to investment in the sector.

### **Management structures under transfer**

Three types of transfer are possible:

- *Full transfer*, whereby all O&M activities on irrigation projects developed by DSI are taken over by WUOs. The responsibility of O&M is transferred to WUOs on an agreement that is signed by WUOs and DSI and approved subsequently by the Ministry of Energy and Natural Resources (MENR).

- *Joint management*, whereby limited responsibility in O&M is taken over by the water user groups with an agreement signed between DSI and WUOs. No approval by MENR is required. No agreement is signed between water users and GDRS.
- *Informal Transfer*, in which all O&M activities in irrigation projects developed by GDRS, ie generally of small scale and serving a single village, are managed by the farmers.

Full transfer has in practice been preferred. In Turkey, different types of water user organizations exist. These are the *water user associations, municipalities, village authorities and cooperatives*. Among these, it has been experienced that the best model of transfer is the water user associations since these are non-profit organizations having the right to irrigate within their hydraulic boundary which varies within a range of 300 ha up to 35 000 ha. Furthermore the associations have managerial, financial and technical autonomy whereas the cooperatives do not.

The WUOs are established under the Municipal Act No: 1580. The administrative staff is composed of: the president, a general secretary, an accountant as ruling staff supported and supervised by the executive board and the general assembly. The chairman is generally at the same time the mayor of one of the small communities falling under the service area of the organization and the general secretary has a technical function and should be an agricultural engineer. At every regular general assembly, the chairman and the board of directors give the account details for approval and the technical and managerial issues are discussed for water tariff setting.

## Role of DSI

DSI continues with monitoring and evaluation of the O&M performance of schemes. Since 1993 DSI has been collecting O&M data related to transferred schemes and yearly evaluation reports are published. These reports contain the annual results of irrigation activities at both DSI operated and transferred schemes. This effort aims to determine the physical conditions of irrigation schemes, and their contribution to national highlighting problems of each scheme and giving recommendations for better management. Therefore the main topics e.g. water resources, irrigation schemes, irrigation development and results, irrigation performance and expenditures/benefit analyses are reported on a yearly basis.

DSI, the state administration keeps the limited responsibility of advisory role in financial, administrative and technical issues (i.e. tariff setting, personnel recruitment, operation and maintenance) at the water users organizations once the facilities are handed over to them. DSI may attend the meeting held at the General Assembly of the WUOs, as observer.

## Tariffs

Water pricing is a very complex, multi-dimensional issue in Turkey, and the process of setting water tariff in irrigation is influenced by four factors that - social, economic, political and legal.

### *Water Tariff Setting Procedure for the State-run Facilities*

When DSI sets tariffs, the main point considered is the cost of O&M. The water tariff is based on the principle of operation and maintenance cost recovery of water transmission from the source to the field, that water is not sold to users with a tariff determined by cost calculations. Therefore the terminology used is not 'price of water' or 'water charge' but 'operation and maintenance charges'. The two main concerns in the preparation of water tariffs are to recover the O&M costs for irrigation management by the General Directorate of DSI and the operation and maintenance expenditures estimated for irrigable areas. O&M water tariffs are computed according to the principles set in Article 28 of the DSI establishment law which states that O&M charges are calculated by dividing the total expenditure of the previous year by the area of irrigated land.

The method preferred by DSI does not stimulate economical water use by beneficiaries, or offer encouragement to apply new technologies in their enterprises but anticipates rather an

allocation which simply ensures cost recovery. This is the result of economic and social policies and preferences adopted so far.

### ***Water Tariff Setting Facilities Operated by the WUOs***

At the time of the accelerated program to hand over the state-run facilities to water user organizations started in 1993 no new legislation had been drafted for a new institutional and financial framework, so the existing legal procedures had to be applied. Under the financial decrees of the present law (No.1580, municipal law) the organizations (cooperatives and associations) have no direct arrangements for irrigation management. The provisions of the law as applied do not put a direct barrier on tariff setting, but they do limit the performance ability of the organizations.

Water user organizations are bound by the provisions of the same law under which DSI sets water tariff because these organizations operate under the authorization transferred by DSI in this matter. In other words, the same principle of recovery of operation and maintenance cost is applied and the institutional discretion of WUOs is limited by the provisions of the law under which the transfer is effected.

However, although DSI and WUOs have a parallel method on tariff setting, there are different applications in determining expenditures, tariff application, and collection of charges due to the law under which they operate. The most important differences, which provide some managerial flexibility, are:

- Expenditures of the coming year are determined by an estimated budget before the irrigation season.
- The tariff is applied according to the previously defined conditions based on the characteristics of the schemes (eg gravity or pumped) and region (affordability, which varies between regions). The collection is made in the same year and there is an economic incentive for payment and substantial penalties for late payment are applied.

From the legal standpoint WUOs have to balance revenues and expenditures. Therefore they have to determine the expenditures of the coming year for the scheme under their responsibility and estimate a budget so as to recover the expenditures. They mostly use an ‘area and crop based tariff’ method in gravity irrigation schemes whereas ‘cubic meter’ method is applied in pumping schemes.

## **3 Outcomes**

The result of the pilot study where DSI engineers played the role of promoters and interacted very closely with the local people, municipal councils and chairmen was successful in two respects:

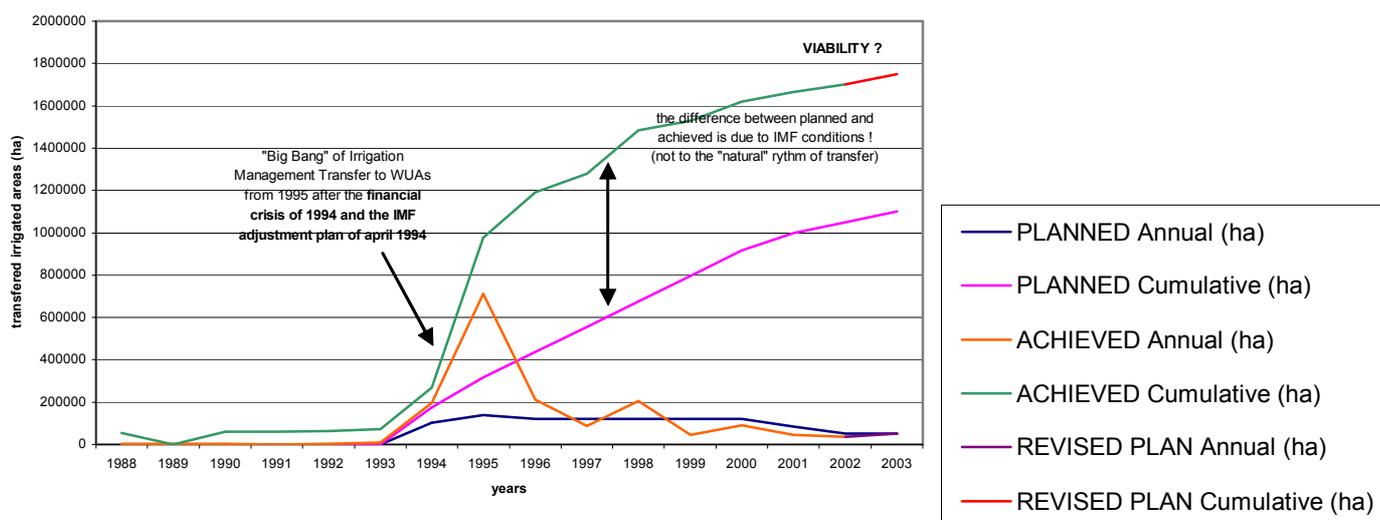
- The engineers realized that they would not lose their job as a result of transfer but on the contrary, they would have an important role after the transfer to assist the local people.
- The system was operated more efficiently by the Water User Associations than by the state (decrease in O&M costs for the state and increase in the collection rate in the WUAs, in comparison with the state run system.)

Overall, the transfer from the government to users is thought to have proved satisfactory and has highlighted the sustainability of the participatory irrigation management (PIM) and the decentralized approach of the water user organizations (WUA) model. The pros and cons of this process are discussed below.

**Table 1 Areas of land in reform programme**

Years	PLANNED		ACHIEVED		REVISED PLAN	
	Annual (ha)	Cumulative (ha)	Annual (ha)	Cumulative (ha)	Annual (ha)	Cumulative (ha)
1988	-	-	1 789	55 034		
1989	-	-	3 385	58 420		
1990	-	-	2 391	60 811		
1991	-	-	2 57	61 068		
1992	-	-	1 552	62 620		
1993	-	-	9 422	72 042		
1994	103 958	176 000	195 320	267 362		
1995	140 000	316 000	711 214	978 576		
1996	120 000	436 000	211 758	1 190 334		
1997	120 000	556 000	88 705	1 279 039		
1998	120 000	676 000	204 892	1 483 931		
1999	120 000	796 000	45 523	1 529 454		
2000	120 000	916 000	89 215	1 618 669		
2001	84 000	1 000 000	45 061	1 663 730		
2002	50 000	1 050 000	36200	1 700 000	36 200	1 700 000
2003	50 000	1 100 000			50 000	1 750 000

**Irrigation Management Transfer (PIM) in Turkey (source: DSI)**



### Performance after the Transfer of the Irrigation Schemes to WUOs

DSI aimed to construct irrigation facilities in the remaining 3.5 Million ha of land (out of the total area that covers 8.5 Million ha) at a rate of about of 120 000 ha/year. When the accelerated transfer program started in 1993, DSI planned to transfer 1.35 million ha up to the end of 2000 but this figure was already reached by the end of 1997. The systems are clearly effective. Up till now, all schemes have been transferred to WUOs on a voluntary basis, but none been rejected/returned back to DSI (although the farmers have the right to do this) and no significant conflict has been recorded between users or taken to Court.

It is also felt that the transfer of O&M services to the Water User Organizations has had significant and quantifiable positive impact on the O&M issues both on technical and financial point of view: However, it must be stressed that transfer of land was strongly influenced under World Bank and IMF policies.

- The participatory approach by the users generated a sense of responsibility that had not existed before, to better use the resources and the facilities and protect them.
- The water use is more reliable and equitable, the plots situated at the upstream or the downstream of the irrigated land are equally served

Furthermore, the chairs of the WUAs are obliged to provide services regardless of the political tendency of the communities that fall under the service area of the associations. There is no political influence in water distribution

Studies to increase the irrigation efficiency by using modern techniques are being investigated, e.g. pilot projects to compare drip irrigation; sprinkler and the California systems are being implemented with the assistance of DSI.

The 'user pays approach' has increased awareness in water savings. The WUAs charge interest at the market rate for non-payment (12%) and levy fines for illegal connections and for misuse or wastage of water (at 40 times the regular rate) and/or damage caused to the infrastructure (80 times the regular rate). There is a mutual supervision mechanism, carried out locally on a continuous basis, and by each member, which brings social pressure and efficiency in this process. Overall, the collection rate increased from 42% (irrigation by DSI) to more than 80 % (WUOs).

Overall, the area of irrigated land has increased for the same volume of water, a consequence of better operation and maintenance of the facilities provided by the local O&M staff of the WUO. (see table) These are illustrated in the following tables.

**Table 2 Comparative ratios related to irrigation efficiency**

Years	Irrigation schemes operated by DSI (m <sup>3</sup> /ha)	Irrigation Performance (%)	Transferred Irrigation (m <sup>3</sup> /ha)	Irrigation Performance (%)
1999	13 000	31	11 000	41
2000	12 000	33	11 000	42

Irrigation performance is defined as the ration of irrigation water consumed by crops in irrigated farm, field or project to the quantity of water diverted from the source of supply

Energy consumption decreased after the transfer, the saving in energy cost is approximately 25%, as indicated by the following table.

**Table 3 Energy Consumption/Unit Area in Irrigation Schemes with Pumping (surface and groundwater)**

Irrigation Method	Operated by	Consumed Energy (kWh/ha)	
		1999	2000
Surface water pumped irrigation	DSI	3 533	2 858
	Transferred	1 380	1 278
Groundwater pumped irrigation	DSI	1 297	1088
	Transferred	1 120	809

In one of the pilot regions, Antalya, the following improvements were reported (on average) by the end of 1998:

- water saving of 34%,
- energy saving of 31% and
- Increase in tariff collection rate of 24% for the region of Antalya.

The following table illustrates the distribution per surface area of the irrigation facilities being operated by various groups. These facilities were handed over by DSI under the existing institutional structure.

**Table 4 O&M of Irrigation activities by various users**

O&M being carried out by various users	Number per group	%	Irrigated land (ha)	%
Village authorities	209	30.6	33 098	2.0
Municipalities	130	19.1	57 277	3.5
WUAs	295	43.3	1 497 148	91.1
Cooperatives	44	6.5	54 318	3.3
Other	4	0.6	957	0.1
<b>Total</b>	682	100	1 642 798	100
* 'other' means privately owned (DSI implement and hand over the facilities upon payment of the investment cost)				
** The data are as of 1.12.2001				

Young generations prefer, in general, to work in the tourism sector instead of agricultural sector where the income level has diminished due to the high cost of imported materials (grain, fuel, chemicals and high cost of energy) on the one hand, and decrease of the state subsidies on the other. Additionally, this sector is considered to be more attractive for young people due to the opportunities of social and cultural exchange of the sector. However, nowadays, there is a shift back to agricultural activities after the transfer to WUOs has proved efficient and successful (e.g. land-owners start to invest in high irrigation techniques i.e. drip irrigation for cultures of high economic value).

### Capacity building and training

So far DSI has given technical assistance to WUOs that consists of repair and maintenance of water structures with equipment, training support and guidance on technical and administrative issues. This support is still continuing but is declining over the years. Unless the WUOs are strengthened institutionally and technically, they will need to be supported by the central government. The transfer experience has shown that the transferred schemes cannot keep on performing satisfactorily and contributing to an increased production in irrigated land without a sound assistance program by the government, particularly during the initial years of the transfer. This is a crucial issue since especially the small organizations may face difficulties and fail to fulfill their task properly in which case the sustainability of the participatory irrigation management concept would be put in doubt for replication.

DSI also organizes and ensures on-the-job training of accountants and general secretaries of WUOs and it is deemed necessary to provide this support for a while. DSI has recommended that the WUOs to recruit women in order to create fair employment conditions. (Most of the accountants are women at WUOs of the Antalya region.)

### Legal issues and financial implications for WUAs

However, despite the successes, urgent legal reforms are required with the main objective that the WUAs should operate within a well-defined institutional and legal framework enabling sustainability of the PIM.

In line with this statement, DSI technical and advisory staff have drafted a law with the WUOs representatives and submitted to the MENR in 1997; this version was amended and submitted to the Cabinet in autumn 2001. The unclear legal position of the WUAs has important implications for their financial autonomy and even their sustainability.

For example, the WUAs have difficulties in obtaining loans from banks. This is due both to the uncertainties in their legal status and the fact that banks are not well informed about their existence and legal basis. This is the main obstacle toward the direct procurement of their own machinery by WUOs (see below).

Furthermore, direct transfer of project funds to the WUOs is not possible under the current legislation. For the purposes of privatization of irrigation operation and maintenance project Participatory Privatization of Irrigation Management and Investment Project ( PIOMP), the necessary legal basis can be established in the Loan Agreement which could then be introduced by the World Bank and Turkish Treasury.

The transfer of funds can be administered through a Project Management Unit (PMU) which can be established in accordance with the terms of the related loan agreement. DSI's role and level of intervention to the project can be defined in the same loan agreement. The PMU (if one is to be established) will implement the project in compliance with the loan agreement. Other agreements made in line with the loan agreement and procurement will be in accordance with the principles and procedures acceptable to the World Bank (IBRD) on the basis of the 'Guidelines for Procurement under IBRD Loans and IDA Credits'.

## **Difficulties in obtaining equipment**

Presently most of the WUAs are leasing machinery from DSI. One alternative of overcoming the financial problems encountered in the procurement of machinery and equipment is joint ownership of the needed equipment among nearby WUAs. WUOs can collaborate and purchase the machinery and equipment on a joint ownership basis. The joint ownership agreement must clearly determine the principles of utilization and operation and of the machinery or equipment. Despite its economic advantages, the option of joint ownership may, however, cause problems in accounting principles (e.g. amortization) and some conflicts may arise between the joint owners.

Another option is the procurement of machinery and equipment by a financially capable WUO for lease to smaller WUOs. This option is likely to reduce potential problems that would arise from the use of the machinery and equipment.

Some possible solutions to this problem could be:

- A provision for the required O&M equipment and machinery should be made to the WUOs and this should be done on a cost-sharing basis. The WUAs need different types of machinery and equipment in order to fulfill their O&M responsibilities. The most significant O&M related machinery inventory in Turkey is owned by DSI. The present legal mechanism allows only transfer of old (scrap) or surplus machinery to other institutions or entities. The transfer of newly acquired equipment by DSI is complicated due to Article 38/e of its establishment law No: 6200.

In relation with the PIM, the World Bank allocated a loan to the Government of Turkey with the objective of assisting the WUOs in the process of the so-called 'transfer'. The World Bank financed project of 20 M US\$ spread over 5 years for equipment procurement is being granted by 45 % by the government, the rest will be reimbursed by the WUOs that utilize the loan. This project was initiated in 1997. The granted ratio was initially 30% but has gradually increased to 34% and 45% in favor of the WUOs in order to encourage the purchase of equipment that would not be possible otherwise due to financial difficulties encountered in the agricultural sector.

- Flexibility in structural changes in order to choose the most suitable model should be allowed. If the regulations are not appropriate to meet the WUOs needs, some unexpected incidents such as low yield, inadequate water distribution, violation of rules and social turmoil may result.

## **Institutional and Social Issues**

The water user organizations have better applications with regard to debt service and labour law and better financial discretion than the central institutions. For example, under the legal framework the DSI has no right to cut water supplies, whereas the WUOs do; WUOs have more flexible employment regulations whereas DSI does not). Economic deterrence is applied for non-payment by WUOs whereas DSI does not have this possibility

WUOs formed by all the users have the possibility and the discretion of tariff setting based on the estimated expenditures and applied, whereas DSI is under political pressure. Social pressure for non-payment is also an important issue when the facilities are run by the WUOs since the farmers know who are the bad payers through the organizations and put pressure on them whereas at state-run facilities, non-payment is common.

## **4 Lessons learned**

In Turkey, the WUOs have to a very large extent demonstrated their ability to operate and maintain the facilities satisfactorily by recruiting the required staff, purchasing urgently transportation and communication equipment, assessing and collecting water fees, and improving water distribution at a cost generally less than the rate set by DSI. The success relies mainly on the principles of decentralized management performed by the users where consensus and consciousness of sharing responsibility among various stakeholders are the key issue for a better water management which is undoubtedly a must for sustainable development of the agricultural sector.

Based on regional assessment, the results of the monitoring of the WUAs proved that the transfer process has performed successfully with regard to financial, environmental and social issues. However, a thorough post-evaluation covering the full lifetime of the transferred facilities based on performance indicators including environmental and social issues would be appropriate.

It is also felt that the transfer of O&M services to the Water User Organizations has had significant and quantifiable positive impact on the O&M issues both on technical and financial point of view:

- The participatory approach by the users generated the sense of responsibility that had not existed before to better use the resources and the facilities and protect them.
- The water use is more reliable and equitable, the plots situated at the upstream or the downstream of the irrigated land are equally served.

It is very important that the WUOs should be given technical assistance and guidance at the beginning of the transfer until they gain the required experience in irrigation management.

The fact that legal reforms have lagged behind the irrigation transfer programme has caused problems however, in particular because WUAs do not have title to enable them to borrow for investment in equipment. Legal reforms should accompany institutional changes to enable full benefits to be gained

The concept of PIM and transfer to WUOs is recommended to be replicated elsewhere baring in mind that there is a need to improve the legal structure where it is believed inadequate in order to ensure a fully viable system in irrigation management, in particular, related to financial issues. It is clear in the case of Turkey that political will in government together with financial support have been very important for achieving major institutional change

In line with this statement, since the existing legal structure needs to be improved and already a draft law on water user organizations is submitted to the Cabinet for review and approval, it is believed that a study giving an overview of the legal aspects and related institutional issues would be appropriate to be carried out in order to stipulate the pros and cons of the legal framework so that other countries that consider adopting a similar participatory irrigation management can benefit from experiences which have been gained so far in Turkey.

#### **4** **Contacts**

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8- Messrs. Süleyman Sayın (Coordinator of the World Bank Project on Participatory Privatization of Irrigation Management and Investment Project) and Saim Yıldırım (Deputy Team Leader of the World Bank Project)

9- Interview with Mr. Yılmaz Yurtbahar, O&M Director and staff of the O&M Division of DSI 13. Regional Directorate, Antalya

10- Interview with various managers and users at various WUOs in the region of Antalya (Boğaçayı, Aksu-Perge, Alanya, Köprüçay WUOs)

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