Lessons Learned from Irrigation Management Transfer Programs

Juan A. Sagardoy[1]

ABSTRACT

IRRIGATION MANAGEMENT TRANSFER (IMT) Programs have become a widespread trend in many countries of the world. Although this policy has been practiced for many years by some countries, in the last five years many other countries have also adopted it.

The paper analyzes in the first instance the motivations that compel many countries to move in this direction. Essentially, there is an accepted recognition that management of irrigation systems needs to use farmers' knowledge and participation in the decision making processes of running the systems and that such participation in government managed systems is insufficient.

As considerable knowledge has accumulated in these processes, the paper attempts to review these processes and distil the issues that need particular attention. Four stages are differentiated in this process, namely: (i) ensuring political support to the program; (ii) creating a favorable environment for the transfer; (iii) implementing the program; and (iv) monitoring the program and assessing the impact.

Within the first stage, it is particularly important to obtain the highest political support, define clearly the scope of the program and ensure the allocation of the necessary resources. In order to create a favorable environment for the transfer it is necessary to redefine the roles of the irrigation agency and the new water users' associations, and this often means reviewing or changing the existing water laws and related codes. At this second stage it is also important to define the phases and geographical priorities of the program and possible incentives for the establishment of new WUAs. During the implementation phase a clear definition of the responsibilities, conditions and modalities of the transfer is needed. Two key aspects during the implementation of the program are the information programs that permit conveyance of clear messages to the thousands of farmers involved and, equally important, the training programs for the leaders of the WUA and their technical staff to enable them to manage properly the systems transferred. Redeployment and training programs for the staff of the irrigation agency must also run parallel to this. Special credit programs should be developed to strengthen the economic viability of newly established WUAs.

Finally the paper calls attention to the need for monitoring and assessing the impact of irrigation management transfer programs. For this purpose the use of performance indicators is recommended, but also the use of a permanent system that will assist the WUAs and also monitor their development.

MOTIVATION FOR IMPLEMENTING PROGRAMS TO TRANSFER THE MANAGEMENT OF IRRIGATION SYSTEMS

It is difficult to draw up a complete list of countries that are involved in irrigation management transfer programs as this concept is understood in different ways, but if taken in its widest meaning not less than 20 countries are engaged in such programs and the number is likely to grow.

At this point it is appropriate to ask what motivates these countries to adopt these programs. Certainly there may be several reasons; in each case the main ones may be different but the following are found to be the most commonly cited in literature:

* There is the underlying assumption that farmer-managed irrigation systems are more effectively managed than those run by public officials and that, by effecting the transfer, efficiency gains will occur in the sector. However, this implies that reductions in the staff responsible for the management of irrigation schemes will have to be made. The gains are different in every case and it would be wise to ascertain them.

* The economies of many countries are affected by a negative balance of the public expenditure and reduction of this deficit is, in many cases, a matter of national priority. Often the reduction of public expenditure is also a condition for major lending programs from international banks. In theory, the salaries of the public servants responsible for the operation and maintenance should not represent a public expenditure if the water fees cover the corresponding costs. In reality, these costs are rarely covered by the fees and in many countries the operation and maintenance costs are partially or totally subsidized. In this latter case there is a good

[1]Senior Technical Officer, Land and Water Development Division, FAO (Food and Agriculture Organization), 00100 Rome, Italy.

opportunity for reducing public expenditure if a transfer program is effected. The savings can be in the order of many millions of dollars per year for countries having large areas under public irrigation. It is enough to think that a country that subsidizes O&M costs in the order of US$20/ha and has one million hectares of public irrigation could save some US$ 20 million per year.

* The transition from heavily centralized political systems, such as those traditionally in force in Central Europe, to democratic systems has brought about profound changes in the way that irrigated agriculture is managed. These changes include the transfer of irrigation systems to farmers' groups or associations for which the necessary management experience is often lacking.

* Transfer programs are often interpreted as a sign of democratization, and as such, governments tend to use them as a part of their political programs. However, there is often no real intention of dedicating the efforts and resources that such programs will require.

THE IRRIGATION MANAGEMENT TRANSFER PROCESS

The first point to be made here is that the irrigation management transfer (IMT) programs need considerable time for their execution. They are political processes and as such they give rise to numerous problems and questions. In order to give some answers and orientations regarding the main issues it is necessary to subdivide the process into main stages to further analyze the critical decisions and issues at every stage.

With this purpose, the following four stages can be differentiated:

1st stage: ensuring political support for the program

- obtain highest political support
- define the scope of the program
- ensure the financial resources

2nd stage: creating a favorable environment for the transfer

- redefine the institutional roles
- create a favorable legal framework
- define the phases and priorities for its implementation
- define incentives for transfer

3rd stage: implementation of the program

- define responsibilities for implementation
- define conditions and modalities for transfer
- use of information media to convey message to farmers
- undertake training programs for farmer leaders[2] and technical staff of water users' associations (WUAs)
- redeployment/training program for government staff
- implement credit programs to strengthen WUAs

4th stage: monitoring and impact assessment

- establishment of performance indicators
- monitoring impact in selected areas
- monitoring of financial viability of WUAs

These phases do not occur sequentially but overlap to some extent; in other cases, unfortunately, some of the phases may be lacking completely.

In the remaining part of the paper the critical issues that need to be considered in each of the above mentioned stages will be examined.

[2]The expression "farmer leaders" is recurrently used in the text, meaning the main representatives of a WUA freely elected by the members of the association.

Ensuring Political Support for the Program

Irrigation transfer programs affect thousands and sometime millions of farmers and large irrigation institutions involving millions of dollars. Such important programs cannot be carried out without strong political support at the highest level of the nation. The case of Mexico is a good illustration of such a commitment where the President of the Nation, Mr. Salinas de Gortari, has been the prime mover for the transfer of irrigation systems. On the other hand, one observes other countries where such commitment is not so evident and the process is slow or does not achieve the expected results. Examples may be the cases of Brazil and India where the programs are moving at a slow pace, but other reasons may also contribute to the slow pace.

Few countries have moved in a decisive manner in this matter of transferring responsibilities to farmers. Governments are somewhat afraid of losing control or power over large areas and therefore most of the attempts made concern only a part of the irrigation system, generally the areas below the command of tertiary or quaternary canals, which are also the most difficult to manage for public administrations.

While this conservative position can be understood from the point of view of proceeding in a step-by-step manner, the author of this paper is of the opinion that such an approach is a real obstacle to an effective transfer of the irrigation system. The reason for this opinion is that the associations that are created around the tertiary canals are far too small to achieve any degree of financial autonomy. The argument is put forward that these small associations can later on be grouped in a larger one. This is certainly possible as proven by the experience in Mendoza, Argentina, but it delays in an unnecessary manner the process of creating really autonomous WUAs. Furthermore, the effort that is made in consolidating the functioning of the small associations around the tertiary canals has to be in a way remade in order to strengthen those that will be made at a higher level. This sort of division of responsibilities between the public management and the farmers cannot give a sense of ownership to the farmers as they perceive that it will not be possible to arrive at a true management of the irrigation system. In this case one cannot really speak of a transfer program as the farmers will never have any real capacity for decision making. Such programs are bound to achieve only partial results as it is only a partial transfer.

Another important aspect in this stage is to ensure the financial resources to carry out such programs. Later in the text, reference will be made to the numerous activities that a sound program of transfer requires and the additional financial resources that are needed in order to carry them out. Several governments have fallen into the mistake of believing that transfer programs are a matter of decree. Experience shows that this approach has been largely a failure whenever it has been tried out. A very favorable atmosphere exists in lending institutions to support irrigation transfer programs and obtaining loans for carrying them out appears a not too difficult exercise provided that the country is willing to carry out the necessary reforms.

Creating a Favorable Environment for the Transfer Program

Assuming that a given government has decided to implement a transfer program, a number of serious actions needs to be taken.

First of all, the role of the government institution that has been responsible for the management of the irrigation system(s) must be redefined. It is most likely that such an institution may not want to lose completely the control of the water that is allocated to the irrigation schemes. This means in practice that the O&M of large dams and some diversion structures will remain with the said institution. On the other hand, if the large irrigation areas are transferred to farmers it is very likely that the government institution would wish to maintain the role of controller over the use of the resource. These aspects need to be carefully considered and embodied in the restructuring of the irrigation agency.

At the same time the role and powers of the WUA will need careful definition. This normally implies that modifications to the water law may be necessary. In fact in the cases of Mexico, Colombia and Chile, the transfer programs have been preceded by new water laws. However, a new water law is not a precondition for irrigation management transfer programs--much can also be achieved by ministerial decrees as many of the changes are within the responsibility of the Ministry of Agriculture.

Another aspect that needs careful attention is a proper phasing of the IMT program in a logical time sequence. Experience shows that these processes are long and need time to be assimilated by the farmer community. It is also clear that it is easier to transfer irrigation systems that have few O&M problems than those plagued with financial and social problems. In order to ensure the success of the program it is necessary to prepare a plan for a progressive incorporation of irrigation schemes to the program. The selection of the projects to be included in the first phase of the program should consider besides their economic sustainability the interest of the beneficiaries, the possibility of having some technical assistance after the transfer has been effected, and a possible geographical concentration of the areas where the program will be implemented. The technology level of the irrigation system has also an effect on the farmers interest for IMT. Plusquellec (1994) reports that in Morocco, most of the irrigation systems deliver water on demand

and this fact provides little incentive for farmers to associate in WUAs as they consider that the present water delivery system is satisfactory.

An issue that needs particular attention is the incentives that the government may offer to farmers to accept the transfer. It is a wrong assumption to believe that all farmers are willing to accept the transfer particularly in those irrigation schemes where the economic viability of irrigated agriculture is very dubious or where the government has been neglecting the maintenance for many years and farmers are expected to pay for the upkeep of the system. In summary, there may be quite a number of reasons why farmers may not be willing to accept the transfer and existing legislation may back up this position. Therefore governments may be prepared to negotiate and offer some incentives to make the transfer attractive. One important point to keep in mind is that if farmers are not fully convinced that the transfer program is going to benefit them in some way, the transfer is not going to work satisfactorily.

Some of the incentives that governments may consider are rehabilitation of the irrigation infrastructure, credit programs for the WUAs so as to strengthen their economic capacity, and lastly keeping some subsidies to finance part of the O&M costs. We would like to analyze this latter option since it is a controversial one. There are some irrigation schemes–mainly those using pumped water–where the O&M cannot truly be afforded by farmers; in fact they can only subsist as long as the government is willing to subsidize part of those costs. Therefore, when attempting the transfer of such schemes it is easy to imagine that farmers will refuse it unless governments continue with the subsidies. At this point a hard decision is needed but continuing with the subsidies places these schemes in a privileged situation with respect to the others. In such situations it may advisable to find an indirect way to subsidize the scheme. One possibility may be the establishment of agro-industries, the benefits from which may be used for covering the O&M costs. Another could be the application of special tariffs for power consumption. This is a very important point as no irrigation scheme can be successfully transferred if its economic autonomy cannot be ensured. In fact it very often happens that IMT programs progress very satisfactorily at the beginning when the irrigation schemes having more favorable economic conditions are transferred and suddenly become stuck when arriving at those with an unsustainable economic viability.

It is relevant to bring in here the Mexican experience in this matter where, in order to ensure the financial viability of the newly formed WUAs, a special investment program has been established. The system foresees that the WUA will buy construction and O&M machinery at a subsidized rate. The machinery can then be used for farm improvements and rehabilitation of the system. By applying discounted rates to farmers a rapid repayment of the machinery is expected and the WUA gets a capital that can be used to provide cheap services to farmers and cover possible cost overruns in maintenance. The whole scheme is financed by a large loan from the World Bank.

IMPLEMENTATION OF THE PROGRAM

In most countries, the agency that has been traditionally responsible for the management of the irrigation systems also becomes responsible for the IMT program. Although this seems unavoidable it naturally creates many problems as in fact the implementation of the program means the reduction in staff of the agency. For this reason it is of great importance that from the beginning the situation is explained clearly to the staff. Experience shows that newly established WUAs can absorb some of the government staff in their cadres but naturally they tend to select the best. As a reduction in staff is inevitable plans for anticipated retirement and compensation for staff wishing to leave must be devised. Retraining of staff in other functions must also be included in the plans.

The fact that government irrigation agencies are made responsible for implementing IMT programs implies a natural resistance to speeding up the implementation of the program. Therefore it is important to set targets and monitor implementation of the program. Unless formal commitments are established it is likely that implementation of the program will be a long-term affair. On the other hand, where such programs have been started farmers are generally anxious about taking up responsibilities.

One aspect that needs particular attention in the implementation is the role of the future WUAs. Their legal nature, relations with the irrigation agency, statutes and other related matters must be very clearly defined, otherwise contradictory situations are likely to arise which will be detrimental to the program. The question of water rights is likely to arise and needs to be spelled out clearly. If WUAs are supposed to manage their irrigated areas effectively the system for water allocation must be clearly spelled out. When several WUAs use the same water source it is practical to allocate a share (percentage) of the available water at the dam or river at the beginning of the irrigation season. Once water is allocated to a specific WUA, responsibility for its use within the commanded area should rest with that WUA.

Other aspects that need attention in this stage are those related to the actual development of the program. Questions like who will be introducing the program to the farmers, how farmers will be informed of their new roles, who will be promoting the election of the leaders of the WUA, etc., need to be answered in a detailed and specific manner. In the case of the Philippines, most of these responsibilities have been entrusted to trained farmer organizers that have proven

very useful in these tasks. Wijayaratna and Vermillion (1994) report that their cost was US$6-7 per hectare in the communal systems and less than US$1 for the national systems.

It may be relevant at this point to mention the important role that modern media of communication can play in mobilizing farmers and making them to understand their role in the WUA. In many countries farmers do listen to the radio and sometimes also watch television. The use of these media to convey the messages of the IMT programs can be instrumental in speeding up the communication process. One should not forget that messages passed from mouth to mouth tend to be distorted and incomplete. The only way of assuring the repetition of the message in a consistent manner is the use of modern media of communication. Even when television may not be available at the farmer's house portable units can be used to assure the transfer of the message in a clear manner to those concerned. All of these require the setting up of an appropriate information program with the concerned media units. FAO has been using this approach with considerable success in Peru and Mexico. Without the support of these information programs it would have been practically impossible to reach the thousands of farmers that were supposed to be reached by the programs.

One of the most critical aspects of the IMT programs is the training of the farmers and the technical staff that will lead the management of the WUA. There is considerable concurrence that such training is always needed but there is considerable divergence about the kind of training that may be needed. Some hold the view that WUAs should be capable of hiring technical staff able to deal competently with either the technical or financial issues and therefore the only training that may be needed should be addressed to the farmer leaders so that they understand better their leading roles and can do a more effective job. The other view is that the technical staff of the WUA is generally young and inexperienced and that the operation of the system is a complex matter that requires considerable training. FAO experience is that the second situation is the most general one and training aspects should be addressed to cover both the technical staff and the leaders of the WUAs.

One common assumption that is made in these training programs is that their content can be determined beforehand. To a certain extent the broad lines of the training needs can be defined but when it comes to the actual needs of a given WUA it is wrong to assume that we can anticipate their needs. On the contrary, an assessment should be made of what they visualize as major problems, and from this information the aspects that can be improved by training can be determined. Such a quick assessment of the training needs should not require more than one or two days once the methodology is properly established. FAO is using this approach in Mexico where a training program has been developed for the management of the irrigated areas.

It is important to develop manuals and other technical tools (such as computer software) that the technical staff can refer to when operating the system. In this respect it is most important to collect the experience of the agency that for years has been managing the irrigation system. Dissemination of such manuals together with some in-class training is very important to ensure proper operation of the system. A number a computer packages are also available to reduce the administrative burden and to accelerate processing of information related to water distribution. FAO has developed one such package called SIMIS (Scheme Information Management Information System) which is distributed through national training courses among interested countries.

The major training bottleneck is the training of the leaders of the WUAs because wide differences exist in their understanding of the job and capacity to carry it out efficiently. The training needs of the leaders of a WUA made up mostly of illiterate farmers with little experience in irrigation are much greater than those of a similar group made up of university graduates with considerable background and experience in irrigated agriculture. In the first case, the training needs are enormous and it is doubtful that all the necessary training can be done economically, while in the second case a few days of training may be sufficient to have a better understanding of the job to be done. This is one of the reasons that explains why the transfer of irrigation systems may be a long-term exercise in some cases, while in others autonomy can be achieved in a short span of time. This is an important point to consider when determining the training needs of the program. One interesting approach that was used in Spain to deal with the case of farmer leaders poorly prepared to take the management lead was to establish joint committees comprising of a number of civil servants coming from the irrigation agency and farmer representatives. During the initial years, the civil servants were the majority in the committee, but gradually the proportion was reversed till the committee was made up only of farmer representatives. This permitted a gradual transfer over a long period of time during which farmers learned their responsibilities and duties on the job.

MONITORING OF THE PROGRAM AND IMPACT ASSESSMENT

Countries are more concerned with the implementation of the programs than with impact assessment. Reports of hectares transferred or WUA established are easily obtainable but very rarely do reports provide evidence of the impact of the transfer. An interesting approach has been developed in Mexico where local offices from the irrigation agency have been established at the regional level with the purpose of monitoring the development of newly established WUA,

but also to provide them with technical guidance and assistance that may be required. This has permitted the redeployment of some of the existing staff and also provided technical services (such as laboratory analyzes that otherwise would be difficult to obtain).

The impact of irrigation management transfer programs are variable as programs are also different in scope and purpose. Referring to those programs where a full transfer of the irrigation system is intended, they tend to show a highly positive impact. Some of the most interesting results are as follows:

* Irrigation systems tend to respond better to the demand for water by farmers. This has resulted sometimes in spectacular increments (as much as 40 percent has been reported in the Dominican Republic) in the irrigated area.

* Problems of an inequitable distribution of water between tail and head canal users tends to decrease or resolve completely.

* Most of the studies report that maintenance works are done in a timely manner particularly in the tertiary canals and some reduction of costs is achieved. However, most of the researchers agree that transfer does not achieve large reductions in maintenance costs but that quality and opportunity are considerably improved.

* Reductions in the staff needed for managing the system are reported by Vermillion and Garcés (1994). This often results in a decrease of the water fees that farmers have to pay.

* As a result of a more timely water distribution, increments of yields are reported but they are very much dependent of local situations.

* Svendsen and Vermillion (1994) indicate that IMT was instrumental in promoting the adoption of new technologies in the Columbia basin, but this a trend that has also been observed in other projects.

* Considerable increments in the number of farmers paying their water fees are observed when systems are transferred. Payment rates often exceed 85 percent.

There are, however, a few cases of negative impact. For example, in several irrigation schemes a trend has been observed to reduce water fees beyond what is reasonable for proper maintenance of the irrigation systems. Cases are also reported of an authoritarian role of the farmer leaders, which discourages farmer participation. Several irrigation schemes have suffered from negative cash balances which leads to a reduction of technical staff and routine maintenance, which leaves the WUA in the same situation than before the transfer. A usual complaint of many WUAs is that often they are not considered as subjects worthy of credit by the banks and that they cannot undertake construction/improvement contracts and therefore cannot improve their economic viability.

In general, the balance of the impact of transfer programs is positive although it is difficult to quantify it in economic terms. In fact, there is very little information available about the costs of irrigation management programs but even less on the returns or benefits that they can generate. Much research work is still needed to have more concrete evaluations of the impact of IMT programs.

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