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A COMPARATIVE STUDY OF APPROACHES TO CREATING WATER USER ASSOCIATIONS FOR POTABLE WATER IN RURAL TUNISIA

ISPAN Report No. 38



IRRIGATION SUPPORT PROJECT FOR ASIA AND THE NEAR EAST

Sponsored by the U.S. Agency for International Development



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**Prepared for the USAID Mission to Tunisia by
Irrigation Support Project for Asia and the Near East (ISPAN)
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(SARSA II)**

by

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CONTENTS

ACKNOWLEDGMENTS	iii
ACRONYMS AND TERMS	v
EXECUTIVE SUMMARY	vii
RECOMMENDATIONS	viii
1. INTRODUCTION	1
2. THREE EXPERIENCES: KASSERINE, KAIROUAN, AND LE KEF	3
2.1 Association Organization	3
2.2 Organizational Differences Linked to Technical and Geological Factors	3
2.3 Association Creation	4
2.4 Approaches	5
2.5 Finances and Budget	6
2.6 Dues and Fees	7
2.7 Linkages	7
2.8 Support Structure	8
3. STRUCTURE AND DYNAMICS OF WATER USER ASSOCIATIONS IN 1990	9
3.1 Regional Variations Requiring Flexibility	9
3.2 When and Where Should a WUA Be Created?	10
3.3 Responsibilities and Composition of the WUA Administrative Board	10
3.4 Water Fees: Social Dimensions	12
3.5 Expenditures	13
3.6 Potable Water and Irrigation Water	13
3.7 Equity Questions	14
3.8 Disputes	15
3.9 Water User Associations and Income-Generation Activities	15
3.10 Links for the Associations	15

4.	ADMINISTRATIVE SUPPORT FOR WATER USER ASSOCIATIONS	17
4.1	Creating WUAs	17
4.2	Social Workers and Technicians as Organizers	19
4.3	Continuing Support in Management	21
4.4	Technical Support	22
4.5	Support by Authorities	24
4.6	Special Importance of the Délégué Role	24
4.7	Major Recommendations	25
5.	ROLE OF THE WUA IN PUBLIC HEALTH AND SANITATION .	27
5.1	Maintaining Sanitary Conditions at Water Sites	28
5.2	Encouraging the Community to Use the Potable Water	28
5.3	Encouraging Safe Household Practices for Water Transport and Storage: The Role of Women	29
5.4	Experiments in Reaching Rural Women	30
5.5	Recommendations	31
6.	FINANCE AND PRICING ISSUES	33
6.1	Economic Necessity for Forming Associations to Manage and Finance Potable Water	33
6.2	Determining WUA Financial Responsibility	34
6.3	Collection of Funds and WUA Administration and Financial Control	38
6.4	Price Policy for Potable Water: User Prices and Government Subsidy	41
6.5	Recommendations	43
7.	CONCLUSION	45
 APPENDIX		
A.	Scope of Work	47
B.	Communities Visited	51
C.	Persons Interviewed	53

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Annex C contains a list of people interviewed during the study tour. Every name on the list should be repeated here to acknowledge our appreciation of the professional cooperation and personal welcome extended to us at every stop on our visit. Moreover, two people graciously allowed us to monopolize much of their time and thus made it possible for us to complete our work:

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We would also like to salute the Tunisian people, who are aiming to create an associative framework for rural life, starting from the common need for water. We congratulate all those who have helped in this job in the three governorates we visited. They have made a notable contribution to the development of Tunisia and to the well-being of its rural population.

The team was saddened to learn of the untimely death of Khemais Alouini, Director of Rural Engineering, Ministry of Agriculture. M. Alouini was a strong, vocal supporter of the effort to develop a national strategy for creating water users associations. His loss is severely felt by all.

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Acronyms and Terms

AFL	Affaires Foncières et Législatives
AIC	Association d'Intérêt Collectif (Water User Association)
<i>animatrice de base</i>	community health workers
CRDA	Commisariat Régionale du Développement Agricole (Regional Agricultural Development Council)
<i>délégué</i>	district administrator
<i>délégation</i>	district in a governorate
GIH	Groupement d'Intérêt Hydraulique (Governorate Water Resources Committee)
GR	Génie Rural (Rural Engineering Unit)
<i>omda</i>	village leader
PDR	Programme de Développement Rural (Rural Development Program)
<i>regisseur</i>	agent
SONEDE	Société Nationale d'Exploitation et de Développement des Eaux (National Water Company)
<i>sous-regisseur</i>	sub-agent
TD	Tunisian Dinar (1 TD=\$1.17 in January 1991)
UAG	Unité d'Autogestion (Regional WUA Support Unit)
USAID	U.S. Agency for International Development
WUA	Water User Association

Executive Summary

The comparative study of the approaches toward creating potable water user associations is the first of several applied studies under the Action Plan to support the Tunisian National Strategy to Create and Monitor Water User Associations (WUAs). The purpose of the study is to examine the experiences in the governorates of Kasserine and Kairouan, where efforts to encourage WUAs have been going on for over four years. Additionally, the study includes one other governorate, Le Kef, where such activities have begun only recently.

General findings. The concept of community WUAs for potable water points has been proven to work. In the three governorates visited, there are over 300 associations, of which about two-thirds are legally constituted under Tunisian law. In large measure, the costs of fuel and small repairs to operate these water points are now covered by the community associations rather than by the government. In most cases, however, the salary of the pump operator is still paid by the government. Although collection of monthly water fees is still a problem in many WUAs, over half of them have a small surplus of funds.

Support units for water user associations. The governorate-level support units for the creation of WUAs began very differently in Kasserine and Kairouan; however, they have now largely converged in terms of unit size, resources utilized, range of community development activities engaged in, and style of community organization work. Both governorates tried to begin with a very small one-person unit only to discover that it was inadequate for the task. Other governorates seem now to be largely repeating this pattern of trying to start their WUA program with a minimal unit. The lesson from this comparative study is that these units will not be adequate.

Social workers and technicians. Kasserine, with the support of the Potable Water Institutions Project,¹ began its program with a strong emphasis on the social aspects of organizing water user associations. Kairouan, working without outside support, began similar work with one of its senior technicians. Over time, the Kairouan unit has broadened its activities to include a range of social issues. Although Kairouan has managed to find technicians with the capability to deal effectively with the social tasks of organizing WUAs, most observers agree that engineers with such talents are rare. The present study concludes that the experience of the two governorates shows the need for persons trained in social and technical fields. Ideally, each governorate unit should try to find persons of both backgrounds.

¹Sponsored by the U.S. Agency for International Development (USAID).

Importance of support by authorities, especially the *délégué*. If Kairouan has managed to succeed despite its limited resources, much of the reason is that the support unit mobilized the full and visible support of the governor and a broad range of technicians and officials in the governorate. This support included a governorate-wide conference on the WUA program. In all three governorates, it is clear that the most important locus of support is at the *délégué* level. Where the *délégué* is visibly and actively behind the program, it moves forward. In *délégations* where that support is lacking, little can be accomplished.

Problems with the financial management system. The system of financial management that seems to be required under the recent law is not applied in any of the three governorates, nor are persons at the governorate level certain as to how it should be applied. The general view is that the law imposes a procedure far too complex for small rural WUAs that handle only tiny sums of money. One governorate is trying to set up a system to comply with the law; however, this effort has stalled a successful program. Another governorate has come up with stop-gap procedures that meet the spirit if not the letter of the law, and the third governorate has so far left the financial management entirely in the hands of the associations. Problems are at two levels: first, the means of implementing the current law are unclear; second, the law treats the money collected by community members as if it were the government's money. This bureaucratization of the WUAs effectively undermines the concept of financial autonomy and largely defeats the purpose of turning water systems over to the communities.

Recommendations

This study has highlighted the important need for many of the remaining tasks under the Action Plan, especially the cost-benefit or pricing study, the institutional analysis, and the social marketing program. The following recommendations follow directly from the findings of this comparative study:

Informational material. The USAID-supported Action Plan emphasizes the training of trainers for WUA presidents, treasurers, and pump operators, but it has largely skipped the level of providing general guidance to the support units themselves on how to go about organizing WUAs. Génie Rural (GR) headquarters in Tunis should prepare some simple materials on the tasks of a support unit for creating WUAs. In the same vein, it should organize workshops for those responsible for this work in the governorates.

Training unit. Much of the effort of creating WUAs involves training. Because the governorate-level support units are likely to be stronger on the technical than social

side, GR Tunis should consider setting up a mobile team of trainers that could support the governorate-level units.

Both of these recommendations provide cost-effective means to significantly strengthen the abilities of the governorate-level units that are now learning by trial and error to do a job for which they were never trained.

Broad governmental support. Génie Rural needs to continue and intensify its efforts to develop broad interministerial support for the WUA program. Especially, it needs to gain the visible cooperation of the governors and their *délégués*.

Financial management regulations. At the least, GR must continue to work with the Ministries of Finance and Economic Planning and Interior to work out the most flexible procedures possible for application of the present law. With a lack of clear guidance from Tunis, persons in the governorates will insist on the narrowest interpretations in order to protect themselves. At the same time, there needs to a gradual movement toward an improved set of legal regulations.

Health education. We recommend that pilot activities continue wherever possible and that these experiences be reviewed in the future for possible implementation on a national scale within the WUA promotion program. These pilot activities include the ongoing work with the idea of the female community health worker in Kasserine, the attempts to create women's groups within the WUAs in Kairouan and Kasserine, and experimentation with having WUAs play a role in the distribution of *Eau de Javel* (bleach) to their members.

Chapter 1

Introduction

This comparative study is the first of five applied studies that are part of the Action Plan for the national strategy for water user associations (WUAs).² The purpose of this study is to examine recent experiences in Tunisia with WUA promotion to draw out lessons now that the program is to be adopted on a national scale. (The scope of work appears in Appendix A.)

Underlying this comparative study is a hypothesis that there are at least two different approaches employed to date, approaches that differ significantly in scale of resources applied to WUA creation, style of interaction with the communities, and professional orientation of the community organizers. At the outset of the national strategy, this study aims to determine the extent to which these differences exist and what elements of each approach appear most effective. Despite the hypothesis that Kasserine and Kairouan have different approaches, this study does not intend to compare the work in the two governorates in a way that indicates one is better than the other in a total sense. The study compares elements within the programs; it does not create a contest between governorates.

The three-person study team spent two weeks visiting the governorates of Kasserine, Kairouan, and Le Kef. In the course of these visits, team members interviewed officials and technicians in the three governorates (see Appendix C) and visited a total of 18 water user associations in 11 délégations. (A list of communities visited appears in Appendix B.)

²In Tunisia, water user associations are known as *Associations d'Intérêt Collectif* (AIC). To avoid possible confusion, this report uses the acronym WUA throughout.

Chapter 2

Three Experiences: Kasserine, Kairouan, and Le Kef

During the consultancy, the team visited WUAs in the three governorates of Kasserine, Kairouan, and Le Kef, speaking to those responsible for WUA creation and follow-up as well as to association leaders and individual members, the users of the potable water. Throughout the text of this report will be found data derived from these visits; this section sums up major points of comparison. However, the team wishes to avoid the notion that there are overall "models" associated with one or the other of these governorates, among which one must choose. Each governorate followed its own path, and each stressed some aspects more than others. Thus, it seems appropriate to put all these experiences together in order to draw helpful lessons for the next stage of the WUAs.

2.1 Association Organization

There is little organizational difference among the three associations, as each is oriented to the same laws and the model by-laws of 1987. Generally one finds a president, a treasurer, and sometimes a secretary working within an administrative board. This board, including the leaders, has from three to nine members. Occasionally, some board members or officers are absent, having migrated since the board was elected. It seems that usually the choice of board members and officers is more a selection than a true election, into which come such factors as the number of social groups (tribal sections, geographic divisions, etc.), but also some negotiation between the government and the population. In one case, we were told that it was not an election but a choice, while in another, the members took the step of conferring before the meeting with higher-level officials in order to agree upon their choice. They then presented these officials with their choice as a *fait accompli*. The level of local "democracy" does not seem to reflect different philosophies from one governorate to another. Each case included some true elections and some reflection of "interference" or at least some suggestions of interference on the part of the government.

2.2 Organizational Differences Linked to Technical and Geological Factors

The organizational differences among WUAs are more closely related to the physical structure of the water system and geological structure of the locale than to the strategy used to create an association. For example, there are cases of elaborate systems with pipelines of 20 or 30 km and several water points, while in other cases, there is only a single water point, which may be a drilled well or a shallow well of

10 m. Such factors determine whether the associations are complex or simple. In general, systems with several water points have a kind of "federal" structure—either several linked associations or a single association with branches corresponding to each water point. There are also some public water points based on shallow wells and especially on springs where there is no association because, not having motors, there are no operating expenses.

Another important factor is the availability of alternate water sources. The question arises based on the Le Kef example, how associations function in cases where most of the people draw their domestic water from private systems. The presence of such private water points nearby might complicate efforts to collect fees from the users of the public water points.

There is a local water economy with users taking water from different water points for different purposes (drinking, washing clothes, watering animals, etc.). There is almost always a market for water, following the cost of water at each point. Users, especially in Central Tunisia, are sensitive to water costs and are likely to go a little farther to get cheaper water.

2.3 Association Creation

The creation of WUAs in the two governorates of Kasserine and Kairouan began at approximately the same time, 1984-85. Thus, in both cases what one finds today is the result of several years of hard work. Although their paths were not the same it seems today that the two cases are converging or, perhaps more precisely, that Kairouan is tending more and more to resemble Kasserine. In Kasserine, the effort began with a single man, the Tunisian consultant M. Mohsen Turki. In Kairouan, it was again a single man, M. Moncef Hajji, who until quite recently labored alone to create water user associations.

The Unité d'Autogestion (UAG), a regional WUA support unit, was created in Kasserine in 1987; it largely includes social workers and sociologists. This unit cooperated with the staff of the health education unit of the Ministry of Public Health, working together as the Regional Health Education Team, and also cooperated with staff from the Education and Social Affairs ministries. Thus, in Kasserine the "social" side was evident from the beginning. In Kairouan, most of the associations were set up by the official, an assistant engineer, and it was not until recently that the decision was taken to expand the unit to four members recruited from the staff of the Commissariat Régionale du Développement Agricole (CRDA) in Kairouan (perhaps the merger of the Omivak and the CRDA a few months ago made this possible).

One may give a somewhat exaggerated summary of the situation by saying that in Kairouan one dedicated man was able to do excellent work by concentrating on the financial and technical aspects and working in about half the governorate, whereas in Kasserine a whole team (established in 1987) has worked intensively throughout the governorate on a wider range of problems, including health education and community development.

The number of associations in each governorate cannot be given exactly, as there are distinctions between associations for potable water only and associations for a combination of potable and irrigation water; also, some associations function without the benefit of full legalization. It is safe to say that there are about 100 potable water associations in Kasserine governorate, about 160 in Kairouan governorate, and about 35 in El Kef governorate; all involve motorized water points. In El Kef most of the water systems (with one exception) involve shallow wells equipped with motors and pumps. In the other two governorates, most of the associations manage water points supplied by drilled wells, but a few are supplied with water by the SONEDE system or by shallow wells. In general, wells and springs without motors and pumps have no WUAs.

2.4 Approaches

In Kasserine the first goal was community development. State officials in touch with the associations are typically social workers, seconded to the Ministry of Agriculture or hired directly. In addition to promoting community management of the water point itself, they have tried to arouse a community spirit by linking the WUAs to other activities, sometimes with the goal of enhancing the economic development of the zone (making water available for irrigation as well as domestic uses), at other times with the hope of ensuring that the water improves the population's general health.

With this latter goal in mind, the program of the *animatrices de base* (community health workers) was begun. In Kasserine there were eventually 36 such workers located in eight different *délégations* (geographical units within each governorate). The head of the Unité d'Autogestion estimated that his staff members spent as much as 20 percent of their time working on these health education and sanitation questions. Also in Kasserine, a number of "small projects" were started. An effort was made to identify a role for women in the life of the associations, especially in the area of health, but also through such economic projects as family gardens and small animal husbandry.

In Kairouan, the first goal was the economic well-being of the associations; thus, those involved sought out ways to collect fees from the majority of users in the target

délégations. At the moment, the Kairouan team is drawing on the Kasserine unit's experience in the social domain, and its associations are all or mostly in the black as far as water point operating costs are concerned. In Kasserine, an effort has been made to persuade people, whereas in Kairouan, there has been some pressure. El Kef may be taken to represent the case of a governorate where the task is just getting under way. Numerous associations have been started, but their boards and officers are just beginning to confront some of their problems, especially those of fees and WUA financial status. Here, people who used to get water for free are now being asked to pay for it, so one can understand the problem.

2.5 Finances and Budget

In terms of financial management, the Kasserine team has tried to follow the law, but the system is not yet in place because the agents and subagents (*regisseurs* and *sous-regisseurs*) specified by the law have not yet been named. In Kairouan, with the support of the governor and some *délégués*, the officials have come up with an original solution. Cooperating *délégués* have named an official in their office as the agent (here *sous-regisseur*), but often this person then does not know what to do with the money. This system is working for now, but it remains to some degree outside the law. In El Kef, the officials are between these two solutions: they want to follow the law, but do not know how.

It would be hard to say in any of these cases that the WUA really has financial autonomy. In Kasserine some associations have a de facto autonomy, but this is temporary while waiting for the structure of agents and subagents to be worked out. In Kairouan, some associations have a de facto autonomy because administration officials have agreed to a system that is not in accord with the law. But above all, the notion of financial autonomy only makes sense if there is a reserve of money that can be used to allow the association to choose among different alternatives.

The fixing of fees also does not reflect financial autonomy. In general, the team had the impression that the fees or dues were set or imposed by government officials, generally at one dinar per month, per household. There is more freedom to choose the fee set for the small and larger tankers, though prices are fixed within a certain range. In one case in El Kef, it was explained that the WUA decided to allow its members to fill two small tankers each week, even though the *délégué* had instructed it to limit members to one.

2.6 Dues and Fees

In Kairouan the officials are proud that all the WUAs are showing a surplus, while in Kasserine around 61 percent were showing a surplus in 1989, and in El Kef the majority of the associations show a deficit. Here are a few hypotheses explaining the difference:

- In Kairouan, people were pressured (so to speak) with the whole weight of the administration (the anger of the *délégué* in case the dues were not paid), while in Kasserine, persuasion was the main tactic.
- In Kasserine, several associations collected all the money they needed by selling water to tractor-drawn tankers and thus did not have to persuade their small users to pay dues.
- Kasserine may have more large and expensive systems with small populations and, hence, payment problems.
- The attitude toward subsidies may be a factor, since some officials in Kasserine consider them necessary, perhaps even desirable. Nonetheless, according to the law, dues are enforceable. (People are ready everywhere to make exceptions for truly poor households.) But to collect dues from the unwilling requires either government support or the pressure of public opinion.

In any case, one can note that the biggest payment problems emerge when there is a quarrel between two groups of users; in these cases, the team often heard that one if not both groups refused to pay on the grounds that the other group was getting more advantages from the water point. Here, it is by settling the dispute that dues collection can continue—hence, a mediator is more appropriate than the police. (In El Kef we saw another case in which the whole community seemed to be too poor to pay dues, given that most of the men were unemployed or at best underpaid agricultural workers.) In general, it appears easiest to establish an effective association when a new system is being installed or when an old one is being upgraded.

2.7 Linkages

Associations in each governorate are linked to various branches of the administration. This begins with links to the CRDA, in principle with its Rural

Engineering (Génie Rural/GR) section. There are also often links with each governorate's Programme de Développement Rural (PDR), whose more-elastic budgets allow them to better deal with unexpected crises. Some *délégués* warmly support the associations, which then work well. Others are more reluctant. The role of the *délégués* is central and should not be overlooked.

One should say a few words about the relationship between government officials, on the one hand, and WUA members, on the other, since these are the same everywhere. Such relationships are articulated around the notion that the government "does something" for the citizens, who are then grateful. This attitude does much to motivate the officials to maintain their interest in rural society and to sustain their dedication. But at the same time, it can give rise to a certain administrative paternalism when a stronger citizen sense of responsibility would be more profitable. How can this awareness of responsibility be encouraged? By listening to citizens and respecting their points of view and contributions. The challenge is to learn how to support associations without strangling them.

WUA leaders, and perhaps also their members, are everywhere becoming part of the bureaucracy. This is evident from viewing the presidents, treasurers, and pump operators with their account books, receipt pads, etc., and from observing the relationships between them and government officials.

2.8 Support Structure

There is a rather noticeable difference between the two cases: in Kairouan the structures are rather homogeneous and the whole administration, from the governor on down, appears to support the idea of the associations. In Kasserine, one observes a division of responsibilities, especially evident in the area of maintenance and repair but also apparent in the relations between the UAG and health education. There also appears to be less administrative interest (from governors and *délégués*), although this relative disinterest may not be a conscious choice. The situation in Kasserine is both more complex to begin with and also more difficult to manage.

Chapter 3

Structure and Dynamics of Water User Associations in 1990

The philosophy underlying WUA establishment stresses that the best way to manage isolated public water points is through user self-management. If users take responsibility for the water point they will ensure that it works well, whether from a technical, health, or financial viewpoint. This will prevent wastage and breakage, so the system will last longer. When users take on responsibility for the water point, especially by contributing money for its functioning, the system becomes in some sense "theirs."

This section indicates various considerations for a model WUA, touching on its context, its role, and its responsibilities.

3.1 Regional Variations Requiring Flexibility

Inasmuch as socioeconomic conditions are not the same everywhere in Tunisia, a certain flexibility is required both in the internal organization of the associations and in their institutional framework. For example, one can observe that the rural areas of Kasserine and Kairouan are marked by the existence of a tribal system, which is reflected in a certain egalitarianism. Further north in Tunisia, there are instead large landowners and agricultural workers, who are often landless. The placement of associations within each social context will thus differ according to circumstance. For instance, people may not be as able to pay in one setting as in another. (One has to assume that at least part of the money available in the rural areas comes from migrant workers, or from trade, or, more generally, from nonagricultural activities.)

When a WUA is started, the economic and social conditions of the site must be considered. For example, is the local society characterized by tribalism or is social class the predominant feature? How are households linked to one another? What is the role of agriculture and how successful is it? What are the roles of animal husbandry (pastoralism) and of irrigated zones? Are there alternative sources of income, such as trade, transport and migrant labor? What is the role of women? Is the water point near a school or a dispensary? Such questions reveal a social dimension that must be taken into account.

There are other factors. If public water points are not very numerous in a region, it may be harder to make the WUA members pay their dues because there is probably free water available nearby. Thus, the association must offer something to its

members besides just water. In other areas, there could be preferences for special kinds of water: for instance, some may prefer to drink rain water collected in underground cisterns because of its taste. Each of these circumstances requires a particular tactic to reach the general goal.

3.2 When and Where Should a WUA Be Created?

There is now a tendency to create a WUA for each public water point, especially where the water point is motorized and has operating costs which dues and fees should cover. However, this definition should not necessarily be the only one: there are often nonmotorized public water points, such as springs; also, in order to advance a rational management of water, private water points should be taken into account.

In areas where a new water point is being started or where an old system is being improved, the WUA should be created as soon as possible to allow its members input as to the character of the construction/buildings—whether the water point should include a tap, a standpipe, a washing platform, a drinking trough for animals, etc., and where these should be located. Members should also contribute to the organization of the association (Who are the members?). Many mistakes are made because the population has not been adequately consulted before beginning to drill the well and undertake construction. If the users/citizens are not satisfied, they may react in a way opposed to the logic of the project itself.

In some cases, rural populations have started a WUA to pressure the government into creating a water point in their area.

3.3 Responsibilities and Composition of the WUA Administrative Board

The WUA represents the user population. Generally, people agree that each group in the population (tribal section, hamlet, or extended family) should be represented on the association board. Each association has a president, as stipulated by law, but also a treasurer and often a secretary, which are not stipulated. It is useful to have at least a president and a treasurer to share the tasks and to take each other's place if need be. In principle, the board and the officers are elected (the general assembly of all members elects the association board, which then elects its president). In practice, however, it often seems to be more of a "choice" than an election between opposing candidates.

Visits within the three governorates revealed several types of presidents and treasurers. Sometimes the choice fell upon young men who might be schoolteachers

or other state officials. Sometimes locally prominent men were chosen, who might have had experience working with the political parties (PSD or RCD). Each association should make its own choice, to satisfy its own needs and in light of the available candidates. Age need not be an issue; however, given the requirements of working with the bureaucracy, the officers should be literate and experienced in working with technicians and other state officials. UAG staff should arrange continual training for the WUA officers (see Chapter 4).

A WUA can hire its own employees and should pay them itself. In certain very complex systems, the associations already pay extra watchmen (guards) additional to the pump operator generally paid by the state. In the future, WUAs should also accept responsibility for paying pump operators. An association could also in the long run have other employees, for instance, the *animatrice de base* now paid by the governorate.

WUAs have diverse income and expenditure and must work toward total financial autonomy. Some kind of financial control (*une gestion comptable*/bookkeeping management) is necessary, but it should be made as light as possible. Each association should be able to open a postal checking account and submit its accounts every three months (for instance) to the agent named by the administration. The role of agent is extremely important not only to reassure the administration that the WUA financial management is responsible but also to make the members confident that their money is being well spent. The administrative board should use its income directly to settle its costs, and the surplus can be deposited into the postal checking account. Bookkeeping should follow a simple and clear system. The association will thus fall under the purview of the governor for its accounts, as the law states.

The WUA should have the right to spend its money according to the budget approved by the governor. However, if this raises problems, perhaps the association could avoid them by simply managing never to have a surplus (i.e., by collecting only as much money as actually needed).

The WUA should help promote health education; health problems linked to water include diarrhea and skin and eye diseases. (In 1989, there were outbreaks of typhoid in rural Kasserine.) The association should also be responsible for maintaining the cleanliness of the water point site, often dirtied by animals (and their dung) if not by human wastage. The association should cooperate with the health education officials to be sure that the instructions are spread to all segments of the association. One should be able to reach the school children through the school and the men through the WUA or other political activities such as the party cell, but one must also find a way to communicate with the women in their houses.

3.4 Water Fees: Social Dimensions

The most important types of income will be household dues and the fees paid by the tanker owners. Any subsidies will be additional.

Collecting dues. How can dues be collected most effectively? In the long run persuasion is better than obligation, if only because dues-paying may stop once the pressure of obligation is withdrawn. However, persuasion requires that the community of users be able to induce its own members when and if they refuse to pay their dues. For the time being, associations seem to be stuck between external constraints and voluntary payments. People must accept the idea that there is no water without payment (apart from truly needy households) and also the principle that discipline must come from within the association.

Different water uses. Water used for economic purposes (watering animals, irrigating trees, irrigation of fields) must be distinguished from water used to meet domestic needs (drinking, cooking, washing clothes, etc.). If water is used for economic purposes, the user should pay at least the "true" cost of the water. If there is to be any subsidy, it must be only in the cases where the "true" cost of *domestic* water is higher than the ability of the user population to pay.

Government subsidies. According to the law, WUAs can receive subsidies from the state, but they must be entered into the accounts. For the moment, most if not all subsidies are paid in kind and are not entered into the accounts. If there is to be a subsidy, an efficient and fair means has to be found to encourage those who truly need it without helping those who do not. But the challenge is to avoid any subsidies for the operating costs of domestic water.

Loans to WUAs. The law does authorize associations to borrow money. An interesting approach to loans that might be relevant to Tunisia is found in some poor rural areas of the United States—in New Mexico, for example, which has been visited by some Tunisian potable water officials—the government encourages rural communities to acquire rural potable water systems using a combination of grants and loans. The proportion between grants and loans is established as a function of community resources, and the association is then responsible for repaying the loan. The users must pay not only the operating costs but also the costs of the loan repayment. Some small systems have less than 50 users/members, but the water is nonetheless sometimes cheaper than in nearby cities.

3.5 Expenditures

Motor costs. WUAs will cover costs of fuel, lubrication, etc., i.e., the operating costs of the motor.

Repairs. Each WUA should be responsible for equipment maintenance and repairs. It should first try to take care of the repair itself, either through a mechanic who is an association member, through the pump operator, or through an outside mechanic. If the task is more than the association can handle, it should take on the responsibility of informing the authorities and following up on the request, for instance by staying in touch with the repair people. The distinction between small and large repairs, with small being the responsibility of the association and large that of the government, is not very clear in practice. Should a sum (usually given as 100 TD) be fixed or should the distinction be negotiated between the association officers and the state officials? WUAs should eventually learn that what they do themselves is done better, without delays, trips, and administrative problems.

Salaries. Each association should pay the salaries of the pump operator, any guards that are needed, and perhaps the *animatrice de base*.

Loans by the WUA. An association can also lend money to encourage a rational use of water. For instance, it could lend money to those who want to improve their house cisterns to keep the water clean or to those who want to build or improve water points (adding another public tap, for instance).

House connections. Among the various ways to upgrade the water system, people frequently mentioned that they are interested in house connections. This cannot be done soon, but the association could always keep the plan in mind for a future agenda.

3.6 Potable Water and Irrigation Water

Although WUAs might be viewed as "natural experiments" in which local pressures and programs determine a particular combination of irrigation and domestic water, there should perhaps be an external control to deal with the handful of people who may be monopolizing the water against the interests of the group.

The problem of the link between domestic water and irrigation water arises as soon as the well is drilled. Those living next to the site soon begin to imagine how they are going to use the water for irrigation; the temptation increases if the water flow exceeds domestic water needs. There are then several possible solutions:

- Sometimes the water is carried away in tankers to water trees or animals. This is more or less acceptable inasmuch as the users pay for the water.
- Sometimes the immediate neighbors of the site (the reservoir and the tap) profit from this proximity by connecting canals. This is uncommon and generally takes place only with association agreement (see the case of Mazreg Echams, Sbeitla, Kasserine).
- In a few cases the people, with the permission of the government (but of whom?), try to establish a small irrigated zone using canals, as at Qsar Lemsā (Ouesletia, Kairouan) or at Ouled Hmed (Feriana, Kasserine).
- Sometimes the well is planned from the beginning to serve both purposes, as in Farazai (Kairouan Sud) or Henchir Matar (Kalaa Khasba, Le Kef); in general, this means that the irrigation plans take precedence over domestic water uses.

Each of these solutions has its own problems. But in general, the creation of new resources strengthens the desire to control those resources for individual gain; there is thus an equity question. Should a resource (domestic water) created for a whole community be monopolized by a few individuals? On the other hand, how can one refuse to let people use a resource (water) that will certainly make them wealthier but will also benefit the whole country?

Allocating water for domestic purposes is certainly easier than allocating it between a small group of people hoping to irrigate and a larger group of domestic water users, especially if the latter are not in a position to become irrigators. Care should be taken that competition for irrigation water does not interfere with the potable water users association.

3.7 Equity Questions

One can probably assume that WUAs are usually created in zones where there are few social inequalities among the population. But as soon as association members begin to display wealth differentials and different degrees of political power, the situation inside the association will change. Once there are differentials, it will be harder to accept that the association is really, in a sense, the common property of its members. By the same token, as soon as a new water point allows (some) irrigation or some watering of animals (a productive use), it can introduce new inequalities.

3.8 Disputes

Where water is a scarce resource that requires a collective management (where each household is not in a position to have an independent water point), disputes are inevitable. These can erupt between rival "tribes," between families, between one geographical area and another. There is often jealousy if the water point is too close to the neighbors; some then worry that the neighbors receive more advantage from the situation than they deserve (if, for instance, everyone is paying the same dues or if some pay dues but all take water). There can also be conflicts over water use between those who use it only for domestic purposes and those who want to irrigate. The association should be careful to limit and settle these disputes. There are still traditional techniques for dispute resolution, and the association is well placed to know exactly what is involved in the dispute and which method will work. However, one should still envisage a role, from time to time and through the WUA framework, for government officials (from the support office, for instance), especially if they have been trained in modern techniques of conflict resolution through negotiation.

3.9 Water User Associations and Income-Generation Activities

WUAs are capable of becoming small-scale joint business ventures. They could, for instance, buy tractors and tankers to supply neighboring communities with water, or perhaps even some members of their own communities. They could also serve as vehicles of development in general, once trust and the habit of working together have been acquired. The team noticed several small steps in this direction (battery-charging, pay-showers, family gardens, and poultry projects).

3.10 Links for the Associations

With whom will the associations be linked? From the government point of view, the associations are placed under the Génie Rural (GR) section of the Ministry of Agriculture. If a support unit is created in the GR office in each governorate, that would be a point of contact for the associations. This office would help with general administrative details, repairs, advice to the associations on their internal organization and their relations with different branches of the government, and also with training.

But the association must also fit into the present administrative structures of rural Tunisia, and thus enters the *délégué*, who serves as a second channel of communication. Instead of opting for one or the other (*délégué* or support unit), both should consciously be brought into play.

At the same time that a law authorized the WUAs, another created a Groupement d'Intérêt Hydraulique (GIH) in each governorate, presided over by the governor. These water interest committees in principle should play a key role; however, it appears that they rarely meet and also that they do not necessarily include all the members specified by the text, notably the seven representatives of Joint Interest Associations (see decree 87-1262 of 27 October 1987, JOT No. 78 of 6 November 1987, p. 1397).

Chapter 4

Administrative Support for Water User Associations

There is an incorrect notion that the program to create WUAs throughout Tunisia means that the government is retreating from involvement in water provision to rural communities. Ideally, the WUA program must be viewed as a partnership between community and government wherein each carries out the tasks it is most qualified to do effectively. It is a partnership with both sides continuing to work closely together to improve and maintain service to the community while at the same time reducing the budgetary demands on the administration.

This partnership involves the development of new attitudes on both sides, and it involves the willingness on both sides to work together in a changing and evolving program. Rural citizens need to be convinced that taking up this responsibility is in their interest, that it is not just an additional tax to pay for something once provided by the government. On the other side, engineers need to be convinced that certain technical tasks can be handled by "amateurs," that their own jobs will be made easier if they can be freed from running to do every minor repair themselves. Authorities need to be convinced that this new community-level responsibility does not threaten the control of the government in general or of a particular official in the region.

The partnership begins with the task of creating WUAs, continues with the assistance provided to them in overcoming management problems during WUA implementation, and will continue to evolve as WUAs become gradually more capable and creative in their responsibilities for community development.

4.1 Creating WUAs

The initial creation of WUAs is a time-consuming and difficult task that requires a small, dedicated team in each governorate. Although it is difficult for the governorates to find the resources to support the efforts of such a team, the benefit in the form of reducing the governorate's operation and maintenance costs quickly offsets the cost of supporting the small team for WUA promotion.

The similarities among the approaches of Kasserine and Kairouan (and even Le Kef) are more significant than the differences. In each case a small, dedicated team went out to the communities, held meetings, explained the WUA idea, and worked closely with the communities to help them solve crucial internal issues regarding water pricing and water-related conflicts and to lead them through the formal steps

necessary to achieve legalization. Getting these WUAs up and running has taken repeated visits and patient, firm discussions.

The contrast to be made among the three governorates is first of all the level of resources and the length of time the governorate has been involved in the operation. Kasserine, as part of the USAID-funded project, has had a special team of five persons (three social workers, a technician, and a sociologist) working on WUAs since 1987. This team is following up the earlier efforts of one man. In Kairouan, there is now also a team of four persons dedicated to WUA promotion and support, but this team is a recent creation that builds and extends the work of a single individual who has dedicated himself for the past four years to the task of creating and supporting WUAs. In Le Kef, the head of GR, the head of Affaires Foncières et Législatives (AFL), and an assistant in GR formed a team giving the WUA task part of their attention. They organized 35 drinking water stations into WUAs (27 of which are now legalized). Their story of the rewards and challenges of the task is similar to the others. In Le Kef, now that the WUAs are started, they have appointed one full-time person to continue to work with the WUAs and help them.

In all three governorates, experience has shown those responsible that they need to increase the number of people carrying out the work of creating and sustaining the WUAs. In Kasserine and Kairouan, what was originally seen as a job for one full-time person is now the task of a multiperson team. In Le Kef, what was originally seen as a task that could be done on a part-time and somewhat ad-hoc basis has now been assigned to a full-time person. (It should be noted that the number of WUAs in Le Kef is about one-fourth the number in each of the other governorates, so the level of resources dedicated to WUAs is comparable.)

According to those involved, the ideal size for a WUA support unit should be about one agent for each 20 to 30 WUAs. This level is the maximum caseload that can be effectively followed, judging from the experiences of those in Kasserine, Kairouan, and Le Kef. Only in Kairouan has the ratio between agent and total number of WUAs been higher. But the agents in Kairouan stress that the real ratio of effective work with WUAs is closer to the 1:30 ratio, since they really only provided significant follow-up to half of the *délégations*, those closest to the governorate capital. Now that they have expanded the number of agents in their unit, they are attempting to expand their effective coverage of *délégations*.

Generally, the governorate is divided geographically, with each member of the support unit responsible for two or three contiguous *délégations*. Even the smallest unit (i.e., where there are the fewest WUAs, such as Le Kef) should have at least two people to allow for some division of tasks and to assure that someone is there when the other is on vacation, ill, or otherwise indisposed. This also assures some measure of continuity when, as eventually happens, one person is shifted or promoted to a new job.

The important lesson from these three experiences is that it is possible to start up WUAs with small, dedicated units at the governorate level. However, much more needs to be done if the WUAs are to be truly effective and sustainable. In Kasserine and Kairouan, the support units still need to work with the WUAs to plan how they might use surpluses, to build in even a modest periodic effort regarding public health awareness, to train the pump operators more effectively in routine preventive maintenance, to help solve crises of dissension within the association, etc. The WUAs of Le Kef are at an earlier organizational stage, still facing the basic issues of fair pricing and how to convince people to pay their dues.

Thus far, the similarity of WUA start-up approaches within the three governorates has been stressed; there are also important differences. In Kasserine, the responsible unit (Unité d'Augestion) is a somewhat special group. Largely sociologists and social workers, the group has taken community-level organization as the focus of their activities, and they seem to have dealt with the community leaders in a rather nonauthoritative way. In Kairouan, the support unit includes GR senior technical staff. The individuals directly responsible for the construction and maintenance of the water systems took direct charge of the WUA task, and as officials accustomed to having some authority, they have tended to be a bit more commanding in their relations with the WUAs. For instance, they can and do suggest that they will shut down the system if the WUA doesn't get itself together. In carrot-and-stick negotiations with the WUAs, the unit does not hesitate to invoke the stick.

4.2 Social Workers and Technicians as Organizers

What types of people are needed for the work of developing WUAs? Because of the differences between the Kasserine and Kairouan units, a debate has arisen over whether it is necessary to have sociologists, extension agents, or social workers, or whether the job can be done by technicians alone. In reality, the skills and attitudes of both are needed. A technician with strong communication skills and a willingness to spend long hours out in rural areas in complex negotiations with often-fractious communities is certainly qualified. But such persons are rare. A social worker with a strong grasp of technical matters, who also is comfortable dealing with mundane and practical matters in rural areas (rather than theoretical issues), is highly qualified as well. Additionally, there are important individual qualifications: the persons must be dedicated and patient because this is very hard work; they must be comfortable speaking on equal terms with an illiterate farmer and with the *délégué* or even the governor. The person also needs to be resourceful and flexible; this is not a job for someone who can only follow set rules or instructions because one is constantly faced with the need to create new solutions to new problems.

From a review of the tasks regularly performed by the support units of Kasserine and Kairouan, it is evident that much of the work is of a social nature while also relating directly to the management of a technical infrastructure. The experiences of Kasserine and Kairouan indicate that the support unit needs to do the following tasks:

- **Guide WUAs in their legalization and in their continuing dealings with the administration. If the law is taken seriously, each WUA must submit a budget to the governor yearly, and at least in the beginning this will be a time-consuming activity. Another periodic job will be to supervise the choice of a new WUA board every three years.**
- **Provide the link between the WUA members and the technical side, especially for maintenance and repairs.**
- **Help with the health education program, where the primary responsibility is with the health education specialists, by linking the health educators with the WUAs.**
- **Organize and carry out training sessions for WUA leaders, especially the president, treasurer, and pump operator. These sessions have to be repeated periodically as leadership changes and perhaps also as the external environment changes.**
- **Link the WUAs to the GIH.**
- **Advise the WUAs on supplementary development projects they might want to carry out.**
- **Stand ready to offer assistance when a WUA has a crisis, caused perhaps by a dispute between groups of members, whether water-related or not.**

The support units, being within GR and the Ministry of Agriculture, have no social workers or related persons readily available. In Kasserine, this problem was solved by having social workers seconded from the Ministry of Social Affairs. In Le Kef, GR appointed a community organizer experienced in political organization at the rural level. He is with AFL rather than GR, and they find no need to formally second him. Finding persons with the requisite "social" training in each governorate will not be easy. It should be noted that the support unit in Kasserine has had periodic technical assistance, training, and advice from experts through the USAID-funded Potable Water Institutions Project. The governorate-level support units will probably need to be supported and periodically trained by a small team of training specialists and

sociologists dispatched from GR Tunis. These support options need to be examined in the Institutional Study that is planned as part of this series of studies.

4.3 Continuing Support in Management

The task of providing WUA support does not end with the creation of the community groups. The WUA learns its way in this new responsibility step by step, and each problem solved leads to new issues that need to be considered and new decisions that need to be made. Although a WUA's purpose is to take charge of a certain range of local tasks, it will need periodic outside support and guidance. The first task is to sign up beneficiaries, elect a board, and decide how much to charge for water services. The next step is to prepare the documents needed for the WUA to be legalized and to sort out its system of financial management. After that, the WUA has to face the real problems of how to enforce the system of payments on those who refuse to pay, how to handle the problem of those who genuinely cannot afford to pay, and how to balance competing demands for water from rural people versus outsiders and between economic and household consumption purposes. In those cases where the WUA finds after a time that it has built up a financial surplus, it needs to consider what should be done with such surpluses. If the WUAs are to mature into ever more effective community organizations, these issues require a continuing dialogue with the governorate team charged with supporting WUA activities.

In theory, the need to provide governorate-level support of the WUAs should eventually decline. But the evidence in Kasserine and Kairouan shows that after four or five years the need for the support activity is still very strong. This may be in part because these two governorates began the activity on their own, teaching themselves as they went along. Furthermore, the laws regarding their work changed and evolved during the process. It may be that the length of continued support services for WUAs could be shortened in the future and that the size of the support unit could be diminished after an undetermined period of time.

The Tunisian strategy for WUAs is ambitious in that it seeks to create WUAs almost simultaneously in every location in every *délégation* in every governorate. The group of Tunisian officials who participated in the Asia study tour found less-ambitious, and perhaps more cost-effective, approaches in both Sri Lanka and the Philippines. In these instances, "agents" worked closely with selected communities during a start-up period and then moved on to new communities. There was no attempt to convert every community simultaneously. Many communities continued to have their system run by the "government" at the same time that others had been converted over to autonomous control. The goal is to convert all communities eventually.

This sort of phasing takes place in Tunisia at the governorate level where some pilot governorates are receiving special support. But the other governorates are still under pressure to set up WUAs. Within the three governorates visited by the team, there was a de facto phasing as a result of limited resources, but there is always the pressure to apply the new law everywhere at once.

4.4 Technical Support

One of the reasons that WUAs are willing to take up the financial burden is that in theory this promises better service, with fewer and shorter breakdowns. Water system maintenance becomes not the responsibility of the WUA alone, but the task of a partnership between WUA and the governorate technicians responsible for major repairs (they may be with GR, PDR, a private consulting firm on contract, or as in Kasserine, all of the above). This technical partnership is critical to the success of the WUAs. From what could be surmised from a short visit, this partnership essentially works well in Kairouan and Le Kef but does not work well in Kasserine. It is worth comparing Kasserine and Kairouan to draw some significant lessons.

How does the system work in Kairouan? When there is a small problem and the pump operator can determine what is necessary to solve the problem, he arranges with the WUA president to buy the spare part and fix the problem. When the problem is much larger, he informs the WUA president, who tells the *délégué*, who then telephones GR in Kairouan. If the problem poses an emergency so that the community has no water, GR gets a team out as quickly as possible—reportedly, often the same or the next day. If the problem is not crucial, for instance if one of the standpipes is broken, and people can still get water (although at some inconvenience) at another location, GR puts the repair on the maintenance team's calendar, integrating it with other upcoming work in that general locale. No statistics document this, but it seems that repair is not a problem in Kairouan. For one thing, the team that is working with the WUA in the field is composed of technicians. The pump operators in Kairouan in this way pick up a better sense of what they can fix themselves, a better ability to diagnose the problem than many pump operators in Kasserine. A recent survey of operators in Kasserine indicated that a significant percentage of them lack very basic understanding of the engines. Discussions in Kairouan and visits to Kairouan WUAs suggest that these pump operators would score better on a similar questionnaire.

When the request for repairs is sent into Kairouan, it goes essentially to the same technicians whose job it is to support WUAs. They know the place, the machinery, the reliability of the operator, etc., and can evaluate the situation with a high degree of accuracy. Finally, when they make the request to a repair crew, the request is going to their own colleagues in GR, people they have also been taking every

opportunity to sensitize to the issue of WUA support. There is a certain institutional and professional unity to the process that helps provide a smooth and accurate response.

By contrast, in Kasserine the members of the support unit are not technicians nor the persons the community normally deals with regarding its water systems. In some instances, the Kasserine support unit is by-passed by the request for repairs. Not surprisingly, the interaction between the support unit and the WUAs tends to be more subtle when dealing with social and management issues than when confronting technical questions. Even though the USAID-funded Potable Water Institutions Project has organized formal training sessions for Kasserine pump operators, there is evidence that these have not been very effective without the repeated technical follow-up and bits of on-the-job training and guidance that the engineers in Kairouan seem to provide.

When repair requests are forwarded to the support unit in Kasserine, staff members, being social workers, must go and persuade the responsible repair crews (who belong to other organizations) to do the repair. The message must cross two barriers: professional (from social worker to engineer) and administrative (from one service to another). Many in Kasserine complain that governorate-level follow-up regarding repairs is very slow. The midterm evaluation of the Potable Water Institutions Project also highlighted the problem. The team saw and heard of instances where an area's water supply was interrupted for a month or more while the community waited for repair crews that had promised and promised to come, but never did show up.

Compounding the problem in Kasserine is the existence of several organizations responsible for repair. Efforts in the past to consolidate the responsibility in one office have yet to produce results, although as of the time of this consultancy, someone had been appointed to take charge of a consolidated repair operation, and there were expectations of an improved situation.

From the community's point of view, this repair function is the most important aspect of the government's obligation in this program. The citizens of the rural community have done their part: they have organized themselves in a new way, paid money for a service that had been previously free, have taken over the cost of the fuel and, in many cases, some other minor expenses and a supplement to the pump operator's salary; they have taken responsibility for minimizing water and fuel waste, controlling access to water, and reducing breakages. But the government, on its side, has not kept its part of the bargain: it is not responsive to the community's legitimate requests for large emergency repairs.

If the WUA program is viewed as a partnership between the rural community and the administration, where each side trusts the other to do its part, then the problem of emergency repairs in Kasserine risks undermining the mutual trust between

Kasserine's rural populations and the administration that the UAG has worked so hard to create.

4.5 Support by Authorities

To put the same issue into a broader perspective, Kairouan has seen the task of sensitizing government people toward the new arrangement to be as important as sensitizing the communities. In Kasserine the emphasis has been largely directed toward the communities, toward creating truly viable and sustainable associations. But there is less formal and informal activity to sensitize reticent engineers and officials regarding the functions and problems of the nascent WUAs. In Kairouan, the governor stresses the new role of WUAs with his *délégués* and with all the appropriate people of the governorate administration. He stresses that the administration has a responsibility to be flexible toward the WUAs and to find ways to help them through the maze of regulations rather than to block them with rigid application of regulations. Toward this end, the governor of Kairouan supported a conference on the topic of WUA promotion, with all the *délégués* and governorate technicians in attendance.

This support from the authorities has enabled Kairouan to have considerable success in establishing working WUAs, despite the fact that, until recently, Kairouan had fewer human resources dedicated to WUAs than did Kasserine.

One of the most important factors observed during the Asian study tour was that, certainly in the Philippines, WUAs succeeded because the engineers and managers of the government administration successfully adopted new attitudes. Once the administration achieved a broad consensus about the role of community associations, it was much easier to persuade rural populations to operate in this new manner.

4.6 Special Importance of the Délégué Role

The role of the *délégué* is critical. A Tunisian governorate is divided into districts called *délégations*, each headed by a *délégué* who reports to the governor. As the important authority directly above the community level and the governor's direct representative, the *délégué* is the official who is responsible for relaying the message for repairs to the governorate-level organization responsible for responding. He is the person who, by supporting the WUA as it faces the complexities of financial management and by flexibly aiding the legalization process, can smooth the way for the WUA to gradually learn to operate successfully in a changing situation. His authority and good offices can be brought in to help resolve a dispute between one

section of a WUA and another. In two governorates, those charged with the task of creating and supporting WUAs state that the most important factor regarding a WUA's success or failure is the degree of support from the *délégué*.

In *délégations* where sympathy, support, and active cooperation come from the *délégué*, the work of creating and promoting WUAs goes smoothly, and problems are relatively easily solved. Although most *délégués* give formal verbal support to the concept of WUAs, only about half of them are truly supportive of the effort. When the *délégué* lacks enthusiasm for the program, the best efforts of the support unit can only partially succeed.

The national strategy needs to focus more attention on the need to get as many *délégués* sensitized and supportive as possible because they represent the government in the eyes of the rural people. If the *délégués* do not actively support the partnership between WUA and government, there is little reason for community members to expect the government to keep its part of the promised responsibilities.

4.7 Major Recommendations

As each governorate forms its own WUA support unit, it needs to face up to the lessons from Kasserine and Kairouan regarding the size and composition of this unit. According to their experience, the unit needs to include several full-time persons, not just one or two part-timers. This unit needs to include persons with technical training and persons with social and communication training. Additionally, the individuals selected need to be dedicated and intelligent. And, perhaps most specifically, they need full access to transportation, for they are almost useless sitting in the office in the governorate capital.

The implementation of these units will involve an important amount of reassignment of GR resources. The indications are clear that the potential savings more than offset the costs of supporting even a large support unit such as that in Kasserine. However, it is recognized that the practical task of reassigning GR resources is an enormous one and that there are legitimate competing interests for talented persons and vehicles. It is perhaps unrealistic to imagine that these units of several persons each, supported by a vehicle, can be immediately set up in 23 governorates. At a minimum, this level of resources should be applied to the six pilot governorates.

Chapter 5

Role of the WUA in Public Health and Sanitation

One of the main reasons for providing potable water service to rural communities is to improve the population's general health level. It is sometimes easy to forget this ultimate purpose amidst concerns for the technical functioning of the water system and the managerial functioning of the WUA. However, in rural water systems such as one finds in Tunisia, the provision of potable water at a pump site does not guarantee that the water is safe when finally consumed. Three questions must be asked pertaining to the public health consequences of a source of potable water:

- Are the water sites themselves maintained so as not to become health hazards?
- Do people use the potable water for the correct purposes? At all times?
- Do people collect, transport, and store water in such a way that it remains potable until consumed?

The functioning of a WUA has important implications for these health issues, and consequently, the WUA has a necessary role to play regarding each of these three aspects of public health and sanitation.

Before considering these three areas of WUA responsibility, it should be noted that the nature and extent of water-related health risks are not really known for rural Tunisia. We have yet to see a study that analyses the real health risks of the rural Tunisian household water economy. For instance, many houses have cisterns underground that catch and hold rainwater. What are the health risks of using the rainwater stored in these cisterns? It is possible that most of these cisterns provide reasonably clean water most of the time. Since they are used exclusively by one household, this greatly limits the extent to which they are factors in disease transmission. On the other hand, there are confirmed cases of cholera and typhoid almost every year in Tunisia, and one of the purposes of the rural potable water program is to eliminate those diseases in the near future.

Regarding water usage, how do rural Tunisians categorize different types of water for different uses? What are the real health hazards of household systems of water handling? The household water falls into at least two categories, potable and other domestic uses. At one site a water gatherer, when questioned about her soiled container, responded that it was the container not for drinking water but for washing

clothes. That may or may not have been the case, but it illustrates a reasonable distinction between general domestic and specifically potable usage.

5.1 Maintaining Sanitary Conditions at Water Sites

With continued dialogue between the engineers, governorate WUA teams, Ministry of Health, and communities, the basic sanitation of the water sites can readily be assured by the WUAs. The area around the water sites constructed by Génie Rural can become unhealthy places where mud and animal feces form a mush through which barefooted children must pass to fill up their water containers. Paradoxically, the delivery of pure water sometimes creates a health hazard almost as serious as the use of impure water. Regarding the water site itself, engineers can do much to ensure a clean situation by designing standpipes with good drainage, separation of animal troughs from human drinking outlets, and strong hardware that withstands heavy usage without breaking and leaking. But sites must be monitored, cleaned, and improved by someone on the spot. The engineers can leave a strong and clean facility, but they cannot keep it that way.

The approximately 20 water points visited ranged from spotlessly clean to filthy. But in general the water points appear cleaner and better kept on the average than in the past or in other countries where water associations are not operative. There was much evidence that the WUAs have accepted responsibility for water site cleanliness. In some WUAs where there are multiple water sites, persons have been specially designated to look after each site (in some instances, these persons receive a small sum from the WUA). In some very large WUAs, local communities are responsible for their own water site in the context of the overall water distribution system.

The Ministry of Health is the government agency ultimately responsible for water site sanitation, and its hygiene technicians would work with the WUAs on these issues. The ministry lacks the resources to do this effectively on a national scale but has plans to work in this manner in the six pilot governorates.

5.2 Encouraging the Community to Use the Potable Water

An important role for the WUA is to encourage the community to use the potable WUA water rather than water from other questionable sources, at least for human consumption. Several WUA presidents in Kasserine said that collecting fees is difficult to the extent that there exist alternate sources of water. During dry years the WUA functions without difficulty, but this year's plentiful rains have made the

collection of WUA monthly fees difficult because people do not feel the need to use water from the system.

The process of collection and noncollection of the WUA monthly fee can actually encourage some people to use other, potentially nonpotable sources of water. During wet seasons, those who wish to avoid paying their WUA fees sometimes avoid using the pump water in order to have an excuse not to pay the WUA fee. In Kasserine, the WUAs tend to be lenient with those of the community who do not pay their monthly fee because the WUA is financing its operation costs from the sale of water. Some nonpaying members take the pump water anyway, but others stay away and are not pressured by the WUA to pay because the association has found another way to finance the system. This leniency, perfectly rational, can have the effect of encouraging citizens to use water that may not be potable. Some people become seasonal users of the WUA water and seasonal payers of the WUA fee.

When the WUA is setting its water fees, its collection system, and its degree of tolerance for nonpayers, it is important to remember that these decisions carry implications for public health as well as for WUA financial health.

5.3 Encouraging Safe Household Practices for Water Transport and Storage: The Role of Women

Even if there is no problem of alternate sources of nonpotable water, transporting and storing the water may introduce health risks. Keeping the water supply potable involves a series of somewhat inconvenient behavior modifications, actions whose purpose may not be obvious. The most important behavior is to keep water in covered containers to avoid contamination from insects and other matter. In most countries, rural people are accustomed to thinking that water is clean if it looks clean. The main prophylactic act that is stressed in rural Tunisia is the periodic application of *Eau de Javel* or bleach to disinfect the cistern, bucket, tanker, or other receptacle. Although the application of bleach seems to be fairly widely practiced by the pump operators for the community storage tank and system, it does not seem to be widely practiced by individuals at home. One reason for this is that bleach must be purchased (but at a price of only 150 milliems for a bottle that lasts several months), and families are reluctant to spend the money for something that does not seem to be a pressing need. People also object to the taste and smell.

One possible role for the WUA would be to provide small packets of *Eau de Javel* monthly, which could be given to families as they pay their monthly fee or put into the wheeled tankers and containers by the pump operator at the pump site on selected days. The cost could be covered by the WUA or could be a government subsidy, to induce WUAs and households to adopt the practice.

For household practices regarding water usage, the WUA role becomes less clear, as it is less a public issue than a private affair of each family. To be effective in this area, the WUA would have to become involved in health education activities. These education activities, although closely connected with the responsibility for providing water, do not easily fit into a nascent community association whose members are reluctant to pay for the water itself, much less for advice regarding its use. The problem is compounded by the fact that it is women who for the most part handle and direct household water use, and women in rural Tunisia belong very much to the private sphere and not the sphere of public discussion and action. The WUA board of directors, on the other hand, is responsible for serving as a point of contact for Ministry of Health education programs and is encouraged to facilitate ministry programs in the community.

Women's impact on household water use is obvious: they do the cooking, wash the cooking utensils, wash the children, wash the clothes, and empty the wastewater. Women and girls usually transport the water from the well, standpipe, or pump site (although it seems that when the family can afford a donkey-drawn tanker, the task is taken up by men or adolescent boys). Estimates suggest that rural women carry out over 50 percent of their work by using water in one way or another. This raises a problem for the WUA's role. On one hand, a WUA is to be an association whereby the water resource is largely managed by the users. Excluding women from association activities means that the main users of the resource are not involved in decisions, that their practical experience and direct involvement with water does not inform the decisions of the WUA board of directors, except as women may influence their husbands on such matters.

On matters concerning the acceptable role of women, the prevailing culture of rural Tunisia is conservative. From the standpoint of improving general rural public health, a way must be found to inform women of health-related issues and, most importantly, to change some of the practices. It is not reasonable to expect that sanitation information will be transmitted to the women by their husbands. In most rural societies with a strong division of labor and roles by gender, there is a tradition of noninterference between the two spheres.

5.4 Experiments in Reaching Rural Women

The USAID-funded Potable Water Institutions Project has made a small attempt to organize committees of community women to meet and discuss these issues. Of the six WUAs where women's groups have been organized, four are still functioning, one was blocked by the president of the WUA and the *omda*, and another functioned for awhile but is now defunct. In Kairouan, a similar program has been started, and eight women's groups have been organized during the past two months.

A second type of approach has been tried on a small scale and seems to have met with some success. This is the use of female community health workers (*animatrices de base*). In this program, a young community woman is trained in basic public health issues and devotes up to three days a week speaking with her female neighbors (30 families per year) privately in their homes regarding public health issues. Her concerns include water-related health issues as well as other topics such as children's vaccinations and nutrition. The health worker in some instances spends one day a week at the dispensary/clinic and also contributes to the health education program at the primary school. This approach has proven acceptable in rural Tunisian culture, at least in those communities in Kasserine where it has been tried. Out of 38 communities where the program was tried, it continues to operate successfully in 36.

In theory the health worker is a volunteer who receives a nominal amount of 30 TD to offset her costs and to provide her with encouragement and incentive. Even so, the program is not inexpensive when one considers what it would cost to achieve a significant coverage of Tunisian rural communities. To provide a health worker at each of the WUAs in Kasserine or Kairouan would cost over 300,000 TD a year, not including the cost of training and follow-up. If it were proven that such a program has a significant effect on the level of public health, the program could be offered to WUAs who were willing to pay half the health worker's "salary," the way some communities now pay a nominal fee to someone who watches over a remote water site or some WUAs pay a supplement to the pump operator.

The health worker approach has shown that it has possibilities, but it has not yet been fully evaluated so that it could be recommended as an essential aspect of a national strategy. The program is continuing on a modest scale in Kasserine. So far, it is one approach to health and sanitation education and to communicating with and involving rural women that shows evidence of being culturally acceptable and effective. It needs to be expanded on a pilot basis and monitored for possible inclusion in the national strategy for WUAs.

5.5 Recommendations

Regarding the important public health component of a rural water program, pilot activities should continue wherever possible, and these experiences should be reviewed in the future for possible implementation on a national scale within the WUA promotion program. These pilot activities include ongoing work with the female community health worker in Kasserine, attempts to create women's groups within the WUAs in Kairouan and Kasserine, and experimentation with having WUAs distribute bleach to their members.

Additionally, the study of household uses and attitudes toward water currently being conducted under the Potable Water Institutions Project needs to be reviewed for its implications for a WUA health-related role.

Chapter 6

Finance and Pricing Issues

6.1 Economic Necessity for Forming Associations to Manage and Finance Potable Water

The supply of potable water to rural areas in Tunisia is not a new problem. Since independence, important investments have been made to provide water for arid areas in the country. The objective is to attach people in rural areas to the land, thereby limiting internal migration to big cities, and to improve the conditions of the population. In areas where water sources have been created or collected at head-springs, beneficiaries have been able to use them free of charge. The government supported the cost of creating and developing these sources, which is a heavy burden that reduced the possibilities of creating other water sites or investing in other sectors. The government burden was even heavier because, simultaneously, it had to make important efforts in education, subsidize basic food products, and create and often subsidize public enterprises. Since the beginning of the 1980s, this situation has led to serious internal and external disequilibria. In August 1986, the high budget deficit, the disequilibrium of the balance of payment, and the country's debt problem led the government to adopt a Structural Adjustment Plan. This plan requires among other things the liberalization of the economy, state disengagement from nonstrategic sectors, and encouragement of private initiative. Within the framework of the policy of potable water supply for rural areas, this means making users participate in the financing of water costs. The idea of creating water user associations is to have the rural people manage the water sites and participate in financing the costs of exploitation.

A new idea based on ancient traditions. The idea of water user associations is not new for irrigation, and WUAs in this domain have been created for a long time. For example, in Kairouan, WUAs for irrigation have existed since 1934. These WUAs worked more or less normally, since water was used for an economic operation that under normal circumstances permits payment for water use. This is not the case for potable water, which, as noted, has traditionally been provided free of charge as long as a source exists. The use and sometimes abuse of water sources (from the standpoint of consumption and equipment maintenance) and governmental budget constraints, limiting the possibilities of creating new water sources and adequately maintaining existing ones, led authorities to try to generalize the WUA experience for irrigation over to the realm of potable water.

WUAs as instruments to involve citizen responsibility and to create a partnership between the government and the water users. The use of potable water—a scarce resource—should take into account considerations of costs/benefits. When water is

available free of charge, there is a natural tendency to use it carelessly. On the other hand, the cost of creating potable water sites is beyond the capacity of rural communities, and therefore government aid is necessary. A partnership between the government and the rural communities is then necessary to solve the potable water problem in these areas.

To what extent has this new experience succeeded financially? What are the main problems, and which model(s) should be retained in the national strategy for potable water? These are questions to address through the experiences of the governorates of Kasserine, Kairouan, and Le Kef.

6.2 Determining WUA Financial Responsibility

If today a consensus exists concerning the necessity of the potable water user's participation in financing, the degree of participation necessary is still unresolved. Economic principles and the lessons drawn from the experiences of Kasserine, Kairouan, and Le Kef provide some guidelines that can be used in an objective determination of the financial burden that WUAs will have to face.

Limiting WUA financial responsibility to the costs of exploiting the water sites. As a rule, the community that benefits from the water site must pay both the costs of creating the site and the costs of exploiting it, since there are no benefits going to the rest of the population. Indeed, contrary to other public utility projects that benefit all the population or at least a large segment, potable water projects in rural areas benefit only a specific community. The users are the only beneficiaries of the water sites, whose presence increases property value in the community. Consequently, as a rule there is no reason to make the whole population pay the costs of creating (drilling and equipment or tapping of head-springs) and exploiting these water sites. However, in practice two factors favor state financing:

- Economic conditions in rural areas are such that potable water projects cannot be financed by the population concerned, even in the form of a long-term credit. Thus, government financing can be justified within the context of a policy of resource transfer in favor of disadvantaged areas.
- The fact that rural populations are not used to paying for potable water makes it difficult to apply a policy of payment of total cost.

For these reasons, the government adopted a policy that considers economic and social conditions of the rural population and makes the water users responsible only

for the costs of exploiting the water sites. This policy means that the costs of drilling, tapping, and equipping water sources are assumed by the government.

Within the context of the policy of involving citizen responsibility in the rural areas, it is important that the people who are responsible for WUAs (i.e, the people in the Unité d'Autogestion in the case of Kasserine or the team of Cellule d'Assistance Technique aux AIC in the case of Kairouan) make an effort to sensitize WUA members to the sacrifices made at the national level by creating the water sites (even in the case where financing comes from a foreign source). It is also important to emphasize that these investments are made only for their benefit, and the fact that their interest is better served by good equipment maintenance and by rational water use.

To continue viewing these installations as state property can only lead to their misuse and will not favor the establishment of a mutually profitable partnership between the government and the WUAs. An important effort has been made in the three governorates, but a lot remains to be done. It is important to point out to citizens the importance of forming WUAs to support the community's interests vis-a-vis the authorities. This approach will encourage WUA members to participate in financing part of the water costs.

Necessity of determining each WUA's financial responsibility according to factors relative to that site and that population. The costs of exploitation of a water site include in principle—

- **Operational costs:** fuel or electricity, lubricating oil, salary of operators (pump operator, watchman, etc.)
- **Maintenance costs:** small expenses necessary for daily exploitation of the system (filters, pipes, fountains, small repairs of buildings, etc.) and big expenses of maintenance and equipment renewal (revision or replacement of the motor or the pump, major repairs of pipes or buildings)

Exploitation costs vary a great deal from one site to another. In Kasserine, for which data is available, estimations from a sample of 70 WUAs show that the cost of a cubic meter varies from a minimum of 0.04 TD (Tunisian Dinar) to a maximum of 1.090 TD. The importance of these costs depends among other things on the nature and age of equipment (diesel versus electric motor, motor capacity, etc.), the nature of the water source (tapped spring, drilling, water of SONEDE), degree of system complexity and equipment use, the latter being a function of the quantity of water needed. The problem is that the costs of exploitation are not correlated with the users' capacity to pay.

The community's capacity and/or motivation to pay depends on its economic and social conditions, its need for water (which in turn depends on the availability of alternative water sources), and last but not least, its degree of sensitization. For these reasons one should not expect—as is shown by the experiences of the three governorates visited—that all WUAs will have the capacity and/or motivation to pay all the exploitation costs of the water sites.

Starting from the fact that most WUAs are incapable or unmotivated to pay all exploitation costs, the general policy adopted in the three governorates visited is to have WUAs pay all or part of the operating costs and only part of the maintenance costs. This general policy is adopted in the three governorates. However, the practice shows differences from one governorate to the other and within the same governorate from one *délégation* to another and even from one WUA to another.

In the governorate of Kasserine, until recently the WUAs tended to pay operational costs (except the pump operator's salary) and maintenance and repair expenses below 100 TD. Here the principle is clear, but when it comes to application, the authorities have shown a great deal of flexibility. In cases where it was clear that the WUA's financial situation did not allow it to pay for repairs even below 100 TD, the administration took over the expenses—generally with a certain delay to make sure that the WUA was indeed unable to solve the problem by itself. There are also cases in which the WUA takes care of repair and maintenance, even when the costs are considerably above 100 TD. The Potable Water Institutions Project has recently addressed this problem of how, practically, to divide the repair costs between community and government. Based on the experiences in Kasserine, the project consultant has worked with the authorities to draw up a detailed list of standard repairs and replacements and to assign responsibility for each item to either the community or the administration.

In Kairouan, we found the same flexible approach in the division of responsibility as has characterized Kasserine. In Kairouan, the Cellule d'Assistance Technique concentrated its effort on four *délégations*, namely, Haffouz, El Alaa, Hajeb Layoun, and Oueslatia partly because of the limitation of resources available to this unit. In these *délégations*, the unit was able to persuade the WUAs to participate more in the costs of repairs and maintenance than in the *délégations* where it had considerably less contact. In the governorate of Le Kef, the pump operator's salary is also paid by the WUA, but the government is very amenable when it comes to paying for maintenance and repair costs, depending on the WUA's financial situation.

In all three governorates, the approach followed presents a certain advantage but also several disadvantages. The advantage is the flexibility of the approach, which permits the government to intervene in case of necessity while first giving the WUA a chance to solve the problem by itself. The attitude of the administration is to try as a first step to have the WUA undertake the task of small repairs in case of a

system breakdown and to intervene only when it becomes obvious that the WUA cannot solve the problem. At this level, the people responsible for WUAs in GR, the *délégué*, and the WUA president play an important part in deciding who is to support the repair costs. The main disadvantage of this approach is the uncertainty it creates in determining the financial responsibility for the repair work; this uncertainty leads generally to long delays while the system may be halted. Obviously, in this situation all communities will not suffer equally. The sacrifice of each will depend on the availability of alternative sources of water and the length of time when the system does not function.

On the basis of the experience of the three governorates one can put forward some important ideas to motivate WUAs to pay their share in the exploitation cost while making sure that the government intervenes in case of necessity:

- Especially in this phase of WUA consolidation, it is important to have a great deal of flexibility when it comes to financial responsibility. Strict application of the rules may discourage WUAs and lead to a halt of water site exploitation.
- It is also important to have clear rules as a reference to determine financial responsibility. The rule that all expenditures below 100 TD were to be supported by the WUA (the standard in Kasserine) presents the advantage of being clear and the disadvantage of giving an incentive to increase repair costs in such a way that they would exceed 100 DT. The resolution of this point by the issuance of an official list of responsibilities according to the item needing repair or to the maintenance operation to be performed is a strong step forward. Regarding the need for flexibility, the distribution of the financial burden between the government and the WUA should be negotiated between the two parties and must take into account the WUA's financial situation.
- In cases where the government has to pay the pump operator's salary, it should be made clear to everyone that this responsibility is accepted on a temporary basis as a means to help WUAs during this starting phase, and is not a long-term involvement. This does not seem to have happened in the governorates of Kasserine and Kairouan.

Toward a more objective determination of WUA financial responsibility. In the three governorates visited, the experience with potable water WUAs is relatively new (particularly in Le Kef), but the results attained are already very encouraging. In Kasserine, 123 WUAs have been formed. About 100 of these are now legal or in the

process. Fifty percent of those legalized show a year-end financial surplus. In Kairouan, where there are roughly 200 potable water and/or irrigation WUAs, the financial results are positive in only the four *délégations* of Haffouz, El Alaa, Hajeb Layoun, and Oueslatia. The experience of Le Kef, where there are around 60 WUAs, is very recent and the financial situation of these associations is unclear. These results indicate that the WUAs in these governorates are financially viable and that the application of these experiences elsewhere, with certain modifications, is likely to give good results.

In the present system, whenever there is a problem of repair or maintenance, there is some sort of negotiation process between the WUA and the government to determine who has to pay the costs. This system may be improved for new projects by undertaking, before creating the water site, more-exhaustive socioeconomic studies than are now being done. These studies, which must be done with community participation, should lead to an estimate of the project's costs and advantages as well as the users' capacity to pay. Each WUA's share in financing the exploitation costs should be determined on the basis of the results of the study concerning that association. This share should be periodically updated depending on the changes in costs as well as in the water users' economic conditions.

6.3 Collection of Funds and WUA Administration and Financial Control

From a financial point of view, a WUA will not be considered viable unless it has a budget that will allow it to face its expenses and can organize itself to manage this budget openly, to avoid conflicts among its members. This means that there must be a degree of organizational and administrative capacity, which are generally lacking in rural areas. In addition, the complex and rigid financial regulation applicable to WUAs is of little help to WUA leaders in managing their budgets.

Limitations of voluntary work in collecting water fees and administering WUA resources. Financial responsibility within WUAs is essentially based on voluntary work. The president, treasurer, and all members of the administrative council are elected and practice without remuneration in conformity with decree 88-150 of 12 January 1988 approving the typical status of WUAs. This procedure conforms to the spirit of solidarity and community life that must prevail within WUAs. In the three governorates visited, this approach gave good results in some cases, while in others the voluntary work led to deficiencies in fee collection and fund management.

In the present situation, it seems that these are the most important positive factors affecting a WUA's financial situation:

- The degree of local authorities' involvement with WUA representatives. In certain cases the fee collector has some difficulty convincing a certain WUA member to pay his dues. Decree 1261 of 27 October 1987 specifies that fees once decided upon by the administrative council may be collected, but that does not indicate how to solve conflicts when a member refuses to pay or cannot. Under these conditions, the backing of local authorities (*oumda, délégué, national guard, etc.*) even on an unofficial basis becomes very important. Experience shows that in *délégations* where local authorities are not sensitized to the problems of WUAs, the latter's financial failure becomes almost inevitable.
- Level of education and influence of WUA representatives on the inhabitants in the community.
- Degree of sensitization of WUA members on the need for their financial contribution.

The system of voluntary work is perhaps necessary in the WUA start-up phase given that in general their financial situation does not allow them to pay salaries to their representatives. However, with the prospect of improved finances and with the expected multiplication of WUA activities, it is important to consider the possibility of giving some incentives to the active representatives of the WUA administrative councils.

Toward a more flexible system of WUA financial regulation. Public authorities intervene to control WUA finances, and this intervention can be justified by the fact that drilling and equipment costs are paid by the state. Despite its objective of giving WUAs autonomy of management, the state keeps a right of intervention to make sure that the equipment is well maintained, to avoid potential conflicts between WUA members, to reduce fraud as much as possible, and to determine the responsibilities of the WUA and the government in paying the costs of exploiting the system and maintaining the equipment. In principle, this intervention is meant to help the associations manage their financial resources and use the equipment at their disposal efficiently. Unfortunately, in reality the system of intervention proposed by the government through the legal texts is complicated, rigid, and nonoperational in a rural context. This system is applied nowhere in the governorates visited and in the case of Kasserine, where a serious attempt has been made to comply with the law, this endeavor led to an almost total stop in the program of WUA promotion.

Financial control of WUAs is based on certain legal texts: law 35-87 of 6 July 1987; decrees 1261 and 1262 of October 1987; departmental order of 29 October 1988 concerning the GIH; and decree 88-150 of 12 January 1988 approving the typical status of WUAs, which makes provision for double financial control. Article 33 of this decree stipulates that "the management of the accounts of the association is entrusted to the district collector." In addition, article 37, paragraph 3 obliges the WUA to "make available at the request of the governor its accounts and the necessary justifications which may prove that the WUA is run in conformity with the law."

Without pretensions of legal expertise to criticize these texts, one can make the following points :

- This double control by the district collector and by the governor gives the impression that the government does not trust the WUA representatives and thus it seems to be contrary to the spirit of involving citizen responsibility and to the intention of giving a certain management autonomy to the WUA administrative councils. It probably would be better to intervene only in cases of conflict, and bad management or bad equipment use.
- The control system, particularly on the part of the district collector, seems to be ill-suited to rural life. The law also provides for the designation with the district collector of a manager of funds for a group of WUAs, who will be assisted by a vice manager for every WUA. Consequently, to obtain permission and money to make even a minimal outlay, the WUA representative must go through a complex and time-consuming administrative procedure that may lead to extended halts of water system exploitation.
- The implementation of this control system seems to be problematic even for government administrators. This has been noticed particularly in Kasserine, which is the only governorate where serious attempts have been made to conform to the law. Therefore, it is very important to try to popularize these rules for the people concerned if the WUAs are to act in conformity with the law in the near future.

In the three governorates visited, the decision-makers have chosen systems of control that are simpler but clearly different from what the law proposes. In certain cases, particularly when the WUA income is relatively unimportant, the president or the treasurer were unofficially authorized to keep the money, make payments, and save

receipts to verify the regularity of operations. In other cases, the WUA was able to open a postal account or banking account in its name, facilitating payments and budget management. Finally, in other rare cases, the *délégué* agreed to nominate a manager of finance in his *délégation* to keep WUA money and to help the WUAs manage their budgets. In all cases, the Cellule d'Autogestion or the Cellule d'Assistance Technique checks the regularity of receipts and expenditures. These informal systems have produced generally good results; they owe their success to the understanding and involvement of local authorities. Everybody is convinced of the need for a more-flexible control system, but many of those involved are unsure if these systems are fully in line with the law. This explains the hesitations noted on the part of people involved in financial management, who are not always sure of receiving enough protection from local authorities. Despite the uncertainty regarding the law, these practices are necessary while awaiting clarifications or changes regarding the legal framework or the improvement in WUA financial and administrative capacity that will put them into conformity with the law.

6.4 Price Policy for Potable Water: User Prices and Government Subsidy

On the basis of a generally accepted principle that the fixed costs of creating water sites should be assumed by the government, the economic logic implies that water should be priced according to its marginal cost. Even with adoption of the principle that water be priced according to its cost, there is no guarantee that WUAs will cover all their exploitation costs. However, it is certainly desirable from an economic point of view to use it as reference point. Unfortunately, the application of this principle is almost impossible in rural areas where family consumption levels are unknown due to lack of individual meters and varied water demand. Another principle that is relatively easy to apply is pricing according to the average cost of a cubic meter of water. If the users pay the average water cost, the WUA should be able to cover all exploitation costs. This should be the long-term objective for all WUAs; even in the short run, any deviation from this objective must be treated with caution while emphasizing that it is temporary.

Perhaps the most important constraint to pricing water on the basis of its marginal cost is the fact that water-exploitation costs vary enormously from one site to another, implying that in certain areas the price will be out of reach for the population. This may be the case even in water sites where the cost of exploitation is relatively low. In other words, under the present situation economic conditions in rural areas and the lack of experience with WUAs call for government subsidies. The question is how to determine these subsidies and what procedure to use in distributing them.

In determining the subsidies to be granted to WUAs, two important types of parameters must be considered: technical, related to the cost of exploiting a cubic meter of water and economic, which indicate the users' or the community's capacity to pay. The present study suggests that in rural Tunisia the technical parameters are well documented while the economic ones are neglected.

As far as price policy is concerned, the three governorates visited manifest more or less the same behavior. For WUA members, a fixed price of 1 TD per family per month is generally applied. This price takes into account neither the exploitation cost nor the quantity consumed by the WUA members or their capacity to pay. It seems that local authorities throughout the three governorates suggest this figure as a reasonable price for a rural family to pay for water consumption. In Kasserine, where data is available for 100 WUAs in 1987, the price of 1 TD per family per month would not cover the exploitation costs even that year. In fact, according to official estimates, the average consumption per person is at least 30 litres per day and for a family of six, the monthly consumption is approximately six cubic meters. For an average variable cost estimated at .213 TD per cubic meter, the price to be charged must be 1.278 TD per family. This does not cover total costs, particularly equipment depreciation. The average *total* cost per cubic meter for the 100 WUAs is estimated at .353 TD, which gives a monthly bill of 2.118 TD per family. This shows the need for an upward adjustment to the water price. International experience shows that rural families devote about 5 percent of their income or the equivalent of one day's work per month for potable water. In the Tunisian context, this means around 3 TD per month per family. Even if it is unwise to increase the price to this level immediately, a progressive adjustment seems to be necessary. It should be pointed out that WUA income is not limited to monthly fees; several WUAs sell water by cisterns, with variable prices according to the users' capacity to pay and with indirect relation to the exploitation cost. WUAs that have a financial surplus owe it mainly to this kind of transaction.

In the three governorates, subsidies are not determined in advance except perhaps for the pump operator's salary. The rest is disbursed in relation to maintenance or repairs or to equipment replacement. This system has certain disadvantages:

- As long as subsidies are not disbursed to WUAs and uncertainty about their amount exists, the policy of transferring responsibility to WUAs cannot be fully implemented.
- The payment of the pump operator by the governorate council raises the problem of who controls this employee.

Within the framework of a national strategy for WUA formation and management, it is necessary to determine in a more objective way the amount of subsidies to be granted to each WUA and to involve the WUA directly in the use of this government

help. In all cases it is important to consider water costs and the users' capacity to pay, which implies that subsidies will be different from one WUA to another. Local authorities may negotiate yearly with each WUA regarding the amount of subsidy to be granted; this amount should be left at the disposal of the WUA, which normally should be prepared to finance other expenses itself.

6.5 Recommendations

Delineation of WUA financial responsibility. Our observations indicate that in the three governorates visited, the WUAs are able to support the cost of exploitation and small repairs, except for the pump operator's salary. This achievement is already significant, but a lot remains to be done. The responsibility of WUAs in repairs is not clearly delineated; instead, the approach used is flexible. The administration intervenes whenever it becomes clear that the WUA cannot do the job itself. This attitude does not encourage WUAs to take their responsibilities seriously, and the result is that in many cases the system is halted for long periods of time. The system may be improved by defining WUA financial responsibility more objectively. Therefore, the following should be done for each WUA to be created:

- Undertake a detailed technoeconomic study for each potable water site. This study should help determine exploitation costs and especially the users' capacity to pay, which until now has not been carefully analyzed. Each WUA's financial responsibility (which must be negotiated yearly between WUA and government representatives) must take these variables into account. This clearly shows the need to differentiate among WUAs when deciding their respective financial burden.
- Clarify the responsibility of each party concerned by creating a guide-book specifying the type of repair and the spare parts to be supported by the WUA.

Encouragement of WUA representatives. The members of a WUA administrative council (or at least some of them) are called upon to do voluntary work. Collecting fees and managing funds are time-consuming tasks that may present some risk.

- Because the success of these representatives strongly depends on the degree of WUA members' sensitization and local authorities' support, the work of sensitization needs to continue, especially at the level of local authorities—as long as the WUAs are not conforming to financial regulations.

- For the long run, with WUAs' financial improvement and the multiplication of their activities (which is something to look forward to), it is necessary to consider granting some pecuniary benefits to WUA representatives.

Financial control of WUAs. The regulations concerning the financial control of WUAs are nowhere applied because they are rigid, complex, and ill-adapted to rural life. To the extent that these regulations cannot be modified in the short run, it is necessary to instigate—

- A campaign to popularize the rules for the government officials responsible for WUAs and for the WUA representatives themselves.
- A campaign at the level of local authorities for a flexible implementation of the regulations.

Price policy. The price policy adopted in the three governorates is very similar: everywhere users must pay 1 TD per family per month. This amount is not always sufficient to cover the variable cost of water, and the price needs to be adjusted progressively. Rural populations must pay the equivalent of one day's work per month for potable water.

Policy of granting subsidies. In the three governorates, the subsidies are not determined in advance except for the pump operator's salary. The rest is disbursed according to maintenance and repair interventions. It is recommended that the subsidy be negotiated with the annual approval of the budget and put at the WUA's disposal.

Chapter 7

Conclusion

This study's most important conclusion, in the broadest sense, is that the program to create water user associations has successfully completed the first stage:

- **Users have accepted (even if occasionally reluctantly) that they must now take on a much larger responsibility.**
- **The government has taken the first steps to distance its officials and technicians from the direct day-to-day operation of the rural potable water systems.**

Clearly, there is no turning back. The government and the communities have no choice but to find the means to move forward in the most efficient and cost-effective ways.

Continuing to move forward will not be easy. Kasserine and Kairouan have devoted significant resources (and a high quality of human resources) to this task. Even in these leading instances, their experience is that these resources were stretched to the limit and thus unable to fully cover all geographic areas or all water-related social sectors. It will be difficult for all other governorates to mobilize comparable resources; it will be difficult even in the six pilot governorates.

As there is no turning back and as human resources are very limited, it is crucial that the resources that do exist within GR, within the Ministry of Agriculture, within other ministries, and at the governorate level be utilized in the most effective manner. The institutional analysis planned as the next study in the WUA-implementation strategy is crucial to the success of the program.

ANNEX A

SCOPE OF WORK COMPARATIVE STUDY OF APPROACHES TO WUA FORMATION

General Background

As part of an effort to develop a decentralized institutional approach to the operation and maintenance of potable water supplies, a USAID-funded project in Kasserine Governorate has been developing a set of methods for creating and fostering Water User Associations (WUA). Similar methods are also being developed in Kairouan and other governorates. Despite current levels of experience in different parts of the country, a clear sense of the approach that will lead to effective and sustainable WUAs has not yet been identified. The purpose of this study is to compare approaches developed to create WUAs, review lessons learned, and identify specific actions that can lead to greater success.

This comparative analysis is the first of a series of studies to be undertaken as part of the Action Plan to identify an appropriate model for adoption as a nationwide strategy. The study will involve detailed analysis of approaches to create and foster WUAs in Kasserine, Kairouan and selected other governorates in Tunisia and achievements to date. It will result in conclusions and recommendations for an approach that will lead to successful formation of sustainable WUAs at a national level.

Tasks

In accordance with the purpose of this assignment, a team of three consultants will complete the following tasks and address the following issues:

1. Initially, the consultants will review A.I.D. documents and reports on WUA formation in Kasserine and available reports on WUAs in other parts of the country. The team will also review current WUA legislation which is the basis for forming WUAs.
2. Although the study will compare approaches in Kasserine and Kairouan Governorates, it will also examine approaches in two or three additional governorates in which WUA formation is actively underway. The consultants will, in collaboration with CRDA/Kasserine and GR/Tunis, select these governorates following the initial review of literature.

3. **The consultants will hold discussions with governorate staff to examine CRDA's approaches to fostering WUAs. Issues that will be addressed include:**
 - (a) **the timeframe used to achieve current status of WUAs, staff assigned as WUA specialists, and their level of effort to promote WUAs (manpower, frequency of contact with communities, background and skills of staff)**
 - (b) **approach to developing WUA responsibility for O&M**
 - (c) **approach to monitoring WUA activities, including financial monitoring and developing financial independence of WUAs**
 - (d) **logistical arrangements to allow WUA specialists to respond to actions needed quickly and effectively (e.g., vehicle use and time available)**
 - (e) **staff efforts to involve beneficiaries in design and implementation of water points and site selection**
 - (f) **methods for working with different types of communities and ensuring flexibility in approach**
 - (g) **approach toward hygiene education and inclusion of women**
4. **In collaboration with GR in each governorate, the consultants will also select a sample of at least two successful and two unsuccessful WUAs. The consultants will visit these WUAs to assess the effect of each approach on the creation of WUAs. The consultants will assess the effectiveness and sustainability of WUAs in a comparative framework. They will identify the status and trends in WUA operation and maintenance responsibilities, trends in fee collection, WUA decision making, and WUA capacity to only manage water or undertake other community development activities as well.**
5. **The consultant team will then identify differences in approaches and their effect on WUA formation. The draft report will highlight those approaches that lead to greater user participation in O&M and recommend changes or modifications to further enhance the role of WUAs.**

6. The consultants will present their findings and conclusions at a meeting with CRDA/Kasserine, GR/Tunis, USAID/Tunisia and, if possible, KfW. Comments and suggestions will be gathered and incorporated into the final report, which will be submitted to USAID/Tunisia with copies to CRDA/Kasserine, GR/Tunis and KfW.

Personnel

The study will be undertaken by a team of three consultants: two expatriate and one Tunisian—with the following qualifications:

1. Advanced social science degree (rural sociology, anthropology); experience with water user associations in Tunisia or other Mediterranean countries preferable; previous experience with the USAID-funded project in Kasserine desirable.
2. Advanced degree in social science, preferably with strong economics background; experience in water user participation in Third World essential, preferably in Tunisia or elsewhere in Asia.
3. Tunisia expert with advanced social science or public management degree, experienced in rural research in development project context. Knowledge of potable water or irrigation would be useful.
4. Fluent French or Arabic.

Level of Effort

The required level of effort will be approximately six weeks. The first week will be spent in a two-day TPM in Washington and travel. Five weeks will be spent in Tunisia. During the first week in country, the team will review reports and select governorates for field studies. The following three to four weeks will be spent visiting GR staff and WUAs in selected governorates. The final week in country will be spent preparing the draft report and presentation to CRDA/Kasserine, GR/Tunis, KfW and USAID.

ANNEX B

LIST OF COMMUNITIES VISITED

KASSERINE GOVERNORATE

Sbeitla Délégation:

Gouna

Mazreg / Machrek Echams

Sidi Ali Gajnoun*

Délégation: Foussana

Khmuda II

Feriana Délégation:

Ouled Hmed

Thala Délégation:

Bir Chaabane

KAIROUAN GOVERNORATE

Haffouz Délégation:

Ain Zina

Ouled Youssef

Mselsel

Al Ala Délégation:

Messiouta/El Guettar

El Mrigeb

Ariba

Nasrallah Délégation:

El Kabbara

Kairouan Sud Délégation:

Farazai

Ousseltia Délégation:

Osar Lemta

EL KEF GOVERNORATE

Kalaa Khasba Délégation:

Sidi Hmed

Henchir Matar

Jerisa Délégation:

Gouraia

*** Sidi Ali Majnoun was not visited on this trip, but the team attended an extended discussion of their problems in the office of the délégué of Sbeitla.**

ANNEX C

LIST OF PERSONS INTERVIEWED

GOVERNMENT OFFICIALS

Tunis

Genie Rural

**Khemais Alouini
Mohamed Jaona
Mahmoud Baccar
Sarduk**

Kasserine

Ali Boudabbous, Regional Commissioner for Agricultural Development

Ridha Fekih, Former Regional Commissioner for Agricultural Development

Hadji Mosbah, Tunisian Project Officer for the Potable Water Institutions Project

Mounir Mguarrech, Head of Genie Rural for Kasserine

Ammar Mraih, Head of Public Health Unit, Kasserine

Fatma Guesmi, Public Health Unit, Kasserine

Ali Ajlouni, CRDA, Responsible for water projects in Sbeitla Délégation

Lamirr Rahmouni, Assistant Engineer

Délégué of Sbeitla

Members of the Unité d'Autogestion

**Taoufik Gharsalli
Lazhar Laabidi
Mokhtar Laouiti
Mohsen Thauri
Zekia Hagi**

Kairouan

Moncef Abdel'Hedi, Head of Genie Rural for Kairouan

Moncef Hadji, Genie Rural, Kairouan, Head of WUA (AIC) Support Unit

Ezzeddine Hammouda, Genie Rural, Kairouan, Member of WUA (AIC) Support Unit

Kamel Sossi, Governor of Kairouan

Délégué of Al Ala

Délégué of Haffouz

Le Kef

Abdel'Hafiz Habboula, Head of Genie Rural for Le Kef

Kamal Jlel, Genie Rural for Le Kef

Mouldi Swaida, Responsible for WUA (AIC) follow-up for Le Kef

M. Zein, Responsible for agriculture in Jerissa Délégation

Délégué of Jerissa

Délégué of Kalla Khasba

CONSULTANTS

Ridha Boukra

Mohamed Fakhfakh

Mona Fikry

Denise Harrison

Fred Huxley

Belgacem Khessaissia

Alan Molina

Michelle Moran

Elaine Rossi