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58

Transfer of irrigation management services

Guidelines

IWMI

INTERNATIONAL
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MANAGEMENT
INSTITUTE

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DEUTSCHE
GESELLSCHAFT
FÜR TECHNISCHE
ZUSAMMENARBEIT
(GTZ) GmbH

Food
and
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Transfer of irrigation management services

Guidelines

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Preface

These guidelines have been written to assist policy-makers, planners, technical assistance experts and other stakeholders to decide whether or not to adopt irrigation management transfer, and if so, how to formulate an effective programme. An effective programme is one that results in appropriate, successful and sustainable devolution of roles from the irrigation agency to water users' groups and fosters equitable development in rural areas.

The guidelines are not a blueprint for how an irrigation management transfer (IMT) programme should be designed and implemented in all locations. Except for a few basic principles, no categorical recommendations are made. Recommendations always come with political trade-offs, which must be weighed and decided upon by the participants. IMT is so complex and diverse across countries that the formulation and implementation of IMT programmes often require considerable amounts of experimentation, negotiation, learning, adjustment and readjustment. It is not possible to have a universal model and follow it as a blueprint. The term "guidelines" should be understood more as a reference tool for planners and technical experts than a recipe for direct implementation.

The guidelines attempt to present a comprehensive set of principles, steps, options and methods which tend to be applicable for IMT programmes in most places. Not all steps or methods will be necessary or possible in all locations. However, it is important for planners and other agents of reform to have the opportunity to review all potential aspects of this complex and important phenomenon. In this sense it is also hoped that these guidelines can be utilized as a planning tool by the National Thematic Groups of the Advisory Committee on Coordination Network on Rural Development and Food Security.

This publication distils the lessons from research and practical experience over the last decade in planning, implementing and evaluating irrigation management transfer programmes around the world. Participatory approaches to irrigation management and irrigation management transfer programmes became a significant element in many countries' efforts to improve irrigation performance beginning in the 1980s.

The International Water Management Institute (IWMI)[1] has made such programmes a central feature of its global and action research and policy support programmes. Since its inception IWMI has conducted research studies on IMT in Bangladesh, China, Colombia, India, Indonesia, Mexico, Nigeria, Niger, Pakistan, Sri Lanka, Sudan, Turkey and the United States.

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[1] The International Irrigation Management Institute, one of the sixteen centres supported by the Consultative Group on International Agricultural Research, was incorporated by an Act of Parliament in Sri Lanka. The act is currently under amendment to read International Water Management Institute (IWMI) which is the denomination used in this text.

The German Agency for Technical Cooperation (Deutsche Gesellschaft für Technische Zusammenarbeit GmbH (GTZ)) has been involved in and has financially supported extensive comparative research in this area. FAO has provided technical assistance on irrigation management transfer in several countries of Asia, Latin America and Africa, mainly in the areas concerned with communication and dissemination of information about the programme, institution building, training programmes for WUAs and legal reforms. These organizations have pooled their expertise and insights in the production of these guidelines. The work is therefore an excellent example of the cooperation among three organizations having different mandates but contributing to a common goal.

The guidelines have also benefitted from the experience of numerous practitioners who have presented papers and discussed their experiences at international meetings. The International Conference on Irrigation Management Transfer held in Wuhan, China, in September 1994 and the FAO Expert Consultation on Irrigation Management Transfer, held in Bangkok and Chiang Mai, Thailand, in 1995 are examples of important sources of such knowledge. In the interest of keeping the guidelines as simple and concise as possible, the use of notes and references has been avoided, although a list of suggested references for further reading is provided in Annex 1.

Comments on these guidelines are welcomed, particularly regarding its usefulness and relevance to conditions in the reader's country of concern. They may be sent to the Director of the Land and Water Development Division, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy, and/or the Deputy Director General, IWMI, P.O. Box 2075, Colombo, Sri Lanka.

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Several staff members from IWMI, GTZ and FAO have contributed information and comments which have been helpful in developing these guidelines. From IWMI these include D. Seckler, Director General; D. Merrey, Deputy Director General; C. Garcés-Restrepo, Mexico Programme Leader; D.J. Bandaragoda, Senior Management Specialist; and Barbara Van Koppen, Research Fellow. From GTZ senior staff these include W. Huppert, C. Hagen, K. Urban and A. Vallentin.

From FAO special thanks are due to H. Wolter, Director of the Land and Water Development Division (AGL) for his continuous support to the preparation of the guidelines and to E.S. Funes, Director of the Rural Development Division (SDA) for his contributions of personal experience and his support for this joint activity. S. Burchi, Senior Legal Officer, Development Law Service, and J. Vapnek, Legal Officer, Development Law Service, have also contributed to all aspects related to legal reforms as well as to substantive reviews of the text. M. Smith, Senior Irrigation Management Officer of AGL, has also provided valuable suggestions and material.

Thanks are due to P. Wolff, Professor at Kassel University, Germany, and J. de Haas of the German Federal Ministry for Economic Cooperation (Bundesministerium für Zusammenarbeit (BMZ)) for their strong support and valuable suggestions to IWMI for its work on irrigation management transfer. Without the generous financial support of the BMZ most of the research which has enabled development of these guidelines could not have been done. The Ford Foundation, Government of the Netherlands, Asian Development Bank and World Bank have also supported IMT activities which have contributed experience and information which has been drawn on in production of these guidelines.

In addition T. Herman, World Bank; B. Bruns, Consultant; H. Garduño, Adviser to the Comisión Nacional del Agua (CAN), Mexico; P. Martinez, Instituto Mexicano de Tecnología del Agua (IMTA), Mexico; M. Contijoch, Director of the Fideicomiso de Riesgo Compartido (FIRCO), Mexico; and A. Musch, Consultant, are thanked for their suggestions on an earlier draft of these guidelines. The ready and able assistance of the secretarial staff at FAO is also acknowledged.

Finally, the authors accept sole responsibility for the content of these guidelines. The views expressed herein are those of the authors and do not necessarily represent those of IWMI, FAO or GTZ.

List of acronyms

IMT	Irrigation management transfer
IWMI	International Water Management Institute
M&E	Monitoring and evaluation
NGO	Non-governmental organization
O&M	Operation and maintenance
WSP	Water service provider
WUA	Water users' association

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Chapter 1
Introduction

WHY THESE GUIDELINES HAVE BEEN WRITTEN

These guidelines have been written as a reference tool to assist policy-makers, planners, technical experts and other agents of reform (including farmer representatives) involved in *irrigation management transfer* (IMT) programmes in designing and implementing effective, comprehensive, integrated and sustainable reform. 'Effective, comprehensive, integrated and sustainable reform' means reform which is beneficial to both government, farmers and consumers of agricultural products, fostering equitable rural development.

Officials and stakeholder representatives in water sectors of developing countries often find themselves under pressure to make reforms rapidly. There may be a shortage of time, lack of expertise in strategic planning and little knowledge about management transfer experiences elsewhere. These guidelines will help professionals work through the full range of issues that may arise in formulating and implementing IMT programmes. Not all of the steps or methods described in these guidelines will be necessary or possible in every location.

Normally, many decisions and actions for IMT programmes can only be worked out in the process of implementation. Many unanticipated issues and obstacles are likely to arise during planning and implementation. Their solutions will require not only objective or technical analyses but also negotiation and perhaps experimentation.

Therefore, these guidelines should be understood not as a universal blueprint but as an overview or reference which exposes planners to the full range of potential aspects of reform which may need to be considered and dealt with. This will enable planners to work from a broad perspective as they forge a programme which is locally appropriate and will be implemented with the participation and support of all interested parties.

WHAT IS IRRIGATION MANAGEMENT TRANSFER (IMT) AND WHAT ARE ITS IMPLICATIONS?

The term 'irrigation management transfer' means the relocation of responsibility and authority for irrigation management from government agencies to non-governmental organizations, such as water users' associations. It may include all or partial transfer of management functions. It may include full or only partial authority. It may be implemented at sub-system levels, such as distributary canal commands, or for entire irrigation systems or tubewell commands. Other terms,

such as turnover, take-over, devolution, privatization[1] or disengagement, are sometimes used synonymously with transfer.

The term 'participatory irrigation management' normally refers to the involvement of water users in irrigation management, along with the government. It is not the same as IMT - which is about replacing government, not just working with it. After transfer, the new service may or may not be provided directly by a farmer organization. The service provider may be a financially autonomous utility, semi-municipal water district, mutual company or other local entity. But it will normally be governed, at least in part, by the farmers, who are the primary users of the service.

IMT is further distinguished from decentralization, which normally refers to the movement of decision-making authority to regional or local levels from a central authority - but still within the same government organization. IMT is the transfer of responsibility for irrigation management from one organization to another.

IMT is a multi-faceted reform which may involve changes in:

- public policy and legislation;
- mandates and structure of public and local organizations;
- agency budgets, personnel policies and assignments;
- water rights and farmer organizations;
- operational procedures and technology design;
- installation of new support services;
- and more.

WHY IS IRRIGATION MANAGEMENT TRANSFER SO WIDESPREAD?

After a period of rapid expansion of irrigated area worldwide from the 1950s to the early 1980s, many governments found it difficult to finance the recurring costs of irrigation or to collect water charges from farmers. Centrally financed bureaucracies tend to lack the capacity to be effective providers of water services to large numbers of small farmers. These factors have led to rapid deterioration of infrastructure, shrinkage of area irrigated, maldistribution and wastage of water and advancing waterlogging and salinity. Driven largely by financial pressures, many governments are attempting to transfer management responsibility for irrigation systems from government agencies to local water service providers, such as water users' associations.

Since the mid 1980s there has been an upsurge in efforts by governments around the world to transfer management for irrigation systems from government agencies to farmer organizations or other non-governmental entities. This has occurred both in more and less developed countries (such as the United States and Indonesia), in capitalist and socialist countries (Chile and China), and in more and less liberalized countries (Mexico and Sudan). Generally, governments hope that IMT will reduce the cost burden of irrigation on the government and will increase the productivity

[1] Privatization normally refers to transfer of ownership of irrigation system assets from the government to the private sector. For a more detailed discussion on decentralization and devolution, see papers presented at the Technical Consultation on Decentralization, Rome, December 1998, organized by FAO Rural Development Division.

and profitability of irrigated agriculture enough to compensate for any increases in the cost of irrigation to farmers.

Some countries, such as Chile, Mexico and China, are well along in this process. Other countries, such as Indonesia and the Philippines, and some states in India, have embarked on transfer programmes but appear to be bogged down in problems of implementation. Some countries have transferred small-scale systems and are now considering transferring larger scale systems, but realize that different kinds of service providers will be required for larger schemes. Still other places, such as Pakistan, some states in India and several countries in Africa, appear to be poised on the brink of reform but have not yet developed clear policies and plans for how to proceed.

Table 1 shows a list of countries or states that have adopted irrigation management transfer policies over the last 30 years. Other countries, such as the United States, Japan, Spain, Israel and Argentina began adopting transfer policies more than 30 years ago. Many countries, such as Indonesia, Thailand, China, Spain and Peru, have had sustainable farmer-managed irrigation systems for hundreds of years.

TABLE 1
Countries or states which have adopted irrigation management transfer policies in the past 30 years

Latin America	S, SE and E Asia	Africa & Near East	Europe & Central Asia
Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, Peru	Bangladesh, China, India (Andhra Pradesh, Bengal, Gujarat, Haryana, Maharashtra, Tamil Nadu), Indonesia, Laos, Nepal, Pakistan, Philippines, Sri Lanka, Viet Nam	Ethiopia, Ghana, Jordan, Madagascar, Mali, Mauritania, Morocco, Niger, Nigeria, Senegal, Somalia, South Africa, Sudan, Turkey, Zimbabwe	Albania, Armenia, Bulgaria, Cyprus, Georgia, Kazakhstan, Macedonia, Moldova, Romania

HOW THESE GUIDELINES ARE ORGANIZED

These guidelines are organized according to four phases in the process of management transfer. Phase 1 (Chapter 2) is about mobilizing support for adoption of a transfer policy. This includes sensitizing the public and policymakers, and discussing, preparing and adopting a transfer policy statement. The process might stop here if there is not enough support for it, or if it is determined that it is the wrong time or place. If the decision is to proceed, then those involved in policy making, planning and implementation are directed through the subsequent phases.

Phase 2 (Chapter 3) is strategic planning to organize the basic arrangements for the reform process. This may include formation of a coordinating committee, working group and issue groups and preparation of a concise strategic plan.

Phase 3 (Chapters 4 through 7) is about resolution of key policy issues before planning for implementation can begin. These are: (i) how the irrigation sub-sector is going to be financed after irrigation management transfer; (ii) what legislative and sector-level restructuring is needed

to support transfer; (iii) what management functions should be transferred; and (iv) what type of organization should take over management from the government.

Phase 4 (Chapters 8 through 11) is about planning and implementation. These are combined for efficiency and because, in practice, planning is elaborated in the process of implementation. The key tasks in this phase are creating and strengthening water users' associations and water service providers, making improvements in irrigation infrastructure, carrying out monitoring and evaluation and adjusting plans in accordance with lessons learned during implementation.

The chapters are followed by annexes for further reference. These include a brief list of key sources on irrigation management transfer and examples of documents supporting irrigation management transfer.

Phase 1

Mobilization of support

Chapter 2

Preparation and adoption of a transfer policy

SUMMARY

Before a transfer policy can be adopted, planners must assess whether there is enough justification and support. Planners may need to answer the following questions:1) What are the main kinds of performance gaps in irrigated agriculture? 2) How important are gaps? 3) Is IMT necessary in order to overcome current management performance gaps? 4) Will IMT be feasible to implement? 5) Is there strong enough political commitment to IMT?

If planners decide it is important to overcome perceived gaps in performance, the next question becomes: "What actions are needed to overcome them?" There are two basic options: management enhancement or basic reform. Most of the governments that adopt irrigation management transfer reforms have already tried a series of improvement efforts but have found that the gaps in performance continue to widen.

The result of this analysis, and the main output for Phase 1, is the IMT policy statement which contains the objectives of the government with regard to IMT and some of its salient features. The main steps in its preparation and the elements to be covered are described in the text.

Before a transfer policy can be adopted, planners will need to assess whether there is enough justification and support for such a policy. Support may come from perceptions of inadequate performance in the irrigation sub-sector - be it in operation and maintenance, financing irrigation at scheme or sector levels, agricultural productivity or environmental sustainability. Or support for transfer may come as part of broader changes undertaken to liberalize economic policy, as in the cases of Mexico, eastern Europe and central Asia.

Sector policy normally identifies what levels of performance in irrigated agriculture are expected. If adequate data exist, planners and consultants may analyse gaps between actual and expected levels of performance. Sector reviews, seminars, workshops, monitoring and rapid field visits can assist in assessing the extent of *performance gaps* in irrigated agriculture. A performance gap is some difference between actual and expected performance or between actual and potential performance.

WHAT PERFORMANCE GAPS EXIST IN IRRIGATION MANAGEMENT?

Irrigation systems are the application of technology to extract water from its natural setting, to deliver and apply it to soils and/or crops for the purpose of agricultural production and to remove excess water and salts from the soil.

There are four potential kinds of performance gaps that can occur with irrigation systems. The first is a technological performance gap. This is when the infrastructure of an irrigation system lacks the capacity to deliver a given hydraulic performance standard. The normal solution to technology performance gaps is to change the type, design or condition of physical infrastructure.

The second kind of performance gap is when a difference arises between how management procedures are supposed to be implemented and how they are actually implemented. This includes such problems as how people adjust gates, maintain canals and report information. This can be called a gap in implementation performance. A problem of this kind generally requires changes in procedures, supervision or training.

The third kind of performance gap is a difference between management targets and actual achievements. Examples of management targets are the size of area served by irrigation in a given season, cropping intensity, irrigation efficiency, water delivery schedules and water fee collection rates. This can be called a gap in achievement. Such problems are generally addressed either by changing the objectives (especially simplifying them) or increasing the capacity of management to achieve them - such as through increasing the resources available or reforming organizations. To paraphrase the well-known management scientist, Peter Drucker, the question posed by an analysis of achievement gaps is, "Are we doing things right?"

The fourth type of performance problem concerns impacts of management. This is a difference between what people think should be the ultimate effects of irrigation and what actually results. These are gaps in impact performance and include such measures as agricultural and economic profitability of irrigated agriculture, productivity per unit of water, poverty alleviation and environmental problems such as waterlogging and salinity. If management procedures are being followed and targets are being achieved, but ultimate impacts are not as intended, then the problem is not that the managing organization has performed badly, since these effects are generally beyond its direct control. The problem is that the objectives of the organization do not produce the desired impacts. This is more a problem of policy than management. The question posed by an analysis of gaps in impact performance is (to rely on Drucker again), "Are we doing the right things?"

At the beginning of the reform process, planners may need to answer the following three questions:

- What are the main kinds of performance gaps?
- How big are the performance gaps?
- How important is it that these gaps be overcome?

Generally, an analysis of performance will suggest how modest or radical are the measures that will be needed to overcome deficiencies. There are many countries where data are not available to permit quantitative analysis of performance gaps. In such cases, policy analysts may have to rely on inputs from rural appraisals and meetings with farmers and irrigation department staff to assess performance gaps qualitatively. Nevertheless, such assessments should lead to an awareness of whether or not minor or major changes will be needed.

Competition for water and environmental problems at the river basin or aquifer level are growing rapidly and in the future will be likely to constrain performance significantly. Therefore, analysis of irrigation performance should be done within the context of integrated water resources management at the water basin level.

IS ENHANCEMENT OR REFORM REQUIRED?

If planners decide it is important to overcome perceived gaps in performance, the next question becomes: "What actions are needed to overcome them?" There are two basic options: enhancement or reform.

If the impact performance gap is minor and the procedural or outcome gaps are significant, then an enhancement strategy may suffice. An enhancement strategy attempts to improve procedures or capacity to implement without changing the existing organizational or technical framework. Examples of enhancement strategies are training, upgrading O&M procedures and repair of infrastructure.

If impact, achievement and procedural gaps are all significant, a basic reform is probably needed. A reform strategy changes basic organizational roles and structures. The surest sign that basic reform is needed is when a series of improvement efforts has already been tried but achievement and impact gaps continue to widen significantly. This has normally been the case with governments that adopt irrigation management transfer. Typically, a series of improvements has been tried, such as training, rehabilitation or special maintenance or modern water control systems, but the performance gaps only continue to widen.

If it is determined that the gaps can be overcome by reforms within existing organizations, then intra-organizational changes, such as decentralization or needs-based budgeting, may suffice. If it is determined that reform within organizations will not suffice, then the remaining option is probably to restructure roles and relationships among water sector organizations. Public irrigation agencies are widely under-financed, known to have relatively poor management performance and have little accountability to farmers. Meanwhile agriculture in developing countries has become increasingly commercialized and market-driven. These factors have caused planners to look to management transfer as a means to overcome performance gaps in financing and O&M.

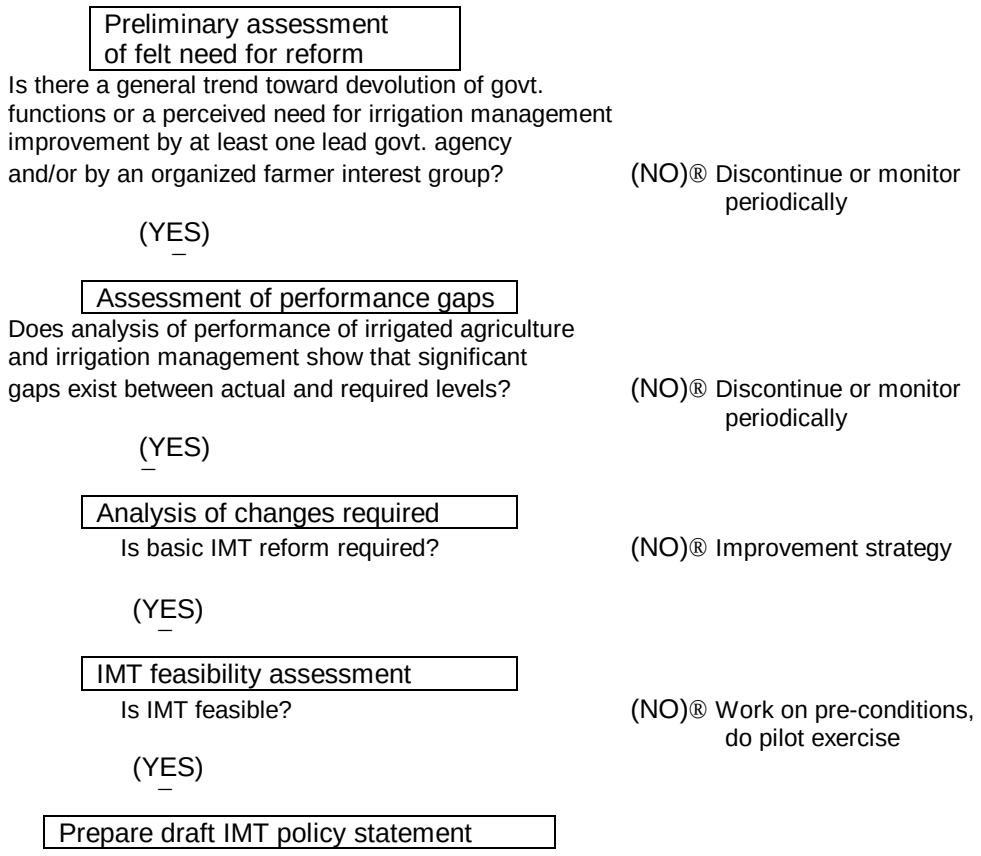
In areas experiencing rising competition for water and demand for more integrated water resources management at the water basin level, it may be advisable for planners to incorporate IMT into a broader reform process to improve management capacity at the basin level. In this situation, IMT will probably need to include reforms related to how the irrigation system interacts with its external environment, especially how it is related to basin level water management.

What type of change is needed is one issue. What type is feasible is the next. Figure 1 summarizes (somewhat simplistically) the essence of a complex decision-making process which logically moves from: 1) assessment of performance gaps to 2) analysis of whether modest enhancements versus basic reform is needed to 3) whether basic reform (such as management transfer) will be feasible. Policy decisions related to these issues will depend on a combination of financial, political and technical considerations.

IS IRRIGATION MANAGEMENT TRANSFER FEASIBLE?

IMT is potentially sensitive and there may be opposition to it by influential groups such as line agencies and politicians (who often campaign with promises to drop water charges to farmers). Therefore, it may be necessary for the decision to be made at the highest levels of government. Continuing pressures from above may have to be sustained through policy formulation and implementation. If this level of support is not possible, the country may not be ready to adopt an IMT policy - even if it is found to be necessary and technically feasible. In this case perhaps pilot

FIGURE 1
Diagram of the pre-planning decision-making process



exercises with IMT can be made to test feasibility and eventually generate more widespread support.

Sometimes what is politically feasible (e.g. enhancement) overrides what is really needed (e.g. reform), perhaps due to political resistance from vested interests. Due to pressures from donors, technical assistance agencies and internal interest groups, management transfer programmes may be adopted in environments where it may not yet be feasible, such as in places of severe poverty or social conflict.

After planners have determined that management transfer is needed and is politically feasible, they must assess whether or not IMT is a practical option. Most of the following factors will probably need to be in place in order for IMT to be feasible:

- capacity to create or alter local organizations to take over management;
- liberalization and openness of the political economy;
- supporting legislation and support services for local water service providers;
- clear water rights (especially for competitive and water scarce environments);
- absence of strong opposition to IMT by bureaucracies and local elites;

- irrigated agriculture which has modest costs and high profitability; and
- irrigation infrastructure which is suitable for management by farmer organizations or other non-governmental service providers.

Planners must determine whether the existing social and institutional situation is conducive to creation of viable local organizations to provide the water service. Then they must determine the extent and severity of potential local resistance to IMT. This should be weighed against the degree of high-level political commitment to IMT. Policy-makers may embark on a mission to mobilize support or conduct pilot exercises to determine feasibility at the field level. Rapid field appraisals, brainstorming sessions and discussions with stakeholder representatives may all be a part of testing the feasibility of adopting an IMT policy.

In summary, the decision on whether or not a country should adopt an irrigation management transfer policy will depend on whether the following questions are answered positively:

- Is IMT necessary in order to overcome current management performance gaps?
- Is implementation of IMT feasible?
- Is there strong enough political commitment to IMT?

PHASE 1 OUTPUTS: THE TRANSFER POLICY STATEMENT

The chief output for Phase 1 is the IMT policy statement. The following steps may be involved in preparing an IMT policy statement:

- analysis of performance gaps, changes required and feasibility of IMT;
- identification of new objectives and their justification;
- analysis of stakeholder participation options and capacity;
- identification of units and functions to be transferred;
- identification of changes to be made in public agencies, policy and legislation;
- consolidation of above components into an IMT policy statement.

A transfer policy statement would normally include the following elements:

- objectives and justification for the IMT policy;
- existing policy and legal basis for the proposed IMT policy;
- brief description of what kinds of irrigation systems or sub-systems will be transferred;
- brief description of what management functions will be transferred;
- brief description of what new entities will take over management;
- brief description of what changes will be made in public agencies relative to IMT;
- identification of the organization to direct implementation;
- outline of suggested time-frame and mode of financing.

Each of the above points should only provide a short sketch of what the government intends to do in the future. The details will come in the programme planning and implementation stages which will follow.

Phase 2

Strategic planning

Chapter 3

Organizing a strategic change process

SUMMARY

To be effective, reform should be both participatory and strategic. A reform is *participatory* when it includes all stakeholders in the process and is *strategic* when it deals with fundamental issues. A successful outcome will normally depend on forging consensus among a diverse set of stakeholders. Participation can be in many forms but always validates and mobilizes support for the process.

In most cases, a senior steering committee will be needed to commission, oversee and guide the process. This committee will probably want to create a small inter-departmental 'special commission', 'task force' or 'working group' which will coordinate all planning activities. Special issue groups may be created to focus on key issues which demand more in-depth analysis, negotiation and mobilization of support.

Once the basic planning structure is formulated, planners should then prepare a concise strategic plan which identifies the basic structure for the overall process of policy and programme development. The strategic plan should be a relatively brief document which highlights key objectives, principles, parameters and modalities. The strategic plan should be written not as a blueprint but as a proposal to invite key officials and stakeholders to participate actively in the process. The strategic plan should forecast the order in which basic functions will be performed.

WHAT IS A PARTICIPATORY AND STRATEGIC CHANGE PROCESS?

To be effective, reform should be both participatory and strategic. A reform is *participatory* when it includes all stakeholders in the process of assessment, policy making, programme formulation and implementation. A stakeholder is any person or group which has an important interest in the prospective reforms. Reform is *strategic* when it deals with fundamental issues and is forward-looking, politically feasible and integrated with the external environment. Strategic change is difficult. It requires a methodology and coordination with stakeholders, in order to mobilize diverse inputs and build consensus.

Participatory and strategic reform generally involves the following elements:

- representational involvement of stakeholders;
- setting objectives;
- assessing management gaps and options for change;
- developing a shared vision of the future;
- developing policies and programmes;
- facilitating teams to work on the process;
- analysis, negotiation and possibly experimentation;
- organizational restructuring; and
- performance assessment and review.

There are a number of reasons why it may be in the self-interest of an organization to support reform. “It’s better to act than react.” “If we don’t act someone will act for us.” “Our organization is becoming irrelevant and ineffective.” “Our political support is diminishing and the budget is shrinking.” Reforms are often partial in nature, meaning that the full set of changes needed to support sustainable change is not included. Reforms are sometimes driven by high-level edicts without open consultation with stakeholders. This can result in opposition and sabotage at lower levels during implementation.

The following are reasons why reform should be both participatory and strategic:

- to benefit from an open exchange of ideas;
- to build consensus among stakeholders;
- to build a supportive sector-level framework; and
- to make sure that organizations keep up with the changing needs and demands in the external environment - among clients, supporters, regulators and competitors.

Two things are essential for reform: (i) strong political commitment and (ii) stakeholders who are willing to cooperate constructively. The primary role of strategic planners is to *facilitate*, meaning to activate, coordinate and mediate. The orchestra conductor (like a strategic planner) leads and facilitates, but it is the players (or stakeholders) who must perform. Without strong political commitment, extensive analysis and negotiation, multi-disciplinary expertise, inclusion of all key stakeholders in the process, considerable political savvy and perhaps some experimentation - the process will likely fail to produce effective reform. Therefore it is emphasized again that these are not guidelines for direct action. They are guidelines to basic principles, issues, possible options and methods which are believed to merit consideration by planners and participants in reform as they forge a locally-appropriate strategy of management devolution.

This is not to say that IMT must be a slow, incremental process. Depending on the political culture in a country, consensus-building may be slow or rapid and may require agreement on details or only basic principles. After the required level of consensus is reached and a comprehensive plan is prepared, then experience suggests (in Mexico, Turkey and Andhra Pradesh) that rapid implementation can be an effective strategy to overcome resistance.

WHO ARE THE STAKEHOLDERS AND HOW CAN THEY PARTICIPATE IN THE PROCESS?

Stakeholders should include owners and cultivators of irrigated land, irrigation department staff, tax payers, policy-makers and planners in the water and agriculture sectors, technical assistance experts, agriculture crop processors, merchants and consumers. They may also include other people who desire access to water from the irrigation system for non-irrigation purposes (such as household uses, livestock, industry, power and so on), other water users at the basin level, agricultural cooperatives, labour unions, NGOs and environmental interest groups. There may be conflicting interests regarding IMT among stakeholders, such as between farmers at the head and tail reaches of canals. Head-enders may be satisfied with the irrigation service and not want to take over costs of irrigation. Tail-enders may want reform. The majority of farmers may favour taking over management but irrigation department staff may resist it for fear of losing jobs and revenue. Finance and planning departments may promote IMT to reduce the burden of financing irrigation. Wealthy farmers who may pay bribes for extra water may resist formation of strong water users’ associations.

Planners should resist pressures to restrict the planning process to a small group of like-minded people. Following this path of least resistance may make the process smooth and fast-moving in the beginning, but later such a team may run into a wall of opposition and suspicion. A successful outcome will normally depend on forging consensus among a diverse set of stakeholders.

The opposite extreme of attempting to maximize participation of all stakeholders may also not be advisable in some situations where farmers or others are busy and content to have representational participation. Promoting *maximum participation* of all stakeholders from beginning to end is a recipe for confusion and frustration among otherwise busy people. People tend to become impatient attending numerous meetings which do not produce immediate results and in which the direct participation of all stakeholders is not essential. Several members of a special commission or working group may be nearly fully occupied with the strategic planning process. Others who are not on the commission may feel that their interests can be met through participation of representatives of their interest group in important events. Representatives of stakeholders can be invited to state the extent to which they wish to participate.

With these inputs, the commission can plan the appropriate type of stakeholder participation. The following are ways whereby stakeholders might participate in IMT programme development:

- seminars, workshops and other meetings;
- interest groups which lobby politicians and government officials;
- participatory rural appraisals or other field visits where stakeholders can convey their views and local knowledge;
- analyses by resource persons in issue groups;
- private consultations for sensitive matters;
- preparation or review of IMT documents; and
- action research or pilot exercises.

Table 2 is a 'stakeholder participation matrix'. It shows a hypothetical list of stakeholders in the reform process. Row headings are the major activities in the process. Symbols are placed in the cells to indicate the primary type of participation each stakeholder is expected to have for each activity. Participation can be in the form of providing viewpoints (V), analysis and writing (or oral presentation) (A), legitimization or granting authoritative recognition (L), implementing (I) and decision making (D). Such participation validates and mobilizes support for the process. Blank cells indicate no participation by that party in that activity. This is a tool which can be used to plan for appropriate stakeholder participation. The process is more likely to be *valid* and result in true reform if key stakeholders are involved to some extent in the above five forms of participation.

HOW SHOULD THE PROCESS BE STRUCTURED?

The structure of the process is defined in two ways: (i) the roles of participants in the process and (ii) the basic steps in the process. In most cases, a relatively senior steering committee will be needed to commission, oversee and guide the process. This normally consists of senior representatives from involved government departments and perhaps the legislature.

TABLE 2
Stakeholder participation matrix

Activity	Senior Politi-cians	Senior Admin. Officers	Farmer Reps.	Senior Govt. Techl. Experts	Techl. Consul-tants	Irrig. Mgmt. Staff	Researchers/ NGOs
Policy Coordinating Committee	L	D	D	A			
Working Group	L	D	V	A & V	A & V	V	A
Policy statement	L & D	V & D	V, D	A & V	A		
Issue analyses		L & D	V	A & V	A & V	V	A & V
Pilot experiments		L & D	V, A, L, I, D	V & D	A & V	V, D, I	A & I
Planning and implementation	L	L, V & D	V, L, I, D	V, A, D, I	A, V & I	V, D, I	A & I
Organizing WUAs		L	V, A, L, I, D	V	A & V	V & D	A & I
Infrastructure improvement		L	V, A, L, I, D	A, V, D	A & I	A, V & I	V
Monitoring and evaluation		L	V, A	A & V	A & V	V	I, A & V
Course correction and adaptation	L	V & D	V, A, D	A & V	A & V	V	A & V

Primary forms of participation:
1. Provide viewpoints = **V**
2. Analysis = **A**
3. Legitimization = **L**
4. Implementing = **I**
5. Decision making = **D**

This committee will probably want to create a small inter-departmental 'special commission', 'task force' or 'working group' which will coordinate all planning activities. Representatives from farmers' associations, non-governmental organizations (NGOs), consulting firms and research institutes can be essential participants in planning meetings. Special issue groups may be created to focus on key issues which demand more in-depth analysis, negotiation and mobilization of support.

Between meetings of the commission, members may be engaged in such activities as information gathering, communications among stakeholders, analysis, consultations, monitoring, preparing reports and planning events. Whatever structure is used will depend on the local complexity and sensitivity of reforms envisioned.

Once the basic planning structure is formulated, planners should then prepare a concise strategic plan, which is a 'plan to plan'. It outlines the basic structure of the process. The following sections of this chapter describe what should be included in such a plan.

WHAT ARE THE OBJECTIVES AND JUSTIFICATIONS FOR MANAGEMENT TRANSFER?

Objectives state the key outcomes or direct results of reforms which are expected. They specify the primary reasons why IMT is being adopted and provide the basis for identifying the basic principles which should guide how policy and programme are developed. They are the first element in the strategic vision of the future. Objectives help identify who the key stakeholders are and they help stakeholders assess the implications of IMT.

The statement of objectives can be considered as 'a working hypothesis' about how changes will produce desired outcomes. The objectives can be modified during the change process but will serve as a unifying influence throughout. When adequate consensus and support for the objectives is obtained, the senior steering committee should formalize the statement of objectives by incorporating it into an official decree or policy statement.

The following are examples of typical objectives for IMT programmes:

- *eliminate recurring government expenditures for operation and maintenance of all irrigation systems which are transferred;*
- *establish financially self-reliant water service providers to replace the public agency in the management of irrigation systems;*
- *reduce the rate of deterioration of irrigation infrastructure;*
- *provide transparency in management and accountability of the service provider to water users.*

Each of these objectives specifies an important outcome of IMT expected by the government, farmers or other stakeholders. Each is measurable. The first three imply a threshold level above which it can be said that the objective has been achieved. The fourth will require qualitative indicators to measure achievement of the objective. Expected outcomes are related closely to IMT so that their achievement can be linked to the reform. Vague language may help minimize controversy at first, but it will not provide sufficient guidance to the process.

Planners should provide justification for the objectives by referring to broader water, agriculture, environmental or financial sector policies and to important interests of stakeholders. The strategic plan should persuade the reader that IMT will achieve the objectives and explain why the objectives are in the public interest, in terms of what broader impacts they will have on society and the environment.

It is important for policy-makers to issue clear statements at the beginning about which objectives and changes are negotiable and which are not. Planners should communicate this clearly to stakeholders. Otherwise, stakeholders may feel betrayed to find out later that not all issues are open for negotiation.

WHAT ARE THE MAJOR ISSUES LIKELY TO REQUIRE SPECIAL ATTENTION?

In developing an IMT policy and programme, several issues will arise which may require analysis, experimentation and negotiation. Policy issues are generally about WHAT the future will look like. Programme issues are generally about HOW to get from the present to that future.

The following are the four most common and important IMT policy issues:

- What functions should be transferred to what organizations?
- How will irrigation O&M and rehabilitation and modernization be financed after IMT?
- What policy and legal changes need to be made to support transfer?
- What changes should be made in public agency mandates as a result of transfer?

These issues do not have to be worked out in detail in a policy statement. The statement need only outline the basic direction to be taken. Details can be worked out later, in the issuance of executive instructions for the policy.

The following are the four most common and important IMT programme issues:

- How should the local organization be created and prepared to take over management?
- What improvements in infrastructure and management need to be made?
- How should agency reforms be designed and carried out?
- How can an effective system of monitoring and evaluation be set up?

These issues are discussed in more detail in later chapters.

As with the policy document, implementation plans should be relatively brief and clear on the main points. It may only be possible to work out solutions to the more detailed issues in the process of implementation itself. Some issues may require research or experimentation (where there is uncertainty about outcomes). Some may require brainstorming (where there is a shortage of ideas), consulting inputs (where there is a shortage of expertise) and negotiation (where there are differences in costs, benefits or values among stakeholders). Monitoring and evaluation may provide feedback which leads to modifications in the design of the programme.

WHAT ARE THE OPTIONS AND IMPLICATIONS FOR FINANCING THE TRANSFER PROCESS?

Policy-makers should realize that both the source and amount of funds provided to finance an IMT process can have profound effects on the nature of the programme and its impacts. Middle-income countries may be able to allocate national or provincial funds to finance an IMT programme. Lower-income countries may not have this option. They may have to choose between financing the process through external loans or making the changes 'on the cheap' - without any infrastructure improvement and little organizing or training.

Financial assistance from donors may come with strings attached. International donors sometimes incorporate into loan programmes additional objectives and requirements, rigid implementation schedules and heavy administrative requirements. This is not without reason, but donors and host governments should remember that restructuring is a learning process which requires some flexibility to deal with unanticipated problems that arise.

Too much external financing can transform the process into a construction project and divert attention away from the primary objective of institutional reform. Too little money can reduce the process to simple abandonment of public irrigation systems. Ironically, even that situation can become costly later on - it may cause the benefit stream from large previous investments to dwindle rapidly.

Like farmers who develop a 'sense of ownership' from investing their own resources in repairing irrigation systems, governments and their clients may be more inclined to 'own the process' and be concerned with outcomes if they are required to invest some of their own funds.

HOW CAN PLANNERS AVOID *STRATEGIC OVERLOAD*?

Even if they are careful, planners can get overwhelmed by the complexity and controversies in the change process. The following are five suggestions about how planners can avoid *strategic overload*:

- remain focused on a clear and realistic set of objectives: do not become side-tracked with non-essential matters;
- remember that the aim is to produce broad directions for policy and programme, not exhaustive specification of detail;
- be discerning and selective about stakeholder participation: facilitate what is needed and no more;
- divide up the array of issues into manageable parts and delegate work on each to interest groups and resource persons;
- remember that the process and its outcomes belong to the stakeholders and are not just the responsibility of the planner.

PHASE 2 OUTPUTS: ORGANIZING THE STRATEGIC CHANGE PROCESS

As noted above, the main output of this preliminary stage is a short strategic plan. The strategic plan identifies the basic structure for the overall process of policy and programme development. Since the process will be rather fluid and cannot be prefigured in detail, the strategic plan should be a relatively brief document which highlights key objectives, principles, parameters and modalities. Too much detail may create the impression that the writers have gone too far without participation of stakeholders. Brevity will also encourage people to read the document. The strategic plan should be written not as a blueprint but as a proposal to invite key officials and stakeholders to buy into the process. It will probably include the following components:

- objectives and justification for IMT;
- proposed organizational structure for the change process;
- expected stakeholder participation;
- expected key issues for policy and programme formulation; and
- time-frame and financing plan.

The strategic plan should forecast the order in which basic functions will be performed. These can be grouped into the following four phases in the IMT reform process:

- formulation of a transfer policy;
- formation of planning groups and a strategic plan;
- planning;
- implementation.

The chapters in these guidelines are organized according to these four phases.

Phase 3

Resolution of key policy issues

Chapter 4

Ensuring consistency between how the irrigation sector is financed and the goals of IMT

SUMMARY

This chapter reviews two strategic questions: 'What changes are required in how the irrigation sector is financed?" and "What needs to be changed to make financing in the sector consistent with the objectives of IMT?"

Generally, the government will be required to reduce or eliminate subsidies for recurring costs of irrigation. These costs will have to be financed largely or entirely from water charges to the users. Subsidies for periodic rehabilitation or modernization will probably need to be re-designed so as to stimulate, not discourage, investment in maintenance by the water users.

The logic for having O&M mostly or fully financed through water charges is simple and widely accepted: the service provider will be more accountable to the users if its **primary** source of revenue depends on delivering an acceptable service.

An alternative approach to the conventional "rehabilitation followed by deterioration trap" is needed which would restrict detrimental political interference and ensure the financial and physical sustainability of irrigation systems. The best alternative is an approach which is oriented toward **incremental infrastructure improvement**. Such a strategy should aim at doing the rehabilitation/ modernization works in a gradual form over relatively long periods. For this purpose the WUAs should be encouraged to raise a capital reserve fund that could be used. One way of promoting the formation of such funds is by providing a matching fund (from government resources) of an equal or similar amount. The matching fund can be a grant or a loan on very favourable financial conditions. To be eligible for the matching fund, the WUA must comply with accepted performance standards, which can be monitored effectively and independently.

New mechanisms should be introduced to protect the sector from financial irregularities after IMT. These may include financial audits of WUA or WSP accounts, financial management training for WUA directors as well as financial staff, transparency of records and water service fees, and so on.

INTRODUCTION

Phase 3 of the strategic change process concerns the resolution of key policy issues related to IMT. Generally, the four most important policy issues related to irrigation management transfer are as follows.

1. What changes are required in how the irrigation sector is financed?

Generally, the government will be required to reduce or eliminate subsidies for the recurring costs of irrigation. These costs will have to be financed largely or entirely from water charges to the users. Subsidies for periodic rehabilitation or modernization will probably need to be designed so as to stimulate, not discourage, investment in maintenance by the water users.

2. What services should be transferred, retained or created?

Planners and participants in the process will need to decide whether to transfer all or only part of the functions of operations, maintenance, financing, conflict resolution and so on. New services may be needed, such as for agricultural services or water allocation at the basin level.

3. What type of organization(s) should take over management?

There is a range of organizational forms which could be used for the new water service provider. While water users' associations may be suitable for small-scale irrigation, other forms, such as irrigation districts or mutual companies, may be more suited to larger scales of management.

4. What legislative and sector-level changes are needed to support IMT?

There may be a need for new legislation which grants clear water rights to water users' associations (WUAs) at the point of extraction from a river or aquifer. Legislation may be needed to provide legal status to WUAs, to create new support service entities or to restructure the irrigation agency.

It is important that these key policy questions be answered through analysis and negotiation before planners proceed to the planning and implementation phases. It is also important that policy-makers proceed in a systematic order so as not to unintentionally exclude options from consideration. The following four chapters will deal with these issues.

Strategists should review a wide range of options and be hampered by as few assumptions as possible. It is suggested that policy analysis address the following questions:

- What changes are needed and at what levels?
- What are the different options for change?
- Which option would probably be most effective?
- Is this option feasible, and if not,
- What can be done (if anything) to make it feasible?

This chapter reviews what changes are required in how the irrigation sector is financed and what needs to be changed to make financing in the sector consistent with the objectives of IMT. First an indication is given on how government policies and procedures for financing the irrigation sub-sector can interfere with the goals of management transfer. Then options are suggested for modifying these policies and procedures in order to ensure consistency between how the sector is financed and the goals of management transfer.

THE NEAR CONSENSUS ABOUT HOW OPERATIONS AND MAINTENANCE SHOULD BE FINANCED

Most irrigation sector administrators and technical experts would agree that the primary source of funds to pay for the costs of irrigation operations and maintenance ought to be the payment of water charges by water users. If given the choice between (a) farmers receive full government subsidy for O&M but get poor service, and (b) farmers pay for the cost of O&M but get full control over service provision, it is likely that most farmers would opt for the latter.

Evidence for this is found in India where farmers pay water charges for renting pumps (for reliable service) which costs up to five times or more than the cost of water for surface irrigation (for unreliable service). There are several cases of management transfer in the United States,

Mexico and Colombia where farmers paid government water charges before transfer. These charges covered O&M and agency overhead costs. Farmers then promoted transfer because they believed they could contain costs and improve management.

The logic for having O&M mostly or fully financed through water charges is simple and widely accepted: the service provider will be more accountable to the users if its **primary** source of revenue depends on delivering an acceptable service.

But there is no consensus that irrigation costs should be **solely** financed by water charges. Some argue that the government should continue subsidizing the cost of irrigation O&M, especially where irrigation costs are high and profitability of agriculture is low. Some argue that water users' associations ought to have the right to raise secondary sources of revenue in order to cross-subsidize the cost of irrigation themselves, after the government has reduced or eliminated its subsidies. The near consensus is that that the majority of the costs of irrigation should be financed through payment of water charges. But some believe that a partial subsidy, either from the government or from other WUA earnings, may still be required.

ARE GOVERNMENT SUBSIDIES INCONSISTENT WITH THE OBJECTIVES OF IRRIGATION MANAGEMENT TRANSFER?

The main issue is how to structure subsidies so as to stimulate local investment in infrastructure and bring about improvements in irrigation management. It is believed that subsidies should be considered primarily as an **investment** (to stimulate local productivity and save government costs in the long term), rather than as **largess** (to artificially suppress costs for political or equity reasons).

Misuse of subsidies is an important threat to the success of irrigation management transfer. The problem should be faced head on and addressed at the political level. **There can be competent professionals and farmer representatives investing capital to ensure the sustainability of irrigation systems, or there can be politicians promoting full financing for public works, at the expense of the local sustainability of irrigation**.

The subsidy-as-investment approach builds local capacity for sustainability. The subsidy-as-largess approach destroys it. The subsidy-as-largess approach comes without strings attached. The subsidy-as-investment approach normally includes requirements for local investment and for compliance with agreed standards.

Proponents of privatization sometimes argue that subsidies are inherently dysfunctional and should be dropped when management is devolved to local entities. A more moderate view is taken here. Subsidies to the irrigation sub-sector may be justified when capital-intensive irrigation development is required to meet national policy objectives. After the development phase, subsidies may still be justified in impoverished areas where agriculture fails to produce sufficient resources to finance irrigation and where irrigation is essential to meet food requirements.

However, subsidies are often structured in such a way that they make water users become dependent upon the government and discourage local investment in irrigation systems. This happens when:

- the amount of subsidy and true cost of irrigation are unknown to water users;
- subsidies are unrelated to corresponding investments by water users; and
- irrigators expect subsidies to continue, especially for repair of deteriorated infrastructure.

Rehabilitation projects can bring substantial sums of money into depleted coffers of irrigation agencies. They are also favourite tools of politicians to build partisan support.

WHAT IS THE "REHABILITATION—DEPENDENCY—DETERIORATION" TRAP?

A few years ago, a director of a national irrigation agency in a country in Asia described his perception about the pernicious effects of subsidies-as-largess on maintenance and rehabilitation. He gave the following example. In one irrigation scheme (A) farmers do not bother to maintain their system, so the government frequently returns to do repairs and rehabilitation. In another scheme nearby (B) the farmers are more organized and routinely maintain their scheme so they never need government assistance for repair or rehabilitation. He said that the farmers in scheme B eventually get upset and complain to the government. They ask: "Why is the government repeatedly repairing scheme A where the farmers don't maintain their scheme properly? Why don't they help us?" He didn't have a good answer for them. A suggestion that government assistance be linked to requirements for local investment seemed too radical at the time.

In public irrigation, typically the financing and decision-making for maintenance is located in a separate division from rehabilitation. Investment decisions about rehabilitation are generally not directly related to decisions about maintenance, nor vice versa. Instead of making trade-offs between the two and optimizing short- and long-term investments together, either governmental unit tends to promote maximizing its own budget. But with the rapid expansion of irrigated area which occurred throughout the developing world from the 1950s to the 1980s, maintenance budgets could not keep up with the growing demand, and deterioration became widespread. Meanwhile farmers had become accustomed to perceiving maintenance as mostly the government's responsibility.

The conventional approach to rehabilitation has been to wait until deterioration has become severe over a wide enough area that a large rehabilitation project is needed. The government finances the cost, provides engineers and makes repairs with little, if any, farmer participation. Proponents of this approach sometimes argue that it may be more cost-effective, especially for farmers, to under-invest in routine maintenance and then use occasional government-sponsored rehabilitation as an opportunity to restore the system to functionality and modernize it to keep up with social and environmental change. This approach may be justified on the grounds that:

- farmers cannot mobilize sufficient resources for preventive maintenance;
- the government should subsidize the cost of irrigation; and
- it is easier for governments to obtain funding for special projects like rehabilitation than for routine maintenance.

While under-investment in maintenance may be necessary in some circumstances, it occurs far too often and in general is an undesirable practice which is detrimental to the development of self-reliant water users' associations, for the following reasons:

- while waiting for rehabilitation, small problems become big, costly problems;
- prior to rehabilitation, O&M performance suffers due to deterioration;
- farmer resources are not mobilized and the cost to the government is large;
- non-participatory rehabilitation often results in works that are inappropriate, overly-elaborate, unnecessary and difficult for farmers to operate and maintain;

- considerable corruption and waste are often associated with rehabilitation projects;
- WUAs lose the incentive and capacity to invest in the physical sustainability of the irrigation scheme which they depend upon, but which they feel is not theirs.

There are economic arguments against the rehabilitation-deterioration trap but the strongest argument is an organizational one. Unless the rehabilitation-dependency-deterioration trap is overcome, IMT will not be able to meet its foremost objective of ensuring the local sustainability of irrigation systems. Neither will it relieve the financial burden of irrigation on the government, because any savings in routine O&M costs will likely be cancelled by larger costs for rehabilitation in the long run.

TOWARD MORE SUSTAINABLE IRRIGATION WITH "INCREMENTAL INFRASTRUCTURE IMPROVEMENT"

Clearly, an alternative approach to the conventional deterioration trap is needed which would restrict detrimental political interference and ensure the financial and physical sustainability of irrigation systems. The best alternative would be an approach which is oriented toward **incremental infrastructure improvement** rather than the typical pattern of occasional large-scale rehabilitation followed by deterioration. The following is an example of an alternative approach. It is provided here not as a universal recommendation, but mainly to stimulate the kind of radical thinking which will be necessary to come to terms with this difficult and widespread problem. The likely degree of effort that will be required to address the problem is also indicated.

An incremental infrastructure improvement strategy might have the following characteristics:[1]

- maintenance, rehabilitation and modernization would be integrated into the same overall financial planning forum;
- need for improvements would be identified, prioritized and scheduled primarily by the water service provider (WSP), subject to review by the WUA board and with possible technical advice from the government;
- a capital reserve fund could be raised by the WUA, probably mainly through a surcharge on the water fee;
- the WUA would have access to the fund at any time for making infrastructure improvements, no matter how small the amount or scale of improvements;
- the government may provide a subsidy based on cost sharing formulae and designed to stimulate preventive maintenance;
- eligibility for the subsidy would be based on farmer compliance with agreed maintenance standards and rate of contribution to the reserve fund;

[1] Chapter 11 also discusses arrangements for infrastructure improvement, but from a more technical perspective.

- an independent auditor could conduct technical and financial audits of WSPs once every two or three years to determine eligibility for the subsidy programme and as a support service to strengthen technical and financial management of the WSP.

Such an arrangement would encourage farmers to invest in infrastructure improvement incrementally, before deterioration becomes advanced, so as to minimize expenses from their own capital reserve fund. Government subsidies would be available for minor repairs and the formulae for cost sharing would be structured so that farmers would have no incentive to wait until large-scale rehabilitation is required.

A capital reserve fund, owned by the WUA, should be developed if the WUA is to be responsible for future rehabilitation and modernization. Governments are reducing their role in financing the irrigation sub-sector, so adequate funds for emergency repair or rehabilitation may not be available in the future. Development of a capital reserve fund would be an important element in the long-term sustainability of a scheme after transfer. It is therefore surprising that such funds are relatively rare.

BOX 1
EXAMPLE OF INVESTMENT-ORIENTED SUBSIDY IN INDONESIA

One example of a subsidy designed to stimulate local investment is the FAO Starter Project in Indonesia in the late 1980s, where FAO provided external funds to WUAs for infrastructure improvement with a requirement that equal shares of matching investments between the government and WUA be made. WUA investments could be in the form of labour and materials. FAO and the government also provided technical and organizational assistance. The average response of the farmers was to invest 150% of the amount of assistance provided externally. In poorer areas where farmers were almost solely dependent on agriculture for their livelihoods and had labour to contribute, farmers invested up to 500% and more of the value of external assistance. The result was an increase in investment and organizational capacity (or "social capital"), as well as improved infrastructure.

Money may be obtained for such a fund by levying a surcharge on top of the normal water fee, by raising sideline sources of revenue or by collecting interest in the account. After transfer, irrigation districts in former United States Bureau of Reclamation (USBR) schemes normally levy a surcharge for a capital reserve fund in the order of 20% to 30% of the water charge for routine operating costs.

Normally, farmers are not accustomed to raising long-term funds for vague future purposes. They are likely to be reluctant to raise such funds unless they have some incentives from the government (in terms of matching subsidies). The government also may have to provide security or insurance on deposits into WUA capital reserve funds. Where corruption is common this may not be possible, and other more secure forms of savings may have to be found.

The problem of emergency repairs, modernization and extension of irrigation networks may need to be handled slightly differently than rehabilitation. It might make sense to alter conditions for eligibility and amount of subsidy provided for these uses. Even so, it is believed that these problems should also be addressed in the context of a capital reserve fund and with a possible link to an investment-oriented subsidy.

There may be other strategies for overcoming the rehabilitation-dependency-deterioration trap but, like the one described above, they will require considerable political will among lending agencies and finance and irrigation departments to move away from such an entrenched pattern of investment in irrigation infrastructure.

HOW TO PREVENT FINANCIAL IRREGULARITIES

The above discussion indicates that IMT will place substantial new responsibility for financial management into the hands of the WUA and WSP. Experience suggests that financial irregularities and corruption are serious threats to successful transfer of irrigation management to WUAs. Aside from minimal training in bookkeeping, most IMT programmes do not introduce measures to ensure that strict financial practices are followed by WUAs after IMT. It is believed this aspect demands serious attention and establishment of arrangements for periodic financial audits and advisory support from government after IMT. The following are examples of measures which could be taken (among others) to help prevent financial irregularities from occurring in WUAs after IMT:

- Training in agreed financial practices for the treasurer of the WUA and the chief financial officer of the WSP should be provided (if required). Also, training in bookkeeping practices could be given to all WUA directors and WSP administrative staff.
- Financial transactions should only be made with a minimum of two authorized witnesses and a record of the transaction.
- Financial records of the WSP should be available for inspection by farmers.
- There should be a clear basis for how the level of water fees is determined (such as needs-based budgeting).
- Amount of water fees to be collected should be based on a known and measurable level of service, such as volume of water delivered, area served or number of irrigations.
- An independent financial auditor could periodically examine WSP accounts.
- Social ties between the WUA treasurer and WSP financial officer should be avoided.
- The WUA treasurer should be replaced periodically.

Chapter 5

Resolving what services should be transferred

SUMMARY

Early in the planning process, planners and involved stakeholders must address the issue of which management services should be transferred. This issue has three parts: 1) What services should be transferred? 2) What services should be retained by the government? and 3) What new services should be provided? This chapter provides direction for some orientations to these strategic questions.

Management may be transferred for an entire irrigation system or only for certain levels. A single system may be managed by multiple organizations. An example is so-called "jointly managed" irrigation systems, where a government agency manages the main and branch canals and farmer associations manage distributary and field channels.

Experience with locally-managed irrigation systems suggests that there are four basic and inseparable functions which should be handled by the water service provider. These are operation, maintenance, financing the service and resolving disputes.

The service to be transferred should be clearly defined so that it is measurable and understood by the service provider and water user. The core water service is the provision and/or disposal of water. Service definitions may also include objectives for water quality, domestic water use and so on.

Experience suggests that WUAs often become multi-functional when they are small scale. In larger schemes the more challenging management environment may require that a single entity focus on the water service while other entities focus on other agricultural services. Through effective strategic planning, IMT can present an excellent opportunity to modernize the scope and objectives of the water service, in addition to transferring responsibility for service provision.

The previous review of performance gaps in irrigation management should give planners a good idea about what the main management problems are and at what water management levels they occur. The next step is to determine:

- what services should be transferred;
- which services should be retained under the public domain;
- what new services should be provided.

These are addressed below.

AT WHAT HYDRAULIC LEVEL SHOULD MANAGEMENT BE TRANSFERRED?

The following are the primary questions for determining at what hydraulic level management should be transferred:

FIGURE 2
Water service functions at basin and scheme levels

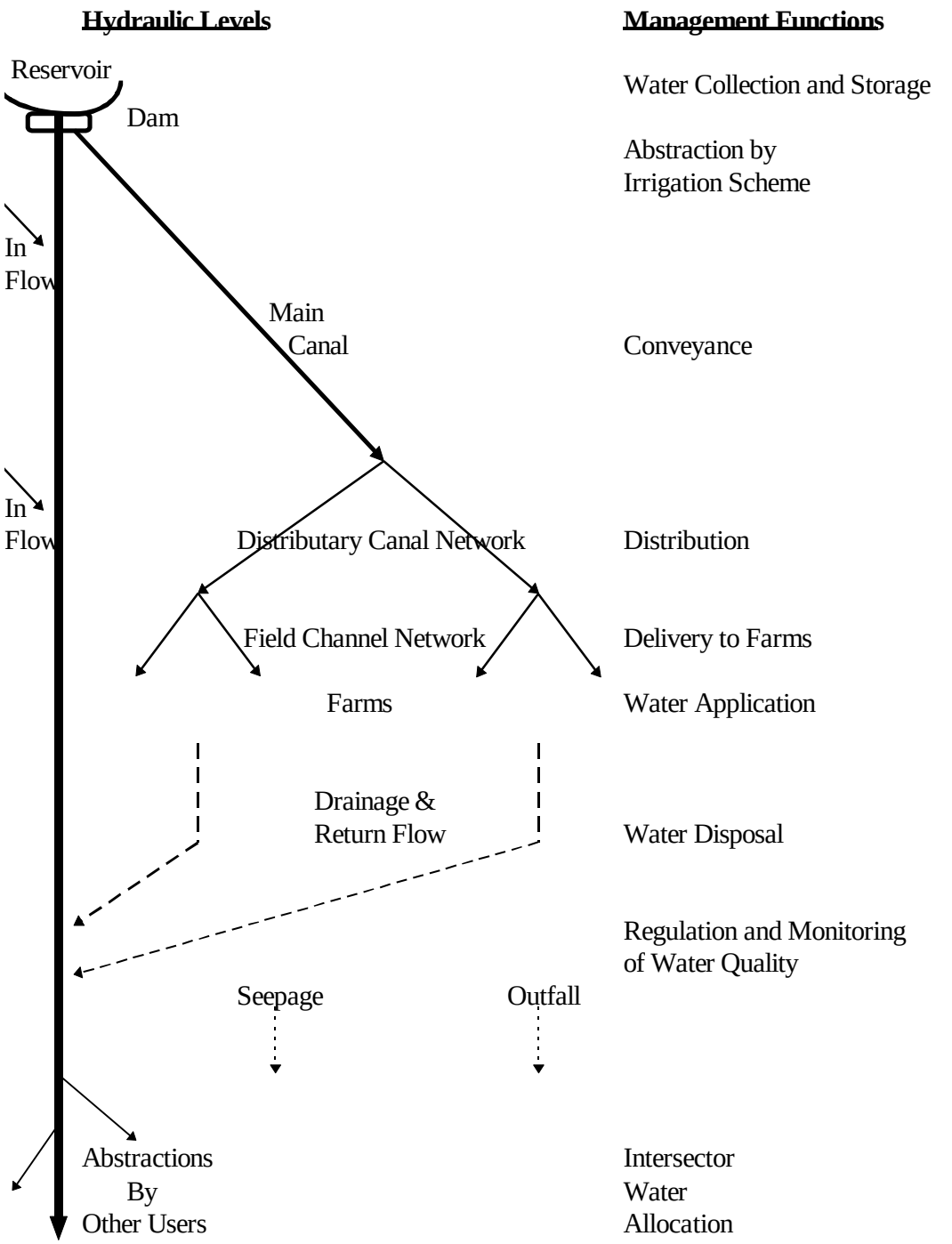


TABLE 3
Service functions and hydraulic interfaces

Hydraulic interface	Types of structures	Water service function
From river basin to irrigation scheme	Weir, pump, intake	Water acquisition
From main to branch canals	Weirs, flumes, gates and cross-regulators	Conveyance
From distributary canal to field channel	Fixed outlets, sluice gates	Delivery
From fields to drainage system	Open or tile drains	Disposal

- At what hydraulic level is the service area so large, and the environmental, technical and political issues so complex, that only the government could manage at that level?
- Down to what level is the government capable of providing an acceptable service?
- Which levels are so closely inter-connected that it would be detrimental to separate them into different management entities?
- Up to what level can the system be managed by a non-governmental service provider that would be accountable to both water users and government?

Water can be managed at the level of the river basin, the main, branch and distributary canal network of an irrigation system, along field channels and in the drainage system. Figure 2 identifies management service functions performed at different hydraulic levels, from the river basin to drains. There should be a clear definition of the services that should be provided at each interface between hydraulic levels. The interface between one level and the next is the point where an upstream organization provides a service to the next downstream level, which in turn may provide a service to other levels below. Table 3 provides examples of structures and functions that may be located at such interfaces.

One organization can be responsible for providing a water service from one level to another or even across levels. The interface between two levels is the logical place for a boundary between two organizations. Planners should keep in mind how each of these levels is inter-connected. It cannot be assumed that poor performance at one level must be primarily the result of mismanagement at this level. It may be a logical response to mismanagement at higher levels. Planners should identify the levels at which management problems occur and the levels at which their effects are manifested. Then, they can determine at what level transfer should occur and what should be the interface, or boundary, between the public agency and the local water service provider (WSP). The "service area" is the irrigation and drainage area that receives a water service at a particular hydraulic level (for example the area served by a minor canal).

Management may be transferred for an entire irrigation system or only for certain levels. A single system may be managed by multiple organizations. An example is so-called "jointly managed" irrigation systems, where a government agency manages the main and branch canals and farmer associations manage distributary and field channels.

Joint management (between government and farmer associations) is the approach followed in some states in India, and in Sri Lanka and Indonesia, where a government agency and farmer organizations are responsible for managing irrigation systems at different levels. Important decisions, such as regarding cropping patterns or rotational irrigation, are, in principle, made jointly by government officials and farmer representatives. In medium- to large-scale systems in Sri Lanka, "joint management committees" meet at distributary and main levels to make key

management decisions. In large irrigation systems in Mexico, the government commonly manages the intake and main canal while water users' associations manage distributary and field channels. Representatives from both sides coordinate between main and distributary levels.

Another example of joint management is the North China plain, where irrigation districts have agreements to deliver specified amounts of water down to turnouts from the main or distributary canals. Water management, maintenance and crop patterns below turnouts are the responsibility of the users or villages.

WHAT CORE AND SUPPORT SERVICES SHOULD BE TRANSFERRED?

Experience in long-enduring locally-managed irrigation systems suggests that there are four basic and inseparable functions which should be handled by the entity that will be in charge of providing the water service.

The first function is **operation**. This includes the following tasks:

- measurement of water requirements and supply;
- conveyance and distribution of water;
- distribution of scarce water during water stress periods;
- application and drainage of excess water from fields and eventual reuse or removal.

The second function is **maintenance**, which experts would generally agree should be based on operational requirements and constraints. Hence, the entity which manages operation should also manage maintenance.

Thirdly, experience also suggests that in order for an organization to have the motivation to achieve efficiency and accountability to clients, it should be primarily responsible for its own **financing**, most or all of which should come from water charges to clients. This is not to say that any subsidy would weaken the WSP, but rather that external financing should not be the primary source of revenue.

The fourth function, which also appears to be inseparable from the core service, is **dispute resolution**. Effective and sustainable local irrigation organizations apparently need to have the power, conflict adjudication mechanisms and sanctions to quickly resolve disputes over water or related matters. Only for exceptional cases should a higher authority be required.

These four functions constitute the core of a water service. Other supporting functions, such as providing agricultural inputs, regulating crop choices, mobilizing additional sources of revenue and carrying out agricultural processing, can also be added to the responsibilities of the entity providing the services. Advantages and disadvantages of adding these secondary functions are discussed in the next section.

The services to be transferred should be clearly defined so that they are measurable (whenever possible) and understood by the service provider and water user. This may sound obvious, but in practice it is rarely done, either by public agencies (which are often oriented toward administrative procedures rather than output objectives) or by farmer organizations (which also tend to be unaccustomed to formulating explicit objectives). Since IMT is meant to

improve accountability, **it is critical that the intended water service be defined clearly prior to transfer**.

For water provision, a clear definition of the core service should include the following basic elements:

- from where and to where;
- how much (in volume or proportion); and
- for what duration;

will the water be provided and/or removed.

The boundaries of the irrigation service area and the set of water users served should also be defined. This may be needed when so-called encroachers who were not originally included in the design area, or indirect users of the water supply (such as tubewell users), are incorporated into the new service area after transfer.

Service definitions may also include objectives for water quality, domestic water use and so on. After defining the core service, planners should identify which primary service functions are inseparable from the core service and should be managed by the same entity.

The entity that will provide the services can be the users' organization (through its own members), or can be a contracted WSP. In practice, the WSP is often made up of a few professionals and technicians contracted to undertake the core services formerly described.

ARE THERE ANY NEW SERVICES THAT THE WUA SHOULD PROVIDE?

There are a number of secondary support functions which may or may not be managed directly by the WSP, under the supervision of its WUA. Sometimes new post-transfer organizations assume secondary functions. Some examples are:

- provision of agricultural inputs, including credit;
- regulating crop choices and scheduling planting dates;
- mobilizing additional sources of revenue;
- carrying out agricultural processing and marketing; and
- exercising land and soil management.

The following are reasons why the WSP may choose to get involved in secondary functions:

- the WSP cannot improve the productivity or profitability of irrigated agriculture enough unless it also helps to make improvements in agriculture;
- the WSP cannot obtain enough funds to cover the cost of irrigation unless it raises revenue from secondary sources;
- the WSP cannot obtain enough support, loyalty and interest among its members unless it involves them in additional activities which increases the benefits to them from the organization; and
- no other organizations exist which can effectively handle the secondary functions.

The following are reasons why the WSP may choose not to get involved in secondary functions:

- regulations prevent the WSP from doing so;
- other organizations exist which can handle the secondary functions adequately;
- the WSP can obtain sufficient financing without secondary sources of income;
- the WSP cannot maintain sufficient focus and control over its primary functions and deal with the secondary functions as well.

Experience in several Asian and Latin American countries suggests that WUAs often become multi-functional when they are small-scale. But this is rarely the case when they have larger service areas. In larger schemes the more challenging management environment may require that a single entity focuses on the water service while other entities focus on other agricultural services. Larger schemes will tend to have more capacity to permit specialization for different service functions.

There is another increasingly important way in which irrigation management organizations are changing and this may require a fundamental change in the way irrigation systems are managed after transfer. In many developing countries the vast majority of public irrigation systems were originally designed and constructed for the sole purpose of delivering and disposing of water for agriculture. Over the last three decades, population increases, economic diversification and increasing shortages of water have meant that people are often using irrigation systems to supply multiple uses of water, including for washing clothes, bathing, livestock, recreation, industry, energy generation and even drinking water.

Where irrigation systems are being used for such multiple uses, new WSPs may need to re-define the functions of the water service to incorporate such multiple use services into their formal management system. Such demands cannot be ignored and the WUA will have to organize itself to represent the needs of its widening base of stakeholders. This may mean that women who use water for domestic and other purposes, those who tend livestock, industrial users and so on may need to be represented in the organization. Through effective strategic planning, IMT can present an excellent opportunity to modernize the scope and objectives of the water service.

Chapter 6

Resolving the problem of accountability through organizational reform

SUMMARY

This chapter is concerned with the selection of types of post-transfer managing organizations and how to make the organization accountable to the users. Irrigation organizations must be accountable to water users to ensure that irrigation scheme policies and management practices are consistent with the aspirations of the general governing body of water users. This involves incorporating incentives, sanctions and transparency into water service organizations. Accountability of staff within irrigation organizations can be achieved through personnel policies, incentives, contractual agreements, terms of compensation and sanctions.

There are six basic non-governmental organizational models which are used for managing irrigation systems around the world. These organizations are: integrated water users' association, public utility, local government, irrigation district, mutual company and private company. Each model has a distinctive way of arranging the following four basic irrigation management service functions: determining what the service should be, regulating the service, providing the service and paying for the service. How these service relationships are structured will determine who is accountable to whom and for what services.

IMT does not mean that farmers themselves must implement the service. While farmers may gain authority over water management at some level, they may also hire technically competent staff or contract with an organization (Water Service Provider) that has the skills to provide the service.

The five basic methods for achieving organizational accountability are: internal hierarchical control (through rules, personnel policies, incentives); central regulation (through government policy, monitoring and enforcement); competition (among service providers), inter-dependence among organizations (such as pay for service) and common property arrangements (where local community groups possess rights to manage resources).

Lack of managerial accountability is a key reason that policy-makers decide to transfer irrigation management from public to local organizations. Centrally-financed public agencies with under-paid staff and inadequate O&M budgets lack the means, incentives and accountability to perform satisfactorily. Water users are not willing to pay for services not delivered, or for services delivered poorly.

One of the basic tenets of management science most often forgotten in development strategies is:

> ***Unless the basic welfare of an organization depends on its achievement of agreed performance standards, it will not have the will to impose effective internal mechanisms of accountability.***

It is esssential that irrigation organizations be accountable to water users. By accountable, we mean the capacity of an organization, or inter-related organizations, to ensure that irrigation scheme policies and management practices are consistent with the aspirations of the general governing body of water users. How to design organizations that will be accountable to water users after transfer is the key challenge in designing an IMT programme. To design organizations that will ensure accountability takes considerable creative thinking, brainstorming, constructive debate, experimentation and negotiation with all key stakeholders.

WHY IT IS IMPORTANT TO DISTINGUISH BETWEEN GOVERNANCE AND MANAGEMENT

The organization that elects representatives and establishes articles of association, by-laws and policies is usually considered the *governing body*. This will normally be an association of water users with elected boards of directors. However, the organization that actually provides the water service (operations, maintenance, financing) can be called the *water service provider* (WSP). The WSP may not necessarily be the same entity as the governing body.

In the business world, more complex management environments generally involve a separation of the entity that governs (e.g., board of directors elected by shareholders) from the entity which manages (e.g., the professional service provider). Medium- and large-scale irrigation systems managed by water users' associations in more developed countries tend to make this separation between governance and management. Planners should consider this option rather than assuming that it is sufficient to create only the water users' association and that it would take over both governance and management functions directly.

Officials sometimes oppose IMT on the grounds that farmers lack the skills to manage large canal systems. IMT need not mean that farmers themselves must implement the service. While farmers may gain authority over water management at some level, they may also hire technically competent staff (even engineers) or contract with an organization that has the skills to provide the service. Busy farmers may be content to govern through representatives, to define the water service, establish policy and supervise management. Farmers may prefer to elect a board, which would then hire dedicated technical staff to implement policies of the WUA or contract with a company to provide the service.

The key challenge is accountability: to incorporate incentives, sanctions and transparency into water service entities in such a way that they will perform according to standards established by a governing body elected by water users.

WHAT ARE THE ORGANIZATIONAL OPTIONS FOR SERVICE PROVIDERS?

Organizations differ in their capacity to cope with different levels of complexity. This capacity is determined primarily by the organization's basis of authority, mode of financing, incentives and control mechanisms. There are six basic non-governmental organizational models which are used for managing irrigation systems around the world. These are:

- integrated water users' association;
- public utility;
- local government;

- irrigation district;
- mutual company;
- private company.

Table 4 summarizes characteristics of these different types of organizations. The summary points are indicative of trends and are not universal.

TABLE 4
Organizational models for water service entities

Type of organization	Governance	Source of financing	Management capacity
Public utility	• Board of directors from line agencies and regional govts. • Heavily regulated	• Primarily water charges, possibly with some subsidy	• Specialized & professional • Can handle large-scale, complex tasks
Local government	• Responsible to local or state govt.	• Land taxes & other local govt. revenues	• Limited due to multiple roles, may rely on contracting
Irrigation district	• WUA elects board of directors • Some govt. oversight	• Water charges, secondary revenue, • Possible subsidies	• Moderate to sophisticated • Can handle medium- to large-scales, with technical guidance
Mutual company	• Land & water right shareholders elect board of directors • Little govt. regulation	• Water charges, • Secondary revenue, may be profit-making entity	• Generally suitable for small to moderate scales
Private company	• Owners or shareholders • Little govt. regulation	• Water charges or other profits of business	• Scale limited by size of capitalization of company
Contractor	• Agreement with sponsor organization	• Paid by sponsoring organization	• Can be specialized & professional • Scale limited by size of company
Water users' association	• Representatives elected by members	• Water charges or land tax	• Small-scale where direct management by users is possible

Integrated water users' associations Integrated WUAs are water user groups that combine both governance and management functions. They are generally cooperatives of water users. In Asia and Africa, their members tend to perform both governance and management functions directly, so they are most suitable for small-scale irrigation systems or sub-systems, where management requirements are relatively simple and non-intensive. Members of a WUA generally include all landowners or cultivators served by an irrigation system. Small-scale WUAs tend to be semi-formal or politically weak bodies which lack the power to apply strong sanctions and enforce rules. Accounting and management tasks are often handled by elected farmer representatives who tend to receive little official compensation for their contributions. WUAs often function weakly in the face of strong public bureaucracies, powerful village governments and no formal water rights.

However, technical experts often assume that the WUA is the only alternative to public management. It is sometimes recommended in contexts where it is probably not appropriate, such as for large service areas with complex conditions. Corruption, capture of control by local elites, and disputes between contending factions are problems that often overwhelm the modest WUA.

In developing IMT policies, other kinds of organizations should also be considered, and perhaps tested, especially for larger and more complex service areas. Alternatives to it are reviewed later in this chapter.

In Latin America, however, especially in irrigation schemes serving more than 5,000 hectares, WUAs often function only as the governing body of water users, whereas the irrigation service is provided by a professional staff hired and supervised by the elected board of directors of the WUA.

Public utilities Public utilities are normally financially autonomous and have mandates from government to provide a monopoly water service within a given jurisdiction, such as a region or river basin. Generally, they are established by the government and are not as accountable to water users as are locally-constituted districts or mutual companies.

Local governments Local governments such as villages or townships sometimes manage irrigation systems. This is often the case with small-scale irrigation systems or sub-systems of larger schemes, where viable local organizational alternatives to villages and towns do not exist. Examples are found worldwide. Weaknesses of this model are that irrigation networks often cross administrative boundaries and local governments are often distracted from water management by other concerns.

Irrigation district The irrigation district is normally a kind of function-specific local public organization, or “semi-municipality”. It often has certain privileges and immunities not available to other private sector organizations. Typically, a board of directors recruits a general manager and professional full-time staff to manage the system, as employees of the district.

Mutual company A mutual irrigation company is normally a limited liability corporation established through stock shares in the irrigation system which are owned by water using landowners. Generally, share prices are based on a valuation of the assets of the irrigation system which are owned by members. Professional staff may be hired to manage the scheme. Mutual companies tend to exist in irrigation systems which have been developed largely through farmer or private sector financing. China is currently adopting the mutual company shareholding model in pilot areas in Shandong and Hunan provinces, even though in China "ownership" formally means long-term leasehold status. This model tends to work best in commercialized economies where management depends more on investment than government subsidies.

Private company In the case of plantation agriculture or large farms managed by private companies, irrigation systems are sometimes operated by the private company that manages agricultural production in an irrigated area. Irrigation management by contracting organizations is done when the governing organization enters into a contract with a third party firm for a limited period of time to manage an irrigation system. In China, village governments or water conservancy bureaus provide limited-term contracts to local "professional irrigation management teams" to take over management of sub-sections of irrigation schemes. This system requires availability of multiple service providers and is best suited for management tasks which do not require a long learning period.

HOW CAN IRRIGATION ORGANIZATIONS BE STRUCTURED TO ENSURE ACCOUNTABILITY?

Accountability of staff within irrigation organizations can be achieved through personnel policies, incentives, contractual agreements, terms of compensation and sanctions. Centrally-financed government agencies often have the weakest degree of staff accountability. Staff positions may be secured by civil service codes which can make it impossible to apply bonuses or penalties based on job performance. At the other extreme, organizations in the private sector are often free to hire and fire staff, employ staff on renewable contracts, and incorporate bonuses and penalties into contracts based on job performance. The ability of an organization to ensure staff accountability depends partly on these internal mechanisms, but also - more importantly - on forces external to the organization which require that the organization achieve performance standards.

The following are five basic methods for achieving organizational accountability:

- internal hierarchical control;
- central regulation;
- competition;
- inter-dependence among organizations;
- common property arrangements.

Internal hierarchical control This is the supervision of lower-level subordinates by higher-level directors within an organization. This form of control is best suited for multi-level organizations where the flow of information between levels is relatively complete, but where management tasks are fairly standardized. This is generally not the situation at local or operational levels. Water is a “fugitive” and constantly flowing resource. Information is often incomplete and inaccurate, and such inaccuracies can have a major impact on performance. Low-level staff are often compelled to take actions at the field level and such actions are often out of sight of superiors.

Central regulation Organizations are made accountable by regulations imposed by a central governmental authority. Regulation is most relevant for sensitive legal, political or security matters or where natural monopolies exist, such as power utilities. Technical and financial audits of irrigation management organizations are a form of regulation. Governments sometimes attempt to apply central regulation in circumstances where it is ineffective, such as regulation against aquifer draw-down.

Competition Where monopolies do not exist, where there is a reasonably equitable playing field for competition and where temporary inefficiencies would not have disastrous effects, competition among service providers can be an effective way to improve services and promote efficiency. Competition can be introduced into irrigation systems through contracting services to organizations. Contractors must provide an acceptable service in order to win contract extensions or new contracts.

Inter-dependence Inter-dependence between organizations can create reciprocal accountability. Generally, a water service is provided downstream and financial resources flow upstream. Inter-dependence implies a rough balance of power - that one organization cannot dominate the other. One organization obtains its revenue through provision of an acceptable service to another organization.

A common example of this is volumetric sale of water to water users' organizations, as is found in Mexico, Turkey and China. The need for revenue by the water supply provider makes the provider accountable to the users' organizations who purchase the water.

Common property arrangements Local resource users may organize as a group to create property rights and regulate the use of a resource. People have done this for centuries to manage irrigation systems, forests, communal farmland, pastures and fishing waters. These are generally local, relatively small-scale organizations which develop their own systems of rights, rules and sanctions and use social pressures and local institutions to resolve conflicts. Traditional farmer-managed irrigation systems provide valuable lessons for how contemporary management reforms could take advantage of organizing principles at the distributary and water course levels of irrigation systems. These include such institutions as how membership is determined, water allocation principles, water distribution practices, how resources are mobilized, sanctions, conflict resolution and so on. But it should be remembered that clear property rights for access to water have been an essential ingredient of their success. Re-imposition of traditional management institutions may fail if clearly defined water rights are absent in modern schemes undergoing IMT.

Water management is organized according to four basic service relationships:

- Who defines and governs the service?
- Who regulates the service?
- Who provides the service?
- Who pays for the service?

How these service relationships are structured will determine who is accountable to whom and for what services. Figure 3 depicts five basic models of service relationships. The first model illustrates the situation where a government line agency financed from central revenues provides the water service to users. In this case the agency generally defines the service. Since the government defines and provides the service with little, if any, dependence on the users to pay for it, there is little accountability for the quality of the 'service' and its results.

Model 2 depicts a public utility, which is mostly financially autonomous. Although the government largely defines and regulates the service, the managing entity is largely dependent for its revenue on payment of charges by users. This encourages accountability of the managing agency to the users because normally farmer satisfaction is a pre-requisite for their willingness to pay the fees. Model 3 differs from model 2 only in the completeness of its financial autonomy. In this case all three parties are involved in defining the service: the government through regulatory constraints, the farmers through agreements and contracts and the managing entity through operationalizing service agreements.

Model 4 illustrates management by an entity that is sponsored by the group of water users. In this case the users define and pay for the service and the entity provides it. This has potential for a high level of managerial accountability, depending on the legal status of the user organization and how accountable user representatives are to the body of users. Model 5 is a simpler version of model 4, where the users themselves directly define, implement and finance the service. This is typical of small water users' associations which handle both governance and management functions directly.

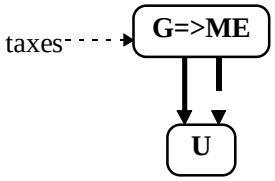
FIGURE 3
Service relationships for irrigation management

Classification is based on who
defines
provides
and pays
for the service.

G = Government
ME = Managing Entity
U = Users

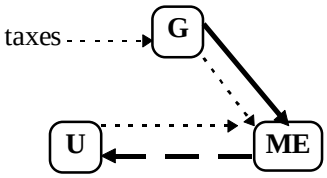
1. Government Administered Service

Government defines service and allocates budgets to line agency which provides service. Public pays taxes. Users may pay fees.



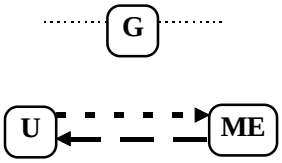
2. Semi-public Irrigation Service

Government defines and subsidizes service. Semi-public managing entity provides service to users who pay part of the cost of the service.



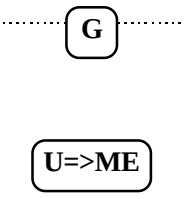
3. Independent Service

Government provides legal and regulatory framework for agreement between users, who pay for a service to a managing entity which provides the service.



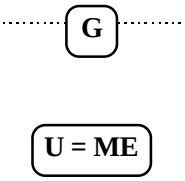
4. User Directed Service

Government provides legal and regulatory framework within which users define and pay for their service, which is provided by their own managing entity.



5. Self Service

Government provides legal and regulatory framework within which the users define, pay for and directly provide the service themselves.



Chapter 7

Making the necessary legal changes

SUMMARY

The actual transfer of authority from the government will necessarily require legal action to give it effect. It will normally take the form of a decree by the head of state, a ministerial decree or a legislative act. Although it is more cumbersome, legislation provides a firmer basis than decrees. The important issue in introducing these legal changes is that they must be comprehensive, i.e., cover all aspects that will generate truly independent organizations.

The most common areas where supporting legislation for IMT is needed are: formal adoption of the transfer policy, status of the WUA, water rights, rights relative to irrigation infrastructure and changes in the status or mandate of irrigation agencies.

Legal experts and planners should compare the existing policy and legal framework in their country with the basic rights and powers generally required by WUAs and determine what changes can and should be made in the legislative framework to support the emergence and strengthening of viable water users' associations.

Global experience suggests that to make WUAs effective they should have at least the following powers:

- to extract water from a specified source;
- to use and maintain (and perhaps own) the irrigation and drainage infrastructure;
- rights of way for existing and future infrastructure;
- to raise funds or call out labour from its members to pay for the irrigation service;
- to apply sanctions against its members for non-compliance with rules;
- to delegate powers (such as to a water service provider);
- to hire and release staff;
- to enter into contracts;
- to purchase, own and sell property.

The two basic documents normally prepared for the establishment of the WUA are the articles of association ('constitution' or 'charter of authority'), and by-laws. The articles of association are the record of establishment of the WUA. They state the basic purpose of the WUA, its basis of authority and the basic principles of its organization. The by-laws are the accompanying descriptions of rules for how the articles of association are to be implemented.

An important area in which legal action may need to be taken is in relation to water rights. Water rights specify expectations about the amount, share and/or duration of flow of water to which particular kinds of water users, groups of water users or irrigation systems are entitled. Legal changes may be necessary in connection with the transfer of ownership or use rights over irrigation scheme assets.

WHY IS IT IMPORTANT THAT IMT BE COMPREHENSIVE?

Probably the most common weakness of IMT programmes worldwide is that they are only partial in nature. They do not include all the changes that are really needed in order to permit WUAs to become viable organizations capable of discharging their essential functions and protecting their interests against competing water users and political interests. Comprehensive transfer is the devolution of all essential and inseparable irrigation management functions. As stated before, the four essential functions of irrigation management are: operations, maintenance, resource mobilization (or financing) and conflict resolution. If full authority and capacity to implement any of these functions are not transferred to WUAs, it is likely that the WUA will be unable to discharge the other functions, because both sets of functions are inter-related.

Governments sometimes attempt to transfer responsibility to WUAs without giving them full decision-making authority over O&M plans and budgets. IMT often occurs in countries lacking water rights or where WUAs have no formal legal status. Sometimes governments adopt IMT programmes but avoid making needed changes in the scope of work of the irrigation agency, the deployment of its staff or financing mechanisms for the sector. Pressures from donors for rapid (if partial) programme implementation, financial pressures and political sensitivities can cause governments to short-circuit reform. Reform is limited to policy decrees, rehabilitation and organizing WUAs, in the absence of legislation to empower WUAs, define water rights and revise agency mandates. These missing elements can cause IMT programmes to fail to produce effective WUAs or to improve financial efficiency and productivity in the irrigation sub-sector.

WHAT KINDS OF LEGAL CHANGES MAY BE REQUIRED?

A policy and institutional shift as broad and far-reaching as the transfer of irrigation management has important legal implications. In these Guidelines it is not possible to recommend generically what legislative changes will be required in all IMT programmes. Depending on the status of legal development in the water sector and on current political biases and environmental issues, reform may require drafting new legislation, amending existing legal texts or possibly making no change at all.

In the Philippines in the mid 1970s, legislation converted the National Irrigation Administration into a largely self-financed utility, which provided incentives for NIA to adopt a management transfer programme. Because of rights granted to water users, the 1992 water law in Mexico was a necessary precursor to adoption of the IMT programme. In Turkey, legislation that was several decades old already existed permitting irrigation management to be devolved to local governments and WUAs, thus facilitating rapid adoption and implementation of an IMT programme. In some countries traditional rights and institutions are still in force and take the place of formal statutory laws. But, increasingly, statutory law is needed either to protect traditional institutions or to replace those that have become lost to modern society.

The process of developing laws and regulations can serve many purposes, among them codifying the rules relating to a new order or scheme, educating the public and government officials as to their new rights and responsibilities and giving legitimacy to public discussions and consensus-building. The most common areas where supporting legislation for IMT is needed are the following:

- formal adoption of the transfer policy;
- status of the WUA;

- water rights;
- rights relative to irrigation infrastructure;
- changes in the status or mandate of irrigation agencies.

Each of these is briefly discussed below, except changes in irrigation agencies, which are discussed separately in Chapter 9.

BOX 2
CONSEQUENCE OF INADEQUATE LEGISLATIVE SUPPORT FOR IMT

In Colombia, the Coello and Saldaña irrigation districts were transferred to WUAs in 1976 under an existing legal rule called "delegation of administration". But this only gave limited authority to the WUAs to manage the schemes. They still required approval from the irrigation agency to hire and fire staff and to adopt annual O&M plans and budgets. After several years of legal disputes over attempts of the WUAs to reduce management staff in the districts and take unilateral management decisions, the government finally realized that more legislation was needed to grant the WUAs sufficient powers to run their own affairs. Finally, the Colombian Land Development Law, passed in 1993, gave complete control to WUAs over their own personnel, O&M plans and budgets.

WHAT ARE THE LEGAL OPTIONS FOR ADOPTING A TRANSFER POLICY?

The actual transfer of authority from the government will necessarily require legal action to give it effect. It will normally take one of the following forms:

- decree by the head of state;
- ministerial decree;
- legislative act.

A decree issued at the level of the head of state, such as a presidential decree, offers certain advantages: it allows rapid action, gives weight and legitimacy to the transfer and cuts across all sectors. On the other hand, it cannot introduce fundamental legal change and may be easily overturned by a subsequent leader. A ministerial decree, such as an edict issued by the Minister of Water Resources, may also be relatively easy and rapid to accomplish, but it has less power and may not be sufficiently comprehensive in scope. A legislative act is the slowest and most complicated approach, but it has the greatest potential to effect comprehensive and long-term change. Although one might expect that legislative action will take place at the national level (such as by parliament), in a decentralized system the country's subdivisions, such as regions, states or districts, may also have power to take legislative action.

Though it may be cumbersome, the legislative process can be a powerful way to generate widespread knowledge about and support for comprehensive restructuring. Public hearings may be held on the draft legislation to ensure that the final product reflects the concerns of all stakeholders. Legislative consensus will also provide a firmer basis than decrees to constrain politicians from partisan interference in irrigation financing and development in the future.

WHAT LEGISLATION MAY BE NEEDED TO SUPPORT WATER USERS' ASSOCIATIONS?

Legislation is most often needed in IMT programmes to provide sufficient legal status to water users' associations. The WUAs may need to be established legally, either with a new law or under an existing law, such as one on cooperatives. Its immunities (such as for certain taxes and

liabilities) and powers must be defined. Global experience suggests that when a WUA is established, it should have at least the following powers:

- to extract water from a specified source;
- to use and maintain (and perhaps own) the irrigation and drainage infrastructure;
- to establish rights of way for existing and future infrastructure;
- to raise funds or muster labour inputs from its members;
- to apply sanctions against its members for non-compliance with rules;
- to delegate powers, such as to a water service provider;
- to enter into contracts;
- to purchase, own and sell property.

BOX 3
KEY PROVISIONS IN THE ANDHRA PRADESH FARMERS' MANAGEMENT OF IRRIGATION SYSTEMS ACT

This relatively comprehensive and path-breaking Act was adopted in April 1997. It contains the following key provisions:

- provides water rights and full control over O&M of irrigation systems to WUAs, federated to cover the entire scheme;
- covers all irrigation systems in the State of whatever type;
- grants full functional and administrative independence to WUAs;
- creates "competent authorities" who are Irrigation Department staff assigned to implement decisions of the WUA;
- gives final conflict resolution powers to WUA (appeals must be resolved within 15 days);
- ensures full access to scheme performance information by the WUA;
- ensures farmers have complete freedom over cropping patterns;
- allows both owners and tenants to become voting members;
- provides that non-agricultural water users are non-voting members;
- ensures that 90% of the water charges goes to the farmers' organizations.

WHAT BASIC DOCUMENTS SHOULD BE PREPARED FOR ESTABLISHMENT OF THE WUA?

The two basic documents that are normally prepared for the establishment of the WUA, as with other cooperative associations, are the articles of association ('constitution' or 'charter of authority') and by-laws. The articles of association are the record of establishment of the WUA. They state the basic purpose of the WUA, its basis of authority and basic principles of organization. The articles of association normally contain the following elements:

- a mission statement, which describes the purpose of the organization;
- legal status and basis of authority;
- definition of the service area;
- criteria for membership;
- basic functions of the organization;
- basic rights, powers and obligations of the organization;
- basic rights, powers and obligations of members of the organization;
- governance structure of the WUA, powers of leaders and their relationship to the service providing entity;
- method for amending the articles of association.

The by-laws are the accompanying descriptions of rules for how the articles of association are to be implemented. They generally include the following:

- rules for receiving new members and expelling present ones;
- constitution of the governing board of officers, periods of tenure in office and rules for selection and removal of association leaders;
- definition of the water service;
- rules and sanctions related to the water service, including procedures during periods of water shortage;
- rules and sanctions related to support functions (maintenance and financing);
- procedures for conflict resolution;
- duties of the board of directors;
- procedures for amending the by-laws.

Except for informal WUAs with very small service areas, most WUAs will benefit from having these two formal written founding documents. Their preparation encourages completeness and clarity about policies and rules. They also help provide status and legitimacy to the WUA by enhancing internal and external recognition.

WHAT CHANGES NEED TO BE MADE IN WATER RIGHTS?

An important area in which legal action may need to be taken is in relation to water rights. Water rights specify expectations about the amount, share and/or duration of flow of water to which particular kinds of water users, groups of water users or an entire irrigation system are entitled. Increasingly, water laws also involve rights and obligations and water quality. Water rights may need to be created or existing ones need to be updated for modern conditions. There may be lack of clarity about how the right is measured, criteria for allocation and the means of distinguishing among different types of users.

In many countries customary water rights are backed up by modern statutory laws. However, there are a number of developing countries, particularly in Asia and Africa, where there are no water rights recognized by the state, and where instead all water resources in the country are considered to be owned and controlled by the state. In these circumstances, the state is responsible for allocating water according to administrative regulations and tends to see water allocation as a social welfare benefit rather than as a legal entitlement. The water user is a supplicant, not a holder of a right. Where water is scarce relative to demand, considerable uncertainty and competition for water may exist.

The social welfare conception of water tends to work against a primary objective of irrigation management transfer, which is to eliminate farmer dependence on the government and to create locally self-reliant organizations which can extract, distribute and dispose of water according to local needs. Without water rights, farmers cannot predict or define how much water they will receive. And when conflicts or competition over water arise, there is no clear legal basis for settling disputes. This weakens their motivation to invest intensively in agriculture or water management. Any government that has adopted a policy to transfer management should first put in place a basic system of water rights which defines the principles according to which water will be allocated among different users.

Water rights may be granted to collective entities such as water users' associations or may be granted to individuals and private corporations. The Mexican water law of 1992 established a basis for WUAs to obtain formal water rights, whereas Chile granted absolute, tradable water

rights to individual users. In the latter case, individual users may lack control over infrastructure which diverts water from the resource base (the river or aquifer), and since the WUA does not hold a right, difficulties may arise in managing water transfers between individuals. In most countries, water rights are allocated and distributed to water users' associations, which in turn allocate rights to their individual members.

SHOULD OWNERSHIP OF IRRIGATION INFRASTRUCTURE BE TRANSFERRED?

Legal changes may be necessary in connection with the transfer of ownership or use rights over irrigation scheme assets. Where farmers are in a weak position politically, ownership may be a symbol of acquisition of rights and power and may be desirable. It may also be required where otherwise it would be illegal for farmer organizations to modify irrigation infrastructure. Where farmers are repaying the cost of infrastructure construction and/or rehabilitation, there is a strong argument that they should have the right to own the infrastructure.

In some cases, such as Chile or New Zealand, ownership of irrigation scheme assets has been transferred to water users' associations through outright purchase, concessionary sale or administrative act. Ownership of public tubewells has been transferred in Pakistan, Bangladesh and Senegal. In most cases, however, ownership of infrastructure remains with the state and only the right to use infrastructure is transferred to the users. In such cases, for example in schemes developed in the United States and in Colombia, farmers resisted transfer of ownership for fear that it would also entail unwanted liabilities, such as responsibility to fully finance the costs of rehabilitation and modernization in the future and property taxes related to the infrastructure and property damages attributed to irrigation scheme management.

It is recommended that policy-makers and planners compare the existing policy and legal framework with the rights and powers identified above and determine what changes can and should be made in the legislative framework to support the emergence and strengthening of viable water users' associations. How effectively a country will be able to effect these changes will depend on the level of development of the country's civil institutions, on the government policy (i.e., how liberal or command-oriented it is), on the political sensitivity surrounding water issues and on the water users themselves, such as: " Are they motivated and organizationally-inclined?"

PHASE 3 OUTPUTS: RESOLUTION OF KEY POLICY ISSUES

Outputs for Phase 3 may be in the form of short policy briefs or issue papers on the key policy issues. Issue papers normally include a brief summary of the problem, analysis of options and a recommendation. More detailed reports can be prepared by working groups or issue groups and be incorporated into planning documents and background papers for legislative action. The expected topics to be addressed are:

- What services should be transferred?
- What kind of organization should take over management?
- How should the irrigation sub-sector be financed after transfer?
- What legislation and other sector changes need to be made in conjunction with management transfer?

Phase 4

Planning and implementation

Chapter 8

Developing a plan for implementation

SUMMARY

A comprehensive implementation plan for IMT will normally involve the following elements:

- policy changes required (i.e., organizational mandates, subsidies, etc.);
- legal changes required (i.e., water and land rights, status and powers of WUAs, means for conflict resolution, etc.);
- agency restructuring (i.e., reorganization, disposition of staff, training, etc.);
- arrangement for provision of new support services (i.e., technical advice, credit, dispute resolution, enhanced river basin management, etc.);
- creation and development of WUAs; and
- improvement of irrigation infrastructure.

Each of these aspects should be related to the plan by indicating how it supports the objectives of IMT, how and by whom it will be implemented, where it fits into a schedule of implementation and what resources it will require. The main challenge for the IMT working group will be to ensure that all essential components of reform are incorporated into the plan.

For political and administrative reasons, special task forces accountable to the planning or finance department or to the cabinet may be required to take the lead in restructuring the irrigation agency. However, there are three important things that the irrigation agency can do to support the IMT process. First, the agency should implement its restructuring plan as soon as possible. Second, the agency should help communicate to farmer organizations what the new division of responsibilities is and what the new policy about subsidies and future rehabilitation will be. Third, the agency should move into implementing its new roles as soon as possible.

In order to ensure that monitoring and evaluation support the IMT programme effectively, planners should minimize the data that must be collected, select "information efficient" indicators and distinguish data needed from all sites versus sample sites. Also, planning meetings should regularly review M&E results and identify follow-up actions.

The most common skills needed in the IMT planning process are the abilities to negotiate and persuade, to analyse and reason abstractly and creatively, to assess management performance, and to design irrigation system improvements in a participatory fashion. The most important attitudes needed in planners are willingness to consider and adjust to new ideas and solutions, broad-mindedness, capacity to work hard and persistence.

WHAT IS INVOLVED IN DEVELOPING AN INTEGRATED PLAN AT THE SECTOR LEVEL?

Most likely a "special commission" or "working group" will coordinate development of the IMT plan. It is important that the plan be **comprehensive**. This does not mean it must be detailed or a top-down exercise. It means that it should identify all essential aspects of IMT. If the plan is not comprehensive, components that are left out will probably not be effectively linked to the reform. A comprehensive plan for IMT will normally involve the following elements:

- policy changes required (i.e., organizational mandates, subsidies, etc.);

- legal changes required (i.e., water and land rights, status and powers of WUAs, means for conflict resolution, etc.);
- agency restructuring (i.e., reorganization, disposition of staff, training, etc.);
- arrangement for provision of new support services (i.e., technical advice, credit, dispute resolution, enhanced river basin management, etc.);
- creation and development of WUAs; and
- improvement of irrigation infrastructure.

Each of these aspects should be related to the plan in the following ways:

- show how it supports the objectives of IMT;
- show how and by whom it will be implemented;
- produce a schedule of implementation;
- identify the resources required.

The main challenge for the working group will be to ensure that all essential components of reform are incorporated into the plan. This will require frequent communication and trouble-shooting between the working group and each of the parties involved. This is a means to build consensus and engender commitment to the reform. More detailed plans will be required for specific components and at regional or local levels.

BOX 4
EIGHT STAGES IN THE TRANSFER PROGRAMME IMPLEMENTATION PLAN IN ANDHRA PRADESH, INDIA

Stage 1:	Mobilize political support at highest levels of executive and legislative branches
Stage 2:	Generate support among stakeholders
Stage 3:	Develop the policy and legislation
Stage 4:	Create farmers organization at watercourse, distributary, project and apex levels
Stage 5:	Implement transfer of management functions
Stage 6:	Build capacity of WUAs and the irrigation and other government agencies
Stage 7:	Incorporate accountability and transparency into farmer organizations
Stage 8:	Do monitoring and mid-course

WHAT ROLES SHOULD THE LEAD AGENCY PLAY IN THE TRANSFER PROCESS?

Typically, IMT programmes occur where the lead public irrigation agency had originally been developed primarily to design and construct irrigation systems and that is where its primary interest continues to be. It may not be very effective at managing and financing O&M, as if it had, management transfer would probably not be occurring. There are probably several other reasons why the agency should re-direct its future efforts away from management and more toward water management of the resource base - river basins and aquifers - and providing support and technical advisory services to organizations which take over management of irrigation systems.

In this context should the irrigation agency be given the lead role to implement IMT? Is the irrigation agency capable of, and willing to, reform or restructure itself? Does it have the skills and proper motivation to develop strong water users' associations? Very often the answer to these questions is "no". Nevertheless, very often the irrigation agency is assigned the task of implementing IMT. This can have the following deleterious effects, as has been observed in a number of cases:

- creating WUAs becomes a rapid, top-down and superficial exercise;

- there is an over-emphasis on infrastructure development;
- matching farmer investments or fostering other meaningful community participation in infrastructure development are not sufficiently encouraged or required;
- the perception among farmers that the government owns the system and will return to rehabilitate it in the future is reinforced;
- farmers partially defer investment in maintenance;
- WUAs are weak and are seen more as appendages of the state than as self-reliant service providers;
- the agency continues to exercise partial control over irrigation systems and continues to have field operations staff assigned to irrigation systems even after transfer has occurred.

For political and administrative reasons, special task forces accountable to the planning or finance department or to the cabinet may be required to take the lead in restructuring the agency. NGOs and progressive farmers may be more effective than the irrigation agency at organizing water users' associations.

If the irrigation agency cannot be expected to restructure itself alone and if it is not qualified to create and develop water users' associations, then what should be its role in the IMT process? Observations and experience suggest that there are three important things that the irrigation agency can do to support the IMT process. First, the agency should do its part of the job of restructuring as soon as possible. This includes making changes in personnel, reassignment of staff and training for new functions. This will help clarify to farmers that IMT is bringing about real changes and that the agency will in fact no longer handle the tasks which are being turned over to the WUAs. Second, the agency should help communicate to farmer organizations what the new division of responsibilities is and what is the new policy about subsidies and future rehabilitation. Third, the agency should move into implementing its new roles as soon as possible. These may include technical assistance and training for new water service providers and enhancing water management along river basins.

WHO SHOULD TAKE THE LEAD IN FACILITATING DEVELOPMENT OF WATER USERS' ASSOCIATIONS?

It should be borne in mind that with IMT there may be two kinds of organizations that need to be created and developed at the local level, the water users' association (the governing body) and the water service provider (the managing entity). Normally, the WUA has a basic charter of authority and by-laws. It should have rules, methods and sanctions for selecting leaders, raising finances, settling disputes and supervising provision of the water service. Skills and experience in such matters may be found in cooperative associations (including farmer organizations), development NGOs, local development consulting firms, agricultural extension agencies and other government organizations. More than one organization may need to be involved but one entity should have the primary responsibility to coordinate inputs.

If possible, planners should avoid using organizations for this role that are unaccustomed to playing the role of facilitator. In the end, it is the farmers and their representatives who really must take the lead in developing their own organizations. Organizations should be avoided that have reputations for corruption or vested interests which are contrary to those of WUAs or the objectives of IMT. Sometimes there is a tendency to use an intensive amount of resources in the

pilot phase of an IMT programme. Expensive consultants and college-trained community development workers may be placed in the field to organize farmers. This may be justified in the early learning phase of turnover, but the general strategy for developing farmer organizations should be affordable and practical. An outline for this strategy and which organizations will take the lead in facilitating development of viable WUAs should be included in the IMT plan.

BOX 5
TYPICAL ROLES OF NGOs IN TRANSFER PROGRAMMES

- Facilitate functioning of a working group for transfer
- Identify organizational models for farmer organizations
- Propose and apply methods to create and develop farmer organizations
- Provide legal assistance in development of legislation
- Develop and apply training methods for farmers and agency staff
- Analyse O&M performance and recommend measures to improve it
- Help develop a database and information system
- Develop and apply methods for rural appraisal, monitoring and evaluation

It may not be that the same organization that takes the lead in facilitating development of WUAs should also play the lead role in creating and training the WSP. The emphasis and skills required will be different. The emphasis is on managing the acquisition, delivery and disposal of water for the irrigated service area of the WUA. The task of the training organization will be to prepare the WSP to provide an acceptable service which is consistent with the service defined by the WUA. At a minimum, this should include development of an operation and maintenance plan and specific methods for: collecting water charges and other revenues, operating irrigation technology, carrying out maintenance and assessing management performance. Normally, the public irrigation agency would play an important role in such training, since it was the prior service provider. But sometimes training can also be provided by others, such as experienced farmer managers from other schemes or engineers from NGOs or consulting firms.

HOW DETAILED AND RIGID SHOULD IMT TARGETS BE?

There is a tendency for planners and consultants to develop plans that are overly elaborate and rigid. Normally, IMT will be a learning process where specific actions, targets and deadlines can only be worked out in the process of implementation. It is not possible to predict the different kinds of reactions farmers might have to assuming management, what kinds of issues will need to be negotiated in the field, what technical or financial problems might arise during implementation and so on. As a rule, plans should only be as detailed as anticipated during implementation. More complex environments will probably require less detailed plans of action but more elaborate mechanisms for testing, negotiation and adjustment.

There is also a tendency, often promoted by funding agencies and development banks, to insist on rigid targets and deadlines. Policy-makers and planners should state clearly desired targets and the expected time-frame. But the plan should not force so rapid and rigid a schedule as to sacrifice development of new and sustainable organizations. Another way to avoid this is to make support of viable local management organizations an important on-going function of sector organizations after IMT.

BOX 6
THREE STRATEGIES FOR ORGANIZING FARMERS: INDONESIA, PHILIPPINES AND COLOMBIA

During the 1980s Indonesia had several pilot projects which used trained community organizers from NGOs to create WUAs. But the government considered this high-cost approach impractical as a national strategy for its Small-scale Irrigation Turnover Programme, which began in 1988. It decided to train and assign agency field staff as organizers under the programme. This has been a financially viable approach, but results have been mixed. There has been an observed tendency for these staff to act more as representatives of the government than farmers and to attempt to transfer their bureaucratic culture into new WUAs.

After also experimenting with community organizers in pilot projects, the Philippines adopted its Farmer Irrigators' Organization Programme in 1983. This approach selects and trains locally respected farmers and has them take the lead in organizing WUAs. Apparently, this has proven to be relatively cost-effective.

In Colombia, as soon as the government adopted its national IMT programme in 1990, the water users' associations throughout the country formed a national federation of water users' associations, the Federriegos. The purpose of the federation was to prepare the WUAs to take over management of the districts from the government. Each WUA pays fees to support the Federriegos, which hires lawyers to assist with transfer negotiations, engineers for technical problems, accountants for financial training, etc. Federriegos has also been invited to be on the board of advisers for the new Ministry of the Environment.

WHY IS MONITORING AND EVALUATION IMPORTANT AND HOW SHOULD IT BE DESIGNED?

As with any reform, IMT breaks new ground. IMT plans are like working hypotheses which need to be tested and modified in practice. Different stakeholders are involved and negotiation is an inherent part of the process. Irrigation schemes vary dramatically in their costs and degree of management intensity required to meet objectives. Feedback, learning and flexibility in programme implementation are essential, although they must be contained within the objective of achieving locally-sustainable irrigation management. It is easy to get bogged down in too much negotiating and deviation from the fundamental goal. Negotiation and flexibility must be constrained by the larger need: to implement a controversial reform within a reasonable time-frame despite political opposition. This requires keeping the momentum of change ahead of the resistance. It also requires keeping the basic structure of reform simple and clear to stakeholders.

Probably the two most common problems associated with monitoring and evaluation are: (i) they produce an excess of unusable information and (ii) they are not sufficiently linked to a decision-response arrangement. The following are some suggestions for how these problems can be overcome.

1. Follow a minimalist approach. Only use indicators which satisfy the following criteria:

   - they are key aspects of implementation (i.e., performing tasks and meeting targets) for which verification at higher levels is absolutely essential;
   - they inform about essential outcomes and impacts of the programme which really must be documented and relayed to higher levels; and
   - they do not exceed the optimal amount of information that can practically be relayed to and absorbed by planners.

2. Select indicators which are "information efficient", meaning they describe a set of associated phenomena. A good indicator provides insights about multiple aspects, so there is no need to collect direct information about all related aspects.

3. Distinguish between top- and bottom-directed needs for monitoring. Planners need top-directed monitoring to compare actual with expected results. They, and other stakeholders, also need bottom-directed monitoring which conveys important information about unexpected and subjective issues that arise. This is at least as important as, and probably more important than, conventional top-down monitoring. To monitor only those things identified by central authorities severely restricts the learning process. The top-directed approach uses conventional methods of data collection and processing. Bottom-directed monitoring may rely on other methods, such as participatory rural appraisal, process documentation, direct involvement of stakeholders in working group meetings and so on.

4. Distinguish between those few indicators for which data must be collected from all sites versus those for which sampling may be sufficient. Data may need to be collected from all sites about key aspects of implementing tasks and reaching targets. Sampling from a small number of sites will probably be sufficient for indicators about immediate outcomes, impacts and field-based monitoring of issues arising during implementation.

5. Meetings of the working group, policy coordination committee and other planning groups should include review of monitoring and evaluation information as a regular part of their meetings. Such reviews should sometimes result in identification of action items for follow up or discussions about how the programme may need to be modified. These meetings are also opportunities to identify requirements for information about specific issues.

Evaluation is about outcomes, which tend to occur immediately or within a year or two, and impacts, which may occur several months or years after implementation. Commonly-used outcome indicators are:

- reduction or reassignment of irrigation scheme staff;
- reduction in government expenditures for irrigation O&M;
- cost of irrigation to farmers;
- changes in irrigation scheme budgets, fees and fee collection rates;
- changes in O&M plans and procedures;
- functional condition of irrigation infrastructure.

The following are examples of commonly-used impact indicators:

- irrigation service area;
- water delivery performance;
- irrigation efficiency;
- cropping intensity;
- agronomic productivity per unit of land and water;
- economic productivity per unit of land and water;
- farm income and employment;
- extent of waterlogging and salinity.

WHAT KNOWLEDGE, SKILLS AND ATTITUDES WILL BE NEEDED FOR THE IMT PROGRAMME?

The following is a list of key areas of knowledge, skills and attitudes which are likely to be needed to formulate and adopt an irrigation management transfer programme.

1. Phase 1: Mobilization of support

   - Knowledge:
     - ♦ policy priorities in irrigation, agriculture, finance and planning
     - ♦ irrigation management performance gaps
   - Skills:
     - ♦ negotiation and persuasion
     - ♦ analytical and abstract reasoning
     - ♦ management performance assessment
     - ♦ oral and written presentation of ideas and data in a concise manner
   - Attitudes:
     - ♦ open to considering new ideas and solutions, broad-minded
     - ♦ hard working, does not give up easily

2. Phase 2: Strategic planning

   - Knowledge:
     - ♦ principles of strategic planning
     - ♦ perspectives of different stakeholders about IMT-related issues
   - Skills:
     - ♦ techniques of strategic planning
     - ♦ negotiation and persuasion
   - Attitudes:
     - ♦ open to considering new ideas and solutions, broad-minded
     - ♦ hard working, does not give up easily
     - ♦ perspectives and experiences of different stakeholders are an important resource

3. Phase 3: Resolution of key policy issues

   - Knowledge:
     - ♦ institutional, managerial, financial and technical organization of irrigation sub-sector
     - ♦ management procedures and problems at the irrigation scheme and farm levels
     - ♦ local institutions for natural resource management: current and potential
     - ♦ legal aspects of IMT
   - Skills:
     - ♦ negotiation and persuasion
     - ♦ economic and policy analysis and abstract reasoning
     - ♦ relevant computer programs (statistical, spreadsheet, word processing)
     - ♦ oral and written presentation of ideas and data in a concise manner

- Attitudes:
  - ♦ open to considering new ideas and solutions, broad-minded
  - ♦ hard working, does not give up easily
  - ♦ perspectives and experiences of different stakeholders are an important resource

4. Phase 4: Planning and implementation

- Knowledge:
  - ♦ multi-disciplinary and integrated planning methods
  - ♦ institutional, managerial, financial and technical organization of irrigation sub-sector
  - ♦ local institutions for natural resource management: current and potential
  - ♦ managerial capacity of implementers
  - ♦ management information systems
  - ♦ civil, hydraulic and agricultural engineering
- Skills:
  - ♦ negotiation and persuasion
  - ♦ oral and written presentation of ideas and data in a concise manner
  - ♦ relevant computer programmes (project management, spreadsheets, database)
  - ♦ group organizing methods
  - ♦ monitoring and evaluation methods
  - ♦ training needs assessment methods
  - ♦ design and construction of irrigation rehabilitation
- Attitudes:
  - ♦ hard working, does not give up easily
  - ♦ perspectives and experiences of different stakeholders are an important resource
  - ♦ willing to adjust original ideas and approaches in response to what is being learned during implementation

Where the above kinds of knowledge, skills and attitudes are not available among staff who can be directly assigned to work on the management transfer programme, planners may have to recruit staff, obtain expertise through consulting contracts or organize training activities. Where training is needed at the field level, for agency field operations staff or farmers, experience suggests that on-the-job or learning-while-doing training and peer training (such as farmer-to-farmer) often works better than theoretical training.

Chapter 9

Restructuring the irrigation agency and building new capacity

SUMMARY

Organizational restructuring of the irrigation agency means fundamental changes in the purpose, mode of operation and possibly the financing of the organization. IMT may require such changes in the irrigation department to make it consistent with new policy. It may be advisable for governments to appoint a high-level special commission consisting of senior officials from several related departments, such as planning, finance, internal affairs, agriculture and irrigation, in order to conduct strategic planning and oversee agency structuring. The following are examples of typical changes made in irrigation agencies as a result of IMT:

- taking on new mandates, such as watershed management and environmental regulation and monitoring;
- merging the irrigation department with the agriculture department;
- conversion from a centrally-financed agency to a self-financing utility;
- withdrawal from management functions and focus on regulatory and/or construction and development roles.

These changes often imply relocation of staff from transferred units and reduction of excess staff from the agency .

There are numerous support services that may be needed by water users' associations after IMT. In some cases these may be provided by WUAs themselves, but in many cases they will need to be provided by the irrigation agency or the private sector.

There are two common options governments generally follow in reforming irrigation departments after IMT. The first is to keep the department as a public agency and merely revise its scope or mandate. Sometimes this involves merging the irrigation agency with another department such as agriculture. The second option is to convert the agency into a self-financing utility accountable to a regulatory board (which is most often an inter-departmental body).

The first option will involve mostly analysis of changing capacity and needs for the agency. This might be assessed with such planning methods as SWOT analysis (i.e., strengths, weaknesses, opportunities and threats). The second option will involve more thorough analyses of organizational structure, control mechanisms and financing options. It also requires a high degree of professionalism, managerial control and strong legal institutions. There are numerous options that can be considered to enhance the internal accountability of the agency. These may include such changes as revision of civil service codes, introduction of work performance incentives, transparency and new information systems.

IMT generally requires that irrigation agencies reorient themselves and build capacity to facilitate and advise WUAs, to monitor and regulate environmental problems, and to manage inter-sectoral water use at basin levels. Such capacity building may require training of existing staff, hiring new staff or sub-contracting services from the private sector. Planners should think creatively about how to optimize the best of the public and private sectors to meet the needs of the future.

WHAT IS AGENCY RESTRUCTURING?

Organizational restructuring means a fundamental change in the purpose, mode of operation and possibly the financing of an organization. IMT may require such changes in the irrigation department to make it consistent with new policy. As was the case in Mexico, IMT may be part of broader restructuring of government organizations involving devolution, decentralization and the move to self-financed service provision. Because of this general momentum and political support, it is likely to be easier to adopt and implement IMT programmes in countries where such broad reforms are underway than where they are not.

New organizational arrangements will have been identified in the resolution of key policy issues, described in Chapters 5 and 6. Normally, an irrigation department or area development authority will not have the capacity to restructure itself and it may be resistant to change. For these reasons it may be advisable for governments to appoint a high-level special commission consisting of senior officials from several related departments, such as planning, finance, internal affairs, agriculture and irrigation. The purpose of the commission or task force will be to conduct strategic planning and oversee implementation of agency structuring in coordination with the IMT working group. Restructuring may include changes in the following elements:

- mission and roles of the organization;
- governance and mode of financing;
- internal accountability arrangements.

If a government adopts a management transfer programme before it has a clear policy about what changes will be made in the irrigation agency after transfer, it may strengthen resistance to transfer within the agency. Staff may fear for their jobs, budgets and positions of influence. Transferring some of the agency's functions to farmer organizations may seem like the organizational equivalent of amputation, so it is far better simultaneously to develop a clear vision of the future for both the transfer units and the public agency. If new roles are identified for the agency, its staff will feel less threatened by transfer.

The following are examples of typical changes which are made in irrigation agencies as a result of IMT:

- release of excess staff from the agency;
- taking on new mandates, such as watershed management and environmental regulation and monitoring;
- merging the irrigation department with the agriculture department;
- conversion from a centrally-financed agency to a self-financing utility;
- withdrawal from management functions and focus on regulatory and/or construction and development roles.

In any given location, some, but probably not all, of these changes will be required. In deciding what changes should be made in the lead irrigation agency, planners will consider shortage of government funds, civil service restrictions, political resistance to personnel reductions, management performance gaps at scheme and water basin levels and what kinds of support services are needed by WUAs after IMT.

WHAT SUPPORT SERVICES WILL WUAS NEED AFTER TRANSFER?

There are numerous support services that may be needed by water users' associations after IMT. In some cases these may be provided by WUAs themselves, but in many cases they will need to be provided by an external entity in the public, private or NGO sectors.

Legal support

- *Water rights* Once water rights are established and accounted for (at the user and association levels), the government needs to ensure that they are sustainable, but not over-appropriated or protected. This will be especially important where there is strong competition for water and where there may be undue political influence. WUAs may need legal services from the government or law firms to help establish precedents in the assignment of water rights or to otherwise protect existing rights.
- *Legal status of WUAs* Additional legislation or legal advice may be needed about entering into contracts, credit arrangements, rights of way, taxes and liabilities. Government legal officers and private law firms may provide such services.
- *Ownership of irrigation infrastructure* If the government has adopted a policy to transfer ownership of irrigation infrastructure to WUAs, and if this was not legalized in the initial transfer, there may be a need for further legislation toward this end.
- *Dispute resolution* WUAs may need to call upon the government or other local authorities for assistance in the resolution of difficult disputes about water distribution, damage to structures, non-collection of water charges or financial irregularities.

Technical support and training

- *Water measurement* WUA staff and even supervisory WUA board members often need to be trained in water measurement. Normally the irrigation agency will provide this training.
- *Water distribution and drainage* WUAs may need training in basic hydrologic principles to enable them to manage operations effectively. Normally such training is provided by the lead irrigation agency, but sometimes farmer-to-farmer training may be useful for less theoretical aspects.
- *Maintenance* WUAs may need training in preparation of maintenance plans, design of structural repairs and recommended preventive maintenance practices. This is normally given by the irrigation agency, but sometimes farmer-to-farmer training may be useful.
- *O&M audits* O&M audits involve an independent party inspecting organizational and management practices (including infrastructure, budgets and records) and providing a certification of compliance with agreed performance standards. Auditors may be from government or private sector engineering firms. Such audits are most often required when the government links subsidies to WUA compliance with certain management standards (as recommended in this guide).
- *Rehabilitation and modernization* WUAs may need assistance with planning, design, construction and financing of improvement projects.

Financial and managerial support and training

- *Accounting*. This is a common weakness in WUAs after IMT. It sometimes leads to scandals and organizational collapse. The government should facilitate adoption of common accounting principles and standards and agreed pricing, budgeting and reporting methods, especially where subsidies continue after IMT. Financial audits by independent auditors are extremely important in helping the WUA maintain credibility among its members and creditors.

- *Resource mobilization, credit and subsidies* Developing an effective water charging system and achieving financial viability are key objectives of most IMT programmes. Advisory assistance and credit may be required from the government, banks or accounting firms. Where WUAs cannot become financially viable immediately after transfer, subsidies for O&M may be continued after IMT on a gradually declining basis. Subsidies may be useful for rehabilitation and modernization, especially if they are linked to corresponding investment by the WUA.
- *Management principles and methods* The WUA board members and WSP management will probably need training and advisory support in upgrading their management capabilities. This may include such aspects as general management skills, computing, financial management, personnel management and information systems.

Water basin and watershed management

- *Data on hydrology, water quality, meteorology* Normally WUAs will need this information to be provided by the water resources department and meteorological service.
- *River basin management and water allocation* Water resources departments or river basin authorities may need to enhance management at the river basin level to ensure equitable water allocation consistent with water rights, in the face of increasing competition. More effective basin-level management will probably require a representative role for water users' associations in basin management bodies in coordinating water use schedules and allocating water among schemes.
- *Land and water use monitoring and regulation* Increasingly, government must regulate against environmental degradation to prevent irrigation systems from becoming overwhelmed by larger resource problems such as deforestation, soil erosion, unsustainable land use practices and water pollution. Federations of communities or WUAs can play a role in environmental policy advisory bodies.

Agricultural productivity and profitability

- *Provision of inputs* For reasons of productivity or profitability, WUAs after transfer may want to diversify cropping patterns and encourage commercialization of agriculture. Where agricultural extension services are ineffective, WUAs or farmer groups may have to organize their own extension services, perhaps through networks or federations.
- *Credit* WUAs may need the assistance of government or rural banking services to learn how to arrange credit services.
- *Marketing and enterprise development* Increasing commercialization of agriculture will require a greater farmer awareness of market and agricultural enterprise opportunities. Local consultants, traders, exporters, businesses and government agencies could provide advisory services.

Planners should conduct an analysis of the needs of water users and their organizations for support services and determine what new services and organizational changes are needed to best meet those needs.

MISSION AND ROLES

The mission of an organization is its basic purpose and roles. It is now common for organizations to adopt mission statements. A mission statement is a succinct answer to the questions: "What is my purpose?" or "What is my business?" Such statements provide direction and clarity about what the organization should be doing. They provide a standard against which organizational performance can be assessed.

Whether or not an irrigation department already has a mission statement, it would be well served to have a new mission statement when it adopts an IMT programme. The statement is a reference point for communicating the new organizational purpose and culture and the relationship of the new agency to the farming community. The following are two hypothetical examples of mission statements for an irrigation department. The first one describes a common orientation of pre-IMT irrigation departments. The second is a possible future mission of an agency after IMT.

1. The mission of the department is to develop, operate and maintain irrigation and drainage systems and to regulate use of surface and groundwater for agriculture, in order to enhance rural livelihoods, support productive agriculture and protect the environment consistent with government policy.

2. The mission of this department is to regulate use of surface and groundwater for agriculture consistent with government policy and to provide technical and financial assistance to water users' associations for the development of irrigation systems and improvement of their performance.

BOX 7
POINTS OF LEVERAGE FOR REFORMING IRRIGATION AGENCIES

Since its founding in 1902, the US Bureau of Reclamation had the mandate to transfer management of irrigation districts to farmer organizations as soon as farmers repaid one-half of what they had agreed to repay for scheme development costs. But transfers in the United States were not implemented widely until the late 1960s and 1970s - after new substitute roles were identified for the Bureau and clear policies about the disposition of redundant staff were adopted. New roles for the Bureau included environmental regulation and monitoring and watershed management. Many redundant staff were re-hired by the new farmer-governed districts; others were reassigned to other duties or retired early.

The management transfer programme in Turkey is distinctive for the noticeable lack of resistance to it by the irrigation agency. A key reason for this is the massive irrigation development programme in the eastern part of the country, which was going on at the same time as the transfer programme. The construction programme was more attractive to agency staff than was management of existing schemes. Hence, agency staff did not resist surrendering agency positions in O&M to local organizations.

The following is a list of typical changes in roles which irrigation agencies tend to make after IMT:

- provide technical guidance to the post-IMT water service provider (WSP);
- provide managerial, accounting and financial advisory services to the WSP;
- assist with dispute resolution;
- monitor the performance of the WSP after transfer;
- environmental regulation;
- drop O&M and focus on scheme construction and modernization;

- restrict its managerial role to a higher hydrologic level, such as the river basin or main canals of large irrigation schemes;
- engage in more inter-sectoral planning and management of river basins or watersheds.

These roles can be broken down into three new types of roles:

- provision of advisory service;
- monitoring and regulation; and
- focus on higher-level management tasks.

Decisions about which new roles should be handled by the agency after IMT will depend on assessments of support service needs of WSPs and performance gaps at the level of river basins and watersheds.

GOVERNANCE AND MODE OF FINANCING

There are two common options governments generally follow in reforming irrigation departments after IMT. The first is to keep the department as a public agency and merely revise its scope or mandate. Sometimes this involves merging the irrigation agency with another department such as agriculture. The second option is to convert the agency into a self-financing utility accountable to a regulatory board (which is most often an inter-departmental body).

The first option will involve mostly analysis of changing capacity and needs for the agency. This might be assessed with such planning methods as SWOT analysis. The second option will involve more thoroughgoing analyses of organizational structure, control mechanisms and financing options. It also requires a high degree of professionalism and managerial control, as well as strong legal institutions.

In most cases irrigation agencies still retain their previous governance structure as public agencies accountable to a ministry or cabinet. Generally, this option is followed when the financial or political pressures are not great enough to bring about a more basic change in governance structure. Or the government may perceive that the agency's regulatory role requires it to retain its status as a government agency. However, the scope of policy making and regulation often becomes more concentrated "upstream".

During the 1990s in Indonesia the central Directorate for Irrigation decentralized its executive and financial management functions and restricted its role to policy making and strategic planning. But it remained a centrally-financed line agency. When the US Bureau of Reclamation began widespread management transfer of its schemes in the 1960s and 1970s, it retained its governance structure, but dropped the functions of irrigation scheme O&M and added environmental regulation of water basins.

The Central Water Commission in Mexico, the General Directorate of State Hydraulic Works in Turkey and the Irrigation and Command Area Development Departments in Andhra Pradesh all retained their basic governance structure but reduced their scope to development, regulation and technical advisory services.

Some governments, such as the Philippines, the state of South Australia and Ecuador, have attempted to convert the irrigation agency into a semi-autonomous self-financing utility. Pakistan has adopted such a policy and also intends to create inter-departmental oversight boards at

regional levels to regulate irrigation management and financing of transferred systems. Although the Philippines converted its National Irrigation Administration into a financial autonomous entity in the 1970s, it remains unable to finance itself entirely and, on average, NIA recovers in fees no more than 70% of collectibles. South Australia appears to be on the way to financial self-reliance, probably due to its profitable agriculture and strong legal institutions. It is too early to tell what will be the outcomes of reforms in Ecuador and Pakistan, but it is likely that they will require strong political will in order to succeed.

The basic sources for financing irrigation agencies after IMT are:

- general government treasury;
- special project funds;
- special regional funds;
- irrigation service fees;
- secondary revenue generation.

The first two sources are in decreasing supply around the world. However, if an agency restricts its scope dramatically, to policy and regulatory functions for example, it may be able to continue to be financed primarily from the government treasury. Project funds are increasingly being redirected by donors to regional or local levels and are used mostly for development or rehabilitation, rather than for financing agencies. Regional governments, such as states, districts or basin authorities, often have multiple sources of revenue, from taxes, levies, etc., which may be shared with irrigation agencies.

If the irrigation agency retains a role in water management after IMT, but at higher "upstream" levels (such as the main canal or river course), then it may be engaged in collection of irrigation service fees. If the ratio of funds from government versus funds from fees declines, this may provide a stimulus for the agency to improve its management performance so as to increase its revenues from fee collection. Sometimes irrigation agencies may engage in sideline revenue generating activities, such as sale of power, contracting for public works or sale of excess water. This is done extensively in China. Depending on their new mandate and availability of funds from the government treasury, agencies may want to explore opportunities for generating revenues from multiple sources.

INTERNAL ACCOUNTABILITY ARRANGEMENTS

Civil service codes and traditions can make it difficult to ensure effective accountability of staff to agency objectives and operating procedures. Such codes include granting of permanent status to staff, advancements based on seniority, lack of performance-based rewards, etc. Unofficial practices of favouritism and corruption are an even more serious threat to internal accountability. These problems are part of the reason IMT came about in the first place. To ignore them will only exacerbate problems at upstream levels, if this is where the agency is going to focus its attention after IMT. There are numerous options that can be considered to enhance internal accountability. These may be changes in civil service codes, introduction of work performance incentives, transparency, new information systems and so on. Such changes will be easier if IMT is part of a broader reform of government which is under way. In some cases, it may be necessary to change the agency's charter of authority or organizational status, such as converting it into a semi-autonomous utility, as mentioned above.

The IMT special commission should take advantage of the strategic change opportunity provided by IMT to grapple seriously with these issues and make the necessary changes. Only through overcoming these problems directly can the new post-IMT agency discharge its functions effectively and provide the kind of regulatory and support services irrigation schemes need after IMT.

WHAT KINDS OF CAPACITY NEED TO BE BUILT INTO THE "NEW AGENCY"?

The above section on mission and roles implies that in the future there are three kinds of capacities which irrigation agencies are likely to require after IMT.

1. Capacity to facilitate and advise

Irrigation departments are hierarchical administrative systems. Staff are accustomed to issuing or receiving instructions and fulfilling administrative quotas or following administrative procedures. IMT may mandate a shift from a hierarchical to a partnership relationship between the agency and farmers. As in Indonesia or Andhra Pradesh, India, IMT requires agencies to withdraw from managing irrigation systems and instead provide advisory support and facilitate problem solving by the new WSPs. This requires a fundamental change in organizational culture, which must be supported by continual emphasis from above, training and possibly introduction of new criteria for assessing job performance. NGOs experienced in organizational development might be useful in providing on-the-job training for department staff.

2. Capacity to monitor and regulate environmental problems

This may include monitoring of environmental problems such as groundwater tables, waterlogging, salinity, stream flows, silt loads, irrigation intensities, etc. Agencies will need capacity to measure these variables, analyse the data and make recommendations for action.

3. Capacity to manage inter-sectoral water use at basin levels

This involves an even broader range of technical and other skills and capacities, including water basin hydrology, water resources planning, legal expertise, political clout, negotiation methods and so on. It will also involve a more intensive collaboration with domestic water supply, manufacturing and industry, power sectors and local and regional governments.

For some of the new roles, capacity building may require training of existing staff, hiring new staff or sub-contracting services from the private sector. Just because the government retains a role of providing a service does not mean that it must deliver the service by itself. Local needs and capacities in the public and private sectors will determine the appropriate mix of how services will be provided in a given country. Planners should think creatively about how to optimize the best of both sectors to meet the needs of the future.

Chapter 10

Developing a water users' association and preparing it to govern

SUMMARY

This chapter starts by analysing the key enabling factors which are hypothesized to be conducive to the emergence and development of viable WUAs. The more factors are present, the more likely IMT will be successful.

Guidance is provided on how WUAs should be organized following some commonly accepted steps and principles. The key question of who should take the lead in this task is discussed and possible options analysed.

The key organizational characteristics of successful WUAs are also identified.

It is of fundamental importance that management transfer programmes use the reform as an opportunity to define clearly the water service that the new local organization is going to provide. An effective service definition includes: what is the WUA service area for water delivery and disposal, what amount of water will be diverted and delivered, when will the water be delivered and removed, and how payment for water service will be arranged. The other services (maintenance, conflict resolution, etc.) must also be defined in detail.

It is also important to define properly the typical tasks of WUA boards of directors, in particular those relative to organizing and supervising the water service provider.

WHAT FACTORS SUPPORT THE EMERGENCE OF VIABLE WATER USERS' ASSOCIATIONS?

It is not possible to state absolutely the pre-conditions for creation or development of water users' associations. Some factors might be essential in one place and not in another. In one place, some factors may be so important that they compensate for the absence of others. In general, it can be hypothesized that the more motivating factors exist in a location, the greater the likelihood that viable water users' associations can develop.

The following is a list of key enabling factors which are hypothesized to be conducive to the emergence and development of viable water users associations. These are not characteristics of WUAs but conditions concerning the context within which WUAs emerge. The list is distilled from literature on the subject and interactions with numerous practitioners in international meetings and field work.[1]

- Irrigation makes a significant improvement in productivity and profitability of irrigated agriculture, compared with rainfed agriculture.

[1] See Annex 1 for a list of key references, including those on water users' associations.

- Irrigated agriculture is an important component of farm family livelihoods.
- Most farmers are either landowners or cultivators on multi-year leaseholds.
- A generally-accepted system of land and water rights exists or can be expected to exist by the time IMT is implemented.
- Social divisions are not serious enough to prevent communication and joint decision-making among farmers.
- Social traditions support group organization for irrigated agriculture, existence of producer cooperatives and other rural organizations.
- Farmers are dissatisfied with the current irrigation management service by the government and believe that improvements in the quality of irrigation management could significantly increase the productivity and profitability of irrigated agriculture.
- Farmers believe that these improvements can be realized through the association's control over the management of water services.
- Farmers believe that their association can reduce or contain increases in the cost of irrigation to farmers.
- Farmers generally believe that the benefits of IMT will outweigh its costs and that the benefit/cost ratio for transfer is roughly equal among farmers.
- It is technically feasible to implement the water service with existing infrastructure or after pending improvements are made.

Some of the above items may seem rather obvious to some readers, but in fact, most IMT programmes do not take such factors into account in the planning process. Schemes that are lacking in many of the above factors may require more intensive efforts to develop water users' associations. Most planners will not have the time or resources to collect data on all the above factors to aid them in prioritizing and scheduling schemes for transfer. In order to convert the above list into a practical planning tool, it can be reduced to four concepts:

- economic motivation for IMT;
- dissatisfaction with existing management;
- local management capacity and group orientation;
- financial and technical feasibility.

Each irrigation scheme can be ranked high, medium or low for each factor (numbered 1 to 3 points) and given an overall average (see example in Table 5 below). Planners can work with local officials or NGOs to operationalize the ranking method.

TABLE 5
Example of ranking technique for feasibility of organizing WUAs*

Indicator	Scheme 1	Scheme 2	Scheme 3	Scheme 4
Economic motivation	Low	Low	High	Medium
Dissatisfaction with existing mgt	Medium	Medium	High	High
Management capacity	Low	Medium	High	High
Financial viability	Low	Low	High	Medium
Overall	1.2	1.5	3	2.5

* Low = 1 point; Medium = 2 points; High = 3 points

Typically, systems that are identified as easy to transfer or having a high likelihood of success are transferred first. Systems that are thought to be difficult to transfer may be postponed until there is more experience with transfer. This is so that early successes will generate more support for the programme and provide a useful learning experience that will help with later and more difficult transfers. Experienced farmers and WSP staff from early transfers can be active later on for peer training with more difficult cases. The above ranking system facilitates this prioritizing.

WHAT ARE THE KEY PRINCIPLES FOR FACILITATING DEVELOPMENT OF AN EFFECTIVE WUA?

Specific tasks and techniques for organizing cannot be prescribed universally. This must be worked out to fit local circumstances, objectives and wishes of participants. The following, however, are generally accepted principles for organizing community-based groups for management of natural resources.

- Make sure that relevant stakeholders have a voice in the process.
- Give attention to identifying valid representatives of farmers and other stakeholders (such as women, non-agricultural water users, village government officials, etc.).
- If needed, use community organizers (COs) to move forward the process of organizing WUAs.[2]
- The COs should play a limited role of facilitating organization. They do not take the lead, make decisions or create dependence on themselves. Their focus is to help empower the group. In some cases, they may only be needed to introduce to farmers options for creating a WUA or developing an existing one, after which farmers organize themselves. In more problematic cases, they may be needed more intensively.
- COs should encourage early group identification of members,[3] management problems and assessment of whether a new organization or merely the modification of an existing one is required.
- The group should forge consensus about the organization's basic purpose, service definition, policies, rules and procedures.
- Field walk-throughs and inspections, participatory analysis of options, extension inputs, development communications support and possibly experimentation can be helpful in organizational development.
- Taking on a preliminary small task, such as a maintenance or repair job, can help build organizational commitment, especially if it is an agreed activity and involves investment by prospective members of the organization.
- When consensus is achieved, the articles of association and by-laws should be drafted, reviewed and approved by all necessary authorities.

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[2] In the context of irrigation, a community organizer is someone who works with farmers to organize and/or develop a water users' organization and help it to become functional. Other terms sometimes used for this are *social organizers* or *institutional development specialists.*

[3] The tasks of defining the water service and criteria for WUA membership are important and require further elaboration in the sections below.

- A formal establishment ceremony, attended by senior officers and politicians, can help demonstrate the importance and official status granted the organization by the authorities.

The basic options for who should take the lead in establishing and developing water users' associations are: (i) farmer organizers (ii) other organizers from the local community; (iii) external community organizers from NGOs; and (iv) civil servants such as extension or development communication agents. Involvement of selected and trained farmers or members of the local community has the advantages of utilizing local knowledge, social networks and respected leadership. This will also normally be cheaper than hiring organizers who are external to the community. However, sometimes social divisions and extreme poverty and illiteracy may make it difficult to rely on local people to take the lead in organizing water users' associations. NGOs and extension or development communication agents may be needed, but ideally their role would be to train local people to take the lead in organizing.

When establishing the WUA, farmer representatives and community organizers generally formulate, prepare documents and obtain approval from members of the WUA for the following components of WUA development:

- statement of mandate and basic founding documents;
- organizational structure;
- basic policies, rules and sanctions;
- method for selection of leaders;
- relationship of the WUA to external organizations;
- formal establishment of the organization.

WHAT ARE THE KEY ORGANIZATIONAL CHARACTERISTICS OF SUCCESSFUL WUAS?

The internal characteristics of water users' associations that are most often noted in the literature to be found in successful water users' associations are now considered. This list is meant as a guideline to assist planners in designing viable water users' associations. Not all of the following may be necessary or feasible in all locations. These characteristics are:

- participatory approach in decision-making procedures;
- full control over irrigation infrastructure and rights of eminent domain;
- full control over O&M, financing and dispute resolution;
- primary responsibility for financing O&M, rehabilitation and modernization;
- agreed and measurable definition of an irrigation service;
- clear definition of who are the members of the association;
- means for excluding non-members and/or non-payers from receiving services;
- leaders who are elected and can be removed from office by the water users;
- clear policies and rules subject to approval by the water users;
- transparent administration, operations and performance;
- service charges based upon actual service delivery and strict accounting practices;
- financial and technical audits performed by the government or other independent entity;
- power to impose strong incentives and sanctions to ensure:
  - ♦ adherence of water users to agreed rules and policies,
  - ♦ accountability of WUA leaders to the assembly of water users, and
  - ♦ accountability of hired management staff to WUA leaders.

The above list can be considered a vision of the ideal. Some WUAs may be viable and effective without all these features, but experience suggests that the more of these characteristics that are present, the more successful and sustainable the WUA is likely to be.

HOW IS MEMBERSHIP IN THE WUA TO BE DETERMINED?

This is a matter that is often not resolved very clearly. If it is not, it is likely to create problems in the future. Water users can be landowners, renters, sharecroppers, squatters, sub-tenants and so on. Should all such users be eligible for membership in the WUA? What about landowners who own multiple parcels in the same scheme? Should they receive multiple memberships? Should only one person per parcel be permitted to be a member of the organization? Should only one person per household be permitted to be a member and, if so, should it normally be the male adult in the household (unless, as is often permitted, a widow runs the farm)?

At the local level, farmers and COs should make agreements about these issues before the WUA is established. COs should encourage the participation of women in these discussions, because they often play important roles in cultivation and water use but tend to be left out of such proceedings unless a conscious effort is made to include them.

A few basic principles are stated which seem to be generally accepted worldwide:

- eligibility for membership should be determined through clear rules about who should have a right to receive the water service and have an obligation to pay for it;
- it may be necessary to restrict membership to landowners or tenants with a relatively stable attachment to receiving and paying for the water service;
- normally only one membership per household is permitted.

Membership in a WUA may or may not involve a water right. It normally includes a right to vote in WUA meetings. Land ownership, long-term leasehold status, making an investment in capital development, payment of a membership fee and agreement to follow rules and pay a service fee are common eligibility requirements for membership. In cases where a landlord grants a long-term lease to a tenant to cultivate a farm, membership may be granted to the landowner or the tenant. This may be decided between the two parties concerned or there may be a WUA rule which decides this. Eligibility requirements should be established by consent of all water users and be based on locally accepted principles of fairness. WUAs should have the power to exclude non-members from the irrigation service or to remove from membership any who seriously abuse their privileges or consistently refuse to pay for service.

It is increasingly realized that women often play key roles in using and managing water and should therefore have a voice in decision-making, even when a spouse is the official member of a WUA. It may be helpful to make arrangements to encourage women to participate in meetings. In some cases it may be useful to grant voting rights to both male and female adults in households for some issues, such as for water use and scheduling questions or group labour activities for maintenance which involve men and women.

BOX 8
THE PALIGANJ DISTRIBUTARY FARMERS' COMMITTEE, BIHAR, INDIA: PROMISING RESULTS IN AN UNLIKELY SETTING

Few places would be more difficult to organize farmers to take over irrigation management than the 12 000-hectare Paliganj distributary canal in the Sone Command of south Bihar, India. This impoverished area is designated by the government as "socially disturbed" and is rife with tension and outbursts of violence between castes and between landowners and the landless. Profit margins for irrigated agriculture are extremely low and the risk of crop failure is high. Water delivery was unreliable due in part to frequent tampering with water distribution and extensive disrepair of canal structures. During the late 1980s budgets and staff of the Water Resources Department (WRD) were so limited that the WRD did little management below the offtake into the distributary canal. WRD staff were reluctant to enter the area below the offtake because they felt threatened by hostile farmers.

In 1988 the Water and Land Management Institute (WALMI) in Bihar embarked on an action research programme to improve the productivity of irrigated agriculture in the Paliganj command through organizing farmers to take over management of the canal and improve operation and maintenance. For an initial period of six months the WALMI merely listened to farmers, observed conditions and measured irrigation performance. The team gradually identified farmers' perceptions about key irrigation problems and gained rapport with them. According to farmers, the main constraint to irrigation performance was poor water distribution along the distributary canal.

The team held a series of meetings in villages along the canal and facilitated organization of a distributary canal level organization known as the Paliganj Distributary Farmers' Committee. The Committee consisted of elected representatives from the villages. It soon identified a strategy to improve water management and maintenance along the canal. Then field channel groups at the village level were formed to provide local support to the strategy and further enhance management within field channels. New rotational and maintenance procedures were implemented, backed up by sanctions, and this led to substantially more water being available in the tail end and an increase in cropping intensity. Despite the absence of other motivating factors, farmers had a singular dependence on irrigated agriculture for their livelihood and saw significant potential to improve it through group action to take over management of the canal. The Committee experienced little support or resistance from the WRD and continues as a relatively informal organization.

WHAT IS AN AGREED AND MEASURABLE WATER SERVICE?

Public irrigation agencies often do not specify the service they are supposed to provide. They tend to operate according to administrative rules and quotas, sometimes corrupted by local influences. ***It is of fundamental importance that management transfer programmes use the reform as an opportunity to define clearly the water service the new local organization is going to provide.*** This is the first step towards making an irrigation organization accountable to its clients - the farmers.

A service definition should include the following four elements:

- what is the service area for water delivery and disposal;
- what amount of water will be diverted and delivered;
- when will the water be delivered and removed;
- how will payment for water service be arranged.

The service definition should be concise. Details about procedures and targets are left for subsequent O&M manuals and reports, if necessary. The service definition should delineate clearly what area will have a right to the service and also the basis for determining this area. If there are any differences in class of service among units within the area, this should be specified.

The amount of water to be diverted and delivered may be defined in categorical terms, such as a share, proportion, or right. It may be defined relative to demand, qualified by supply constraints. Or where feasible, it may be defined volumetrically. Timing of the service may be defined relative to cropping schedules, supply conditions or to an on-demand system. Payment should be related to service delivery. This can be according to volume or share of water delivered, or area served, per season or annually.

The service definition should also be:

- measurable;
- clear and transparent to farmers;
- agreed to by the assembly of farmers.

The following is a hypothetical example of a service definition for a small-scale irrigation system:

> *The Bima Water Users' Association will provide the services of diverting water from the Bima weir, located in Bima township, state of X and delivering it to the agricultural land which can be served by it for irrigation (NB: map for delineation of the service area should be attached). Water will be diverted during the first and second cropping seasons up to the maximum amount of the water right (namely, one-fourth of river flow at the weir), to be decreased if demand is less than this amount. The Association also provides the service of drainage of agricultural lands irrigated by water diverted from the Bima weir.*
>
> *Water is allocated by the Association on a strict parcel-size share basis except when supply constraints require rotational irrigation. During rotational irrigation, water will be allocated to rotational units according to fixed schedule, ordered from the tail end of canals and moving upwards.*
>
> *Farmers will pay a service fee based on the amount of the total estimated annual budget of the Association divided proportionately by area of the parcel and number of seasons served.*

After there is a clear definition of the water service, the WUA should then specify its other services, including maintenance, conflict resolution and possibly other agricultural support services (as discussed in Chapter 3). In the resolution of policy issues in the planning phase, it should have been decided, at least at the national or state level, whether the WUA would be a single-purpose irrigation management entity or whether it would have the right to take on other functions as well, such as provision of agricultural services. If this option was left open in the IMT policy, then newly-created WUAs may be faced with the choice of whether they want to retain their focus on the water service or become multi-purpose organizations which also provide agricultural and other services. This decision should be made clear in the mission statement and by-laws of the organization, described below.

FUNCTIONS OF A WUA BOARD OF DIRECTORS

For WUAs that establish a water service provider (WSP) as a distinct entity, the board of directors of the WUA will normally have various supervisory responsibilities over the WSP. The following are typical tasks of WUA boards of directors:

- prepare legal documents of incorporation. (this may not be required if the entity is a division within the WUA);
- determine the organizational structure of the WSP and hire the general manager or chief executive officer;
- provide direction to the WSP manager in preparation of a personnel policy and job descriptions;
- advise the manager in hiring staff for the WSP;
- provide advice on and approval of the O&M plan;
- advise the manager in development of facilities and purchase of equipment and supplies;
- provide advice and approval to the manager to prepare a budget and financial management system;
- provide advice to the manager to perform a training needs assessment;
- provide advice to the manager to set up a performance monitoring and evaluation and management information system.

Members of boards of directors of WUAs are frequently unaware that they need to perform these responsibilities. This should be clearly stated in the by-laws of the WUA and training should be provided to new board members in how they should conduct their oversight duties in a way which ensures quality control **but does not result in micro-management by non-professionals who sometimes have political motivations**. This is an important matter and requires special attention in organizing and training activities.

Chapter 11

Issues to be considered by the water service provider and WUAs after transfer

SUMMARY

After the WUA is established, the first task of its directors will be to set up the water service provider (WSP). The WSP may consist of only a few people doing some specific tasks (accounting, water distribution, etc.) or it can be a relatively large office with specialized staff. The directors of the WUA must be able to govern the service provider. However, it is important that members of the WUA board of directors not weaken the ability of the general manager of the WSP to manage, by stepping over him or her and giving instructions directly to subordinate staff.

Sometimes after management is transferred to a farmer organization, farmers identify new agricultural or irrigation service priorities. WUAs should seek advice from agency or private sector engineers and from agricultural extension services to determine what combination of operational procedures will best lead to achievement of their new objectives. It is important that the WUA breaks away from the previous practice of deferred maintenance. Special training in the advantages and methods of preventive maintenance should be provided to WUA directors and WSP staff by irrigation agency technicians or staff of other experienced local WSPs.

One of the first priorities for preparing the WSP to take over management is ensuring that it has the necessary equipment to handle routine maintenance and incremental improvements. The government will need to establish a policy about how it will dispose of its O&M equipment in transferred systems. Often part of the equipment is transferred to the WUA.

Financial management is probably the most difficult and sensitive challenge most new WUAs face. The risks are many and considerable skill, discipline, vigilance and transparency are required. Some related management practices are discussed. IMT is not likely to be effective unless there is strong political commitment to support local financial sustainability of irrigation schemes.

The basic organizational models for the water users' association and the water service provider should have been determined during the policy analysis phase of reform (Chapter 6). But in some cases, the type of water service provider may vary within a country and be determined at the local level only during implementation.

WHAT IS INVOLVED IN ESTABLISHING THE WATER SERVICE PROVIDER?

After the WUA is established, the first task of its directors will be to set up the water service provider. Depending on scale and complexity, this may involve hiring only a few individuals or it may involve setting up an entire district office or company with a specialized staff. In any case, the directors of the WUA must be able to govern the service provider. This will involve providing

direction for operationalizing the service agreement, preparing seasonal service plans, adopting new policies and procedures and regulating the service. WUA directors should have full authority to hire and fire staff and oversee all personnel matters of the WSP.

The tasks involved in establishing a WSP will depend largely on what type of service provider it is. Two types are relatively easy: the self-contained WUA and the contracted service provider. Where the WUA handles both governance and management directly, the WUA may only need to appoint or hire a few individuals to directly implement water distribution, channel cleaning and collecting water charges. No matter how simple the arrangement, the WUA should make work expectations clear and retain the ability to remove poor workers.

Sometimes the WUA may not be active year around (perhaps because of a winter season when there is no irrigation). The WUA may lack capital to purchase equipment needed for O&M or it may find it too inefficient to hire full time staff for the WSP if they are not needed for several months of the year. In such cases, and where there is a market for O&M service providers, WUAs may choose to contract for service for the following tasks:

- preparation of a contract which clearly specifies all management tasks, terms and conditions (including for contract extension or cessation);
- specification of qualifications required and selection criteria. This may include skills and experience, availability, possession of certain equipment and supplies, agreement with WUA philosophy, etc.;
- invitation for competitive bidding;
- firm measures to ensure open and merit-based selection, consistent with selection criteria;
- assurance that the selected contractor understands WUA principles of accountability, lines of communication, protocol vis-à-vis the farmers and how much discretionary power they will have to solve problems in the field;
- sufficient financial resources available to pay the contractor once work is completed.

It is important that members of the WUA board of directors not weaken the ability of the general manager of the WSP to manage, by stepping over him or her and giving instructions directly to the subordinate staff. The WUA board of directors should focus on policy and oversight and deal directly with the general manager. Otherwise they will weaken the accountability of WSP staff to the general manager and the general manager to the WUA board of directors.

WHAT CHANGES MIGHT NEED TO BE MADE IN OPERATIONS AFTER TRANSFER?

Sometimes after management is transferred to a farmer organization, farmers identify new agricultural or irrigation service priorities. Whereas the public agencies might have lacked incentives to optimize productivity of water, the WUAs may now have these incentives. This should be so if they have assumed primary responsibility for financing irrigation, linked service delivery to payment for service, set priorities according to the group interest and gained full control over water management within their service area. The following are examples of possible new priorities that a WUA might have:

- expand the irrigation service area;
- improve equity of water distribution;
- reduce amount of water delivered per hectare;
- increase cropping intensities through better irrigation efficiency;
- increase crop production per unit of water delivered.

Such priorities may require land levelling or shaping, crop choice restrictions or zoning, changes in water application practices and technologies, changes in water scheduling and delivery and changes in how service payment is linked to service delivery. WUAs should seek advice from agency or private sector engineers and from agricultural extension services to determine which combination of operational procedures will best lead to achievement of their new objectives.

WHAT CHANGES MIGHT NEED TO BE MADE IN MAINTENANCE?

Before transfer, the government was probably responsible for maintaining canals and control structures. Under-financed public irrigation agencies generally do not engage in preventive maintenance. Damages, deterioration and siltation accumulate over time until the problem becomes serious enough to merit investment from special funds, such as those for rehabilitation or modernization.

After transfer, it may be that farmers no longer obtain funds from the government for maintenance. They may also be responsible to finance future rehabilitation. Under these circumstances, it is important that the WUA break away from the previous practice of deferred maintenance. Farmers are generally aware that deferring small repairs only results in more costly major repairs later on. Special training in the advantages and methods of preventive maintenance should be provided to WUA directors and WSP staff by irrigation agency technicians or staff of other experienced local WSPs. Agency technicians themselves should be given training in preventive maintenance before they attempt to train the new WSP.

HOW SHOULD THE WSP OBTAIN EQUIPMENT?

One of the first priorities for preparing the WSP to take over management is ensuring that it has the necessary equipment to handle routine maintenance and incremental improvements. There may be some works that are only occasional and require specialized skills and equipment. For these it may be more cost effective to engage contractors when needed rather than obtain the skills and equipment "in-house".

The first question is: which government-owned equipment at the scheme should be transferred to the WUA? With technical advice from the irrigation agency and in consultation with the WUA board, the WSP will need to assess its needs for equipment and compare this with what may be available from the transfer of equipment from the government. The government will need to establish a policy about how it will dispose of its O&M equipment in transferred systems. This should include resolution of the following issues:

- Should equipment be transferred free of charge, leased or sold to the WUA?
- Should ownership or only use rights be transferred?

BOX 9
EXAMPLE OF A MAINTENANCE COMPANY JOINTLY FINANCED BY WATER USERS AND GOVERNMENT

During the process of transfer in Peru, discussions were held with the Water Users' Organization of the Chancay-Lambayeque Irrigation District to create an operation and maintenance company. The main capital of the company (ETECOMSA) consisted of the maintenance equipment partly donated by the Government (from previous construction works) and partly by cash provided by the users through a special money collection. The company is now owned by the users and has capital in excess of US$1 million, and is the WSP for the irrigation district with several years of satisfactory performance.

- If sold, how should the prices be set (replacement cost, fair market value, concessionary, nominal)?
- If sold, would payment be by instalment; would it be taxed?
- What recourse will the government have if the WUAs fail to pay for the equipment?
- What training is needed in proper use of equipment?

WHAT CHANGES MIGHT NEED TO BE MADE IN WATER FEES AND FINANCIAL MANAGEMENT?

In the future, there are three forces that are likely to require WUAs to become more involved in standard financial management practices. The first is the need for a more aggressive participation in the markets (inputs, agricultural products, etc.) of irrigated agriculture, the second is increasing competition for water from even more commercialized sectors (industry, urban water supply and energy) and the third is the "scaling up" process of IMT through enlargement or federation of devolved units.

Where educational levels are higher (up to the secondary level) and where appropriate water control and measurement structures exist, it will be preferable to use more sophisticated financial management practices. This should be done from the moment of establishment of the WSP, in order to set a precedent for achieving high levels of efficiency and accountability. The following are financial practices which may be more appropriate in this kind of environment:

- Arrange training in agreed financial practices for the treasurer of the WUA and the chief financial officer of the WSP (if required). Also, provide some training in bookkeeping practices to all WUA directors and WSP administrative staff.
- Ensure that financial transactions are only made with at least two authorized witnesses and a record of the transaction.
- Make financial records of the WSP available for inspection by farmers.
- Base the amount of water fees levied on WSP budgets.
- Base water fees on the volume of water delivered.
- Arrange for an independent financial auditor to work with the WUA and WSP.
- Manage a long-term capital reserve fund to prepare for future emergencies, rehabilitation and needs for modernization (as referred to in Chapter 4).

In some cases, such as Mexico, Colombia, China and the United States, farmers were accustomed to paying water fees to the government before transfer. After transfer, fee collection is done by the

BOX 10
FARMER ATTITUDES ABOUT THE LONG-TERM SUSTAINABILITY OF IRRIGATION INFRA-STRUCTURE: EXAMPLES FROM THE UNITED STATES AND PERU

Three general managers of large irrigation districts in the United States were interviewed. Each was an engineer and each complained that his or her WUA board of directors was exerting pressure to keep water fees so low that the WUA was deferring maintenance and allowing deterioration. A farmer informant agreed in private that most farmers did not care about the long-term costs of minimizing maintenance today.

A WUA meeting in Peru was observed at which the WSP manager proposed a water fee to the members, based on prediction of the next year's O&M requirements. Without reference to the technical merits of the proposal, farmers voted to reduce the fee significantly to more tolerable levels. This was in a context where farmers often lobby politicians to pressure the irrigation agency to finance repairs to their system.

Deferral of maintenance by farmers who later supplicate politicians to arrange government-financed repair is a common practice in many countries.

WUA. Only adjustments in rates or charging mechanisms were needed. In other cases, such as Indonesia or Sri Lanka, farmers had not paid water fees to the government before transfer. In these cases, it has been up to the water users' associations after transfer to decide whether to begin collecting fees or not. Where only a small service area is transferred, fee collection may not be required and periodic labour mobilization or collection of materials, such as sand and stones, may suffice.

In locations where the level of education among farmers is low and where water control or measurement structures are few or non-existent, the basis for payment of service, and financial management in general, will have to be kept as simple and transparent as possible. Farmers in such areas may not be accustomed to having a permanent group treasury. They may feel reluctant to entrust such funds to their new organization. It may be wise for WUAs in such areas to minimize the number of financial transactions required through such measures as mobilizing labour from WUA members for maintenance. Where water charges are required, payments can be based on simple criteria which are easily understood and measurable, such as size of parcel irrigated, crop type, cropping intensity and/or number of irrigations delivered in a season. In such cases it may take time for new associations to build trust among farmers in WUA financial management.

Financial management is probably the most difficult and sensitive challenge new WUAs face. The risks are many, and considerable skill, discipline, vigilance and transparency are required. The following is a typical situation where new farmer organizations attempt to establish and collect annual water charges:

- the WSP estimates the next year's total cost of operation, maintenance and administration;
- the total cost is divided into shares or units upon which fees are based (e.g., hectare or cubic metre);
- the WSP submits the proposed fee for the next year to the WUA board of directors or the general assembly of the WUA for approval;
- the WUA often rejects the initial proposal as being too high and approves a lower amount;
- in practice some farmers may refuse to pay the fee, in part or in full.

There is a tendency sometimes for directors of WUAs to exert pressure on the WSP to keep water fees as low as possible, even to the point of deferring maintenance and permitting deterioration to occur. Farmers may be more concerned with immediate cost savings than the future cost of deferred maintenance. They tend to speculate that they will be able to pressure the government to return in the future to sponsor repairs, emergency damages or rehabilitation.

It is likely that the WSP will have a more technical perspective than the board of the WUA, which may have a more political orientation. The government may need to create certain incentives to motivate the WUA to avoid deferring maintenance. The most logical option (noted in Chapter 4) would be for the government to link WUA eligibility for subsidies (for special maintenance, emergency assistance and rehabilitation) to its compliance with agreed standards of maintenance and development of a capital reserve fund. The government can provide or commission technical and financial audits and act as a guarantor for a long-term capital reserve fund.

A logical solution to the problem of failure of farmers to pay water fees is to cut off the service to farmers who are in arrears in their payments. This requires a high degree of political

discipline. A highly effective measure used in several irrigation districts of Peru is "payment against delivery": every single irrigation must be paid for before water is actually delivered. WUAs in the United States have the legal power to take over ownership and re-sell farms belonging to owners who fail to pay the irrigation fee after several seasons. In other cases in Latin America and parts of Asia, cessation of water delivery is a common sanction. But political commitment to such sanctions is sometimes lacking and farmer failure to pay water fees is widespread in many countries.

Planners should be aware of the kinds of problems that can arise in the developmental stages of WUAs and rigorous steps should be taken by organizational facilitators and WUAs to avoid serious problems. **IMT is not likely to be effective unless there is strong political commitment to support local financial sustainability of irrigation schemes.**

Chapter 12

Improving irrigation infrastructure

SUMMARY

This chapter discusses the issue of whether rehabilitation should be included as part of the IMT transfer programme. The key issue is not whether rehabilitation should be done but rather, if it is needed, how it can be done in such a way that it supports the primary goal of transfer, which is to create self-reliant water users' organizations to replace government in the management of irrigation systems.

Probably the three most fundamental principles to remember pertaining to infrastructure improvement and management transfer are:

- the water users' association should identify, prioritize and make the financial decisions;
- the irrigation agency should facilitate and provide technical assistance, not direct the process;
- future infrastructure improvement should exemplify a farmer-driven, incremental approach rather than the typical fully subsidized, non-participatory approach of the past.

An inventory of all schemes planned for transfer should be made, and planners should obtain data on their functional condition before transfer. They should also assemble recommendations from the WUA about what improvements, if any, should be made in conjunction with the transfer programme. Once priorities have been identified by the WUA, a joint government-farmer study should be done to assess whether the intended works are technically and financially feasible.

It is essential that the rehabilitation process reflect the future relationship between the WUA and the government rather than the past one. The WUA should prioritize which works will be done, and jointly finance them with government. The WUA should also establish a capital reserve fund for future improvements.

SHOULD INFRASTRUCTURE IMPROVEMENT BE INCLUDED IN A MANAGEMENT TRANSFER PROGRAMME?

In a transfer programme, the condition of the physical infrastructure of irrigation systems is an important issue because many irrigation systems may have deteriorated considerably due to poor maintenance and other associated reasons. The rehabilitation and improvement of thousands, or even millions, of hectares involved in a transfer programme have large financial implications since such works will rarely cost less than US$ 1 500 per hectare and therefore any government will look into this issue with special attention before making any commitment.

Considering that most of the transfer programmes are carried out under the pressure of economic reforms, governments are generally reluctant to embark on large rehabilitation programmes. Normally rehabilitation is restricted to certain special cases or conditions which require careful definition before the process is started.

Even if the investments in rehabilitation are modest they can be an important element to exemplify a new approach to irrigation management. The promotion of incremental infrastructure improvement and priority decisions by the WUAs will support the primary goal of transfer, which is to create self-reliant water users' organizations to replace government in the management of irrigation systems.

WHAT ROLE DOES THE GOVERNMENT WISH TO PLAY IN THE REHABILITATION OF THE IRRIGATION INFRASTRUCTURE?

Basically the government can adopt three different positions with regard to the financing of rehabilitation works:

1. One is a bargaining position where the government negotiates individually with the concerned WUAs on the possible financial commitments that each party could make that will be used for rehabilitation works. As in any negotiating process, the rules that govern this are flexible (within a certain framework).
2. Full rehabilitation before transfer: due to financial limitations this is highly unlikely although it has been used in a few cases.
3. The other position is the definition of some rules for the application of government grants (or soft loans) that will be provided to WUAs to undertake the rehabilitation works if certain conditions are met.

The third option is certainly the one that offers a greater potential for strengthening the transfer process but in any case governments should define their position before entering into a more detailed plan of their activities in this area.

1. ***Financing rehabilitation as a bargaining tool to promote transfer***

Farmers who are asked to receive systems in poor condition will argue that they will not be able to operate them and that they will not be able to raise the necessary funds for operation and maintenance, much less for rehabilitation. They may even refuse to accept transfer. Some WUAs may try to put pressure on the government to rehabilitate or improve the irrigation systems before transfer. On the other hand, the government may argue that it does not have the necessary funds and that the system has deteriorated because farmers have not paid the fees that they were supposed to. Such conflicting situations are more likely to arise in those irrigation schemes where operating costs are particularly high and/or where the farmers have a low capacity to pay the fees. In such cases the financing of some of the most needed rehabilitation works can represent an important incentive to the WUAs to accept more voluntarily a transfer that may not look very attractive to them.

However this negotiating approach (which was extensively used in Mexico) has to be applied with extreme care, defining very clearly the bases for possible negotiation. The moment that farmers become aware that government officials have the capacity to agree to the financing of some rehabilitation works they will always find some topics to be addressed in negotiation. An important parameter that may help to determine where such grants may be provided is the farmers' capacity to pay the irrigation water fees. Irrigation schemes where this capacity is generally high should be excluded from such negotiations.

BOX 11
EXAMPLE OF HOW REHABILITATION CAN ENGENDER SPECULATION AND DEPENDENCY AMONG FARMERS

A visit to the Small-scale Irrigation Turnover Programme in a mountainous area of the West Sumatra region of Indonesia during the pilot stage of implementation revealed that the system served less than 100 hectares and was in process of being transferred to the WUA. This particular system was being rehabilitated first, at government expense. Farmers were invited to make a list of priority repairs or improvements they would like to have done before transfer. WUA leaders made a list of about 15 items. The third item in priority caught one's attention. The farmers wanted the government to raise the height of the main canal embankment by about 20 cm along a canal length of about 300 metres near the intake. The reason: the government had first built the masonry embankment about 11 years earlier and since that time the canal had accumulated 10 to 15 centimetres of silt. They said that if the embankment could be raised another 20 cm then they could raise the water level entering from the intake and probably would not have to do any silt removal for another 12 years.

2. Rehabilitation before transfer

Under the argument that farmers cannot be expected to take over management of an irrigation system where functioning is impaired because it has deteriorated, the irrigation agency may sometimes promote a policy of rehabilitation before transfer. The additional argument is that it will reduce the future cost of maintenance to farmers. In reality these arguments are often a delaying tactic rather than a true intention since a full rehabilitation of irrigation schemes requires resources that will certainly slow down the process.

An indiscriminate policy of rehabilitating the irrigation schemes before transfer, apart from being difficult to sustain from a financial point of view, may also be counterproductive from the point of view of promoting self management. Some of the possible negative consequences are listed below.

If the government sponsors rehabilitation prior to turnover, it will reinforce the perception of farmers that the scheme belongs to the government. Conventional bad practices will probably be repeated. Such practices may reinforce in farmers' minds the notion that the government will return in the future and finance rehabilitation. Farmers will then have the incentive to defer investing in maintenance, with the expectation that these costs can be pushed onto the government in a future rehabilitation project. So the scheme is again likely to deteriorate rapidly, just as before transfer. However, the assumption that government may be ready to finance any future rehabilitation may prove unjustified in the long run and this may place farmers in a difficult position in the future.

Rehabilitation and improvement works undertaken without full involvement of the water users' association may even be counterproductive or not fully used by the beneficiaries.

- The cost of such a programme will be much greater than adopting an alternative approach based on some formulae of joint investment between the WUA and the government.
- Rehabilitating before transfer may delay the reform process because of limited funds and slow bureaucratic processes for undertaking the works. These delays may discourage local organizations from active participation in the process. Furthermore, a lengthy reform process is subject to changing currents of political support over time and this can be risky for the IMT programme.

3. Joint and progressive financing of infrastructure improvements

A transfer programme will substantially alter the relationship between the government and water users in that the water users become partners with the government and enter into "the driver's seat" in the management of water for agriculture. Farmer dependence upon the government should be greatly decreased. Strong signals will be needed to reorient both farmers and the government. If done properly, rehabilitation can provide an opportunity to strengthen this new relationship.

A future irrigation sub-sector may be envisioned where WUAs have taken over management of irrigation systems, where government only provides technical and financial support services periodically, as needed, and where government resources are extended in limited amounts to stimulate rather than discourage farmer investment in their irrigation systems.

If this vision is accepted, it may be expected that the future relationship between WUAs and the government, with regard to infrastructure improvement, has most or all of the following elements:

- the government will no longer finance the bulk of the cost of rehabilitation;
- there will be a known formula for cost sharing between the WUA and the government;
- the "wait-till-in-a-state-of-collapse", "all-at-once" approach of the past will be replaced with an ongoing, incremental, pro-active and smaller-scale approach of repair and restoration. Works will be done as the needs arise, before they become serious and require large investments with substantial external funds;
- WUAs will draw on capital reserve funds (possibly complemented by some corresponding government funds) to finance these incremental repair and restoration works;
- WUAs will identify and prioritize the works, seeking outside technical support as needed;
- WUAs will have the legal authority to repair, modify and extend irrigation infrastructure.

It may only be possible to use infrastructure improvement as a tool for institutional reorientation if the WUA and WSP are first established and full management authority has been transferred. Only after this will the WUA be in a position to manage the improvement process, prioritize and schedule improvements and mobilize local and government resources. This experience will prepare the WUA and WSP to take over primary responsibility for the physical and financial sustainability of their irrigation system.

HOW TO PLAN THE INFRASTRUCTURE REHABILITATION

Once the government has defined its position regarding its role in the rehabilitation programme it should establish a clear plan about the extent and means whereby it will provide assistance for infrastructure rehabilitation. This may include the following:

- An inventory of all schemes planned for transfer should be made and planners should obtain data on their functional condition before transfer. The inventory does not need to be very detailed as it is only meant to give an indication of the extent of systems which are likely to need rehabilitation;
- assemble recommendations from the WUAs about what rehabilitation works, if any, are indispensable;

- assess the cost involved for several hypotheses of rehabilitation (few works to be negotiated, most urgent needs, selected cases, all recommended works, etc.);
- identification of criteria that WUAs must fulfil in order to be eligible for government assistance;
- define the conditions whereby government equipment for operation and maintenance will be transferred to the new WUAs;
- define the financial and technical procedures to be followed if those criteria are met;
- check that WUAs are legally empowered to commission construction works;
- identify training needs of WUAs for infrastructure improvement;
- estimate the timeframe of the programme;
- estimate the total cost to the government and possible sources of financing.

Depending on the position adopted, some of the above points will have to be treated in greater or smaller detail.

HOW IMPROVEMENTS CAN BE IDENTIFIED AND PRIORITIZED IN WAYS THAT SUPPORT THE GOALS OF TRANSFER

One of the first tasks that new managers of transferred systems will have to undertake is the prioritization of works in need of improvement or rehabilitation. WUAs and WSPs are likely to include the following kinds of criteria for such prioritization:

- ensure the continuity and equity of water distribution;
- optimize irrigation efficiency and water saving;
- execute first those works that can be done with the available resources of the community and leave for later those that require external financing;
- expand the service area and the number of service payers;
- minimize safety risks;
- minimize loss of productive land when extending channels;
- make transparent the basis for water distribution;
- design improvements that minimize management requirements and maintenance costs.

In any case, the members of the community should be consulted and invited to participate actively in prioritization. Sometimes it may be difficult to arrive at an obvious consensus where certain works may benefit some farmers more than others. It is the job of WUA leaders to forge a consensus or take decisions in the best interests of the association.

Once priorities have been identified by the WUA, a pre-feasibility study should be done to assess whether the intended works are technically and financially feasible. Lining of canals is one of the improvement works preferred by farmers but all too often it cannot be justified economically. Governments will likely require feasibility studies as a precondition for provision of assistance. Such studies should give attention to the phasing of works in order to be consistent with availability of budgeted funds and limited time for execution. In many systems the time period during which interruption of the water service can be tolerated may be rather short.

BOX 12
REHABILITATION AND IMT IN MADAGASCAR

Madagascar has adopted a unique strategy which combines rehabilitation with management transfer. The programme includes a number of requirements and incentives for farmer investments. These are designed to stimulate local self reliance in the WUAs.

Many public schemes in Madagascar had seriously deteriorated by the mid 1990s. The government offered to pay 80% of the cost of rehabilitation provided that farmers agreed to pay the other 20% and to take over full management of the schemes after transfer. Initially, schemes were selected where farmers agreed to these terms. During the first phase, an NGO or consulting firm facilitates formation of a WUA and identification by farmers of which physical improvements should be made. Together, they prepare a plan for rehabilitation. The WUA prepares an annual maintenance plan and adopts a water fee. If the fee collection rate is at least 90%, they proceed to the second phase, which is construction. Farmers must provide 20% of this cost, which is contributed mostly in the form of labour and materials. Only if farmers contribute the 20% to rehabilitation and collect at least 90% of their fee does the project proceed to the last stage, which consists of completion of the physical repairs, transfer of legal ownership of the infrastructure to the WUA and provision of special support services from various government agencies, including agricultural extension, training in water application, credit, etc.

In conclusion, it is emphasized that the three most fundamental principles to remember pertaining to infrastructure improvement and management transfer are:

- the water users' association should be in the driver's seat (identifying, prioritizing and making the financial decisions);
- the irrigation agency should facilitate and provide technical assistance, not direct the process;
- future infrastructure improvement should exemplify a farmer-driven, incremental approach rather than the typical fully subsidized, non-participatory approach of the past.

PHASE 4 OUTPUTS: PLANNING AND IMPLEMENTATION

Outputs for the planning and implementation phase are the preparation of a basic plan of implementation, establishment of water users' associations and water service providers and infrastructure improvements.

The plan should also include the basic assistance strategy for infrastructure improvement, including terms and conditions for eligibility, financial procedures, technical aspects and the mode and schedule of implementation. This plan should be based on the clear position of the government regarding its role for financing the rehabilitation works

The main output for creating an effective water users' association and preparing it to govern is the formal establishment of a water users' association. The WUA should have:

- agreed and legally-recognized articles of association and by-laws;
- an agreed definition of the service to be provided;
- a set of officers duly selected and trained;
- a general sense of commitment to the organization among its members.

Establishing the water service provider and preparing it to manage the service should, in general, include the following outputs:

- legal establishment of the WSP;
- hiring of WSP staff, purchase of equipment and provision of training;
- preparation of a financial plan, budget and O&M plan;
- creation of a capital reserve fund.

A basic plan of implementation is needed to bring together all essential components of the reform, to forge consensus and to show that the plan is comprehensive and consistent. The plan should make a persuasive case that implementation will be efficient and practical and will achieve expected outcomes. The plan should normally include the following components:

- necessary policy and legal changes;
- requirements for agency restructuring;
- organization of new support services;
- creation and development of water users' associations;
- creation and development of water service providers;
- improvement of irrigation infrastructure;
- implementation of a system of monitoring and evaluation.

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Annex 2

Summary of contents of the Andhra Pradesh Farmers' Management of Irrigation Systems Act

The Andhra Pradesh Farmers' Management of Irrigation Systems Act (Act 11 of 1997) was adopted on 7 April 1997. Its preamble states the following:

"AN ACT TO PROVIDE FOR FARMERS' PARTICIPATION IN THE MANAGEMENT OF IRRIGATION SYSTEMS AND FOR MATTERS CONNECTED THEREWITH OR INCIDENTAL THERETO.

Whereas the State of Andhra Pradesh is essentially an agricultural State depending on an efficient and equitable supply and distribution of water which is a National Wealth, ensuring optimum utilization by farmers for improvement of agricultural production is the immediate need;

And whereas; scientific and systematic development and maintenance of irrigation infrastructure is considered best possible through farmers' organizations;

And whereas; such farmers' organizations have to be given an effective role in the management and maintenance of the irrigation system for effective and reliable supply and distribution of water."

The following is an outline of the contents of this Act.

CHAPTER - I PRELIMINARY

(includes titles, extent and commencement of Act, references to earlier acts, definition of terms)

CHAPTER - II FARMERS' ORGANIZATION

Delineation of Water Users' Area and Constitution of an Association
Election of President and Members of the Managing Committee of the Water Users' Association
Delineation of Distributory Area and Constitution of the Distributory Committee
Election of President and Constitution of Managing Committee
Delineation of Project Area and Constitution of Project Committee
Election of Chairman and Constitution of the Managing Committee

The Act was followed by publication, also in 1997, of three sets of Rules, or by-laws, which provide more detailed guidance on how the Act will be implemented.

Irrigation management transfer (IMT) means the relocation of responsibility and authority for irrigation management from government agencies to non-governmental organizations, such as the water users' associations. It may include all or partial transfer of management functions and authority. IMT is a widespread process that is taking place in more than forty countries worldwide. Experience indicates the need for a more conceptual and systematic approach to the intended reform. These guidelines have been written to assist policy-makers, planners, technical experts, farmers' representatives and others involved in irrigation management transfer programmes to design and implement an effective, comprehensive and sustainable reform.