

REPUBLIC OF YEMEN

MINISTRY OF AGRICULTURE AND IRRIGATION

IRRIGATION IMPROVEMENT PROJECT
(IDA Credit No. 3412 – YEM)

Main Technical Assistance Package for IIP

WORKING PAPER 4

**Procedure Manual on
Participatory Irrigation Management**
[Draft - Revised]

IRRIGATION IMPROVEMENT PROJECT

REPUBLIC OF YEMEN

February 2003

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IN ASSOCIATION WITH

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YEMENI ENGINEERING GROUP

MINISTRY OF AGRICULTURE AND IRRIGATION

IRRIGATION IMPROVEMENT PROJECT

Main Technical Assistance Team

PROCEDURE MANUAL

ON

PARTICIPATORY IRRIGATION MANAGEMENT

(DRAFT)

**ARCADIS EUROCONSULT
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IRRIGATION IMPROVEMENT PROJECT

PROCEDURE MANUAL ON PARTICIPATORY IRRIGATION MANAGEMENT

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ABBREVIATIONS AND ACRONYMS

IIP	Irrigation Improvement Project
IMT	Irrigation Management Unit
ISF	Irrigation Service Fee
MAI	Ministry of Agriculture and Irrigation
NWRA	National Water Resources Authority
O&M	Operation and Maintenance
PIM	Participatory Irrigation Management
PIU	Project Implementation Unit
PMU	Project Management Unit
RAO	Regional Agriculture Office
SWUF	Scheme Water Users' Federation
TDA	Tihama Development Authority
WUA	Water Users' Association
WUG	Water Users' Group

LIST OF YEMENI TERMS

<i>Al Ma'mun</i>	Public Notary
<i>Aqil al Qaria</i>	Deputy Village Chief
<i>Faddan</i>	0.44 hectare
<i>Kharif</i>	Agricultural season from July 1 to December 31 (July to mid-October)
<i>Maad</i>	0.36 hectare
<i>Ma'aqam/Ma'aqem</i>	(Temporary) Earthen Bund(s) (in primary canal)
<i>Seif</i>	Agricultural season from January 1 to June 30 (mid-February to mid-June)
<i>Sheikh al Qaria</i>	Village Chief
<i>Sheikh al Obar</i>	Canal Master
<i>Sheikh al Shareej</i>	Canal Master
<i>Uqma/Uqum</i>	(Temporary) Earthen Bund/Diversion Spur (in Wadi bed)

PREFACE

The Procedure Manual on Participatory Irrigation Management (PIM) has been prepared for all (field) staff of the Project Implementation Units (PIUs) of the Irrigation Improvement Project (IIP) in general and for the PIM Extensionists in particular. The PIM Procedure Manual provides information and guidelines about the PIM Programme and it shall facilitate the PIM Extensionists and other PIU staff during the implementation of their field activities by describing in detail the different steps of the entire PIM Programme.

A PARTICIPATORY IRRIGATION MANAGEMENT PROGRAMME

The PIM Programme consists of 21 steps, which are described in detail in the following chapters of this manual. A number of milestones reflecting important achievements during the implementation of the PIM Programme are also included. Normally, these milestones shall be fulfilled before proceeding with the next steps of the PIM Programme. All 21 steps and the milestones of the PIM Programme are shown in the flow chart on the next page.

B LAYOUT OF MANUAL

At the beginning of each chapter, in which one step of the PIM Programme is described, the following basic information is presented before more detailed information and guidelines are given:

Target Group: Which individual or group of persons shall be actively involved in this particular step of PIM Programme, such as Village Sheikh/Local Council members, all villagers/farmers, village women, members of the WUA General Assembly, WUA Management Board members, members of any special Committee, WUA staff, etc.

Field Staff Involved: Which person and/or agency, such as the PIM Extensionists, PIU Institutional Development Specialist, PIM Specialist, Training Expert, PIU Resident Engineers, Water Management Specialist, PIU Agronomist, Design Engineers, contracted service provider for Agriculture Extension and Demonstration Programme, Tihama Development Authority (TDA), Regional Agriculture Office (RAO) of the Ministry of Agriculture and Irrigation (MAI) as well as private sector (i.e. contractors, dealers/retailers), are responsible to undertake specific activities during specific steps of the PIM Programme. The PIU Institutional Development Specialist, PIM Specialist and Training Expert form the PIM Support Team and one or more members of this team shall accompany the PIM Extensionists during their field activities as much as possible in order to monitor their performances as well as to provide support and coaching.

Timing: Within how many weeks after the completion of the previous step or before the start of the following step of the PIM Programme shall this particular step be carried out.

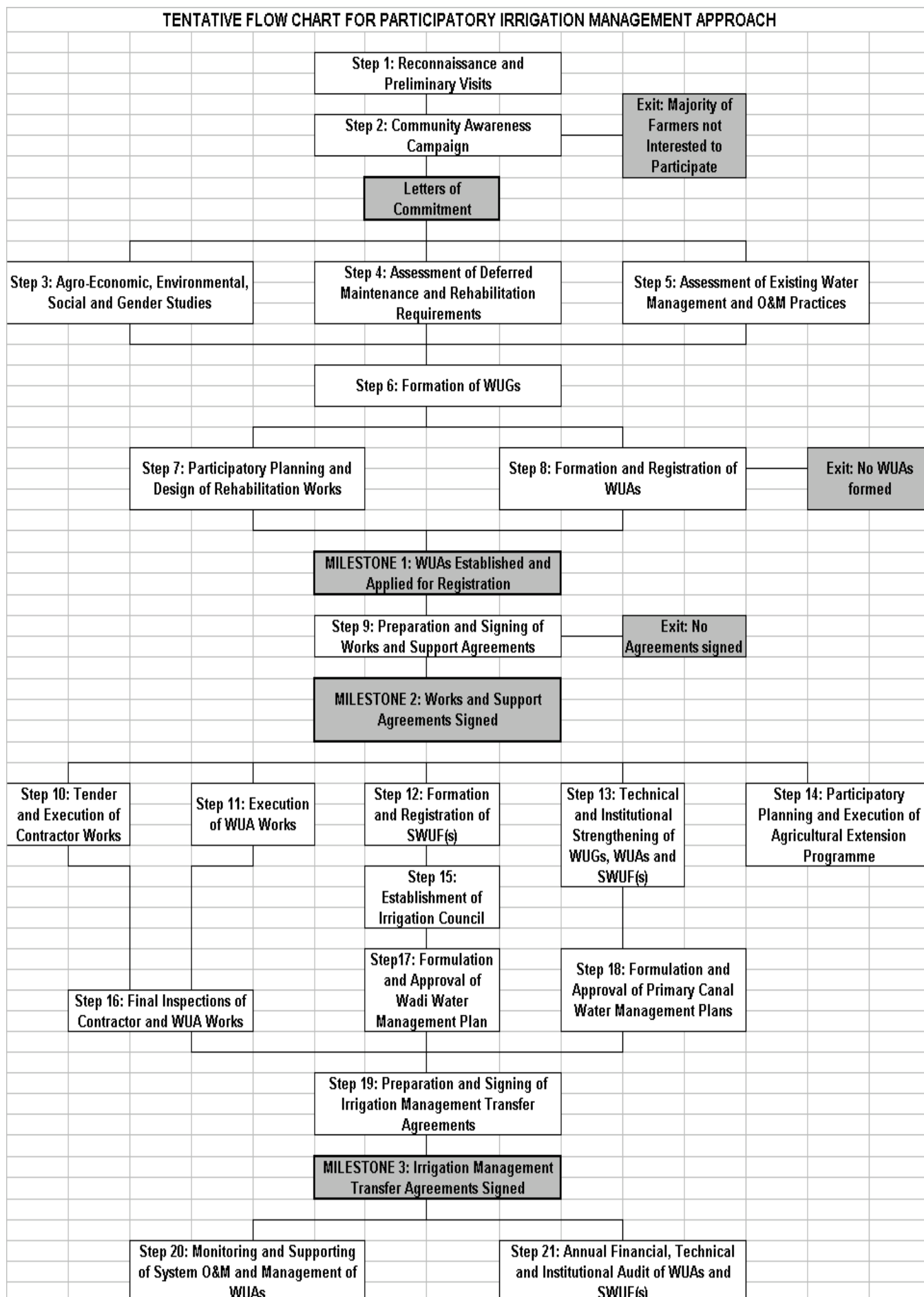
Duration: In how many weeks or months shall this particular step be implemented.

Main purposes: What shall be achieved during each step of the PIM Programme.

Documents: Which particular documents, such as Articles of Association and Internal Rules & Regulations, Agreements and so on, are required during each particular step of the PIM Programme. An example of such documents is often given in the Annexes of this Manual.

Visual Aids: Which particular visual aids, such as flip charts (A1-size), maps, drawings and photographs shall be used by the PIU field staff during the execution of their activities. In particular, the use of flip charts is recommended as they provide guidance to the concerned PIU staff during presentations and they attract the attention of the participants. A leaflet summarising the main issues presented and discussed during a particular village or group meeting shall be distributed among the participants, so that they have the opportunity to review the information once more at a later stage.

TENTATIVE FLOW CHART FOR PARTICIPATORY IRRIGATION MANAGEMENT APPROACH



C INFORMATION AND GUIDELINES

Under this heading, the main information as well as important guidelines are given to assist the PIM Extensionist and other PIU staff with the execution of all the steps of the PIM Programme. The following icons are used for the following purposes:



Important information and/or guidelines.



Recommended **NOT** to do or to avoid certain situations.



Extension material, such as flip chart, maps or drawings, recommended to be used.



Document(s) recommended to be distributed.



Copy of documents and other information to be found in Annexes.



Special attention shall be given to village women.

STEP 1 RECONNAISSANCE AND PRELIMINARY VISITS

Target Group: Village leaders¹.

Field Staff Involved: PIM Extensionist together with PIM Support Team (i.e. PIU Institutional Specialist, PIM Specialist and/or Training Expert).

Timing: One to two weeks before Community Awareness Campaign (PIM Step 2).

Duration: Two to four weeks, depending on number of villages within command area of primary canal.

Main Purposes:

- Rapid assessment of the project area and their communities.
- Collection of relevant data and information from secondary sources.
- Brief introduction and explanation of the purpose of the Community Awareness Campaign before planning the date, time and venue of the Community Awareness Meeting to be conducted in the village(s).
- Collection of telephone number(s) where village leaders could be contacted.

Documents:

- IIP Brochure.

Visual Aids:

- Map(s) and/or satellite images of entire primary canal system with boundaries of its command area and location of villages.

INFORMATION AND GUIDELINES

1.1 Reconnaissance Visit


Prior to the Preliminary Visit to introduce the main aspects of the IIP and its PIM approach as well as to make an appointment for the Community Awareness Meetings, the PIM Extensionist and PIM Support Team shall conduct a Reconnaissance Visit to the area of the primary canal system and its communities in order to collect necessary information from the local administration and any other government and non-governmental institutions that is required to prepare the Preliminary Visits, such as:

- names of the villages;
- names and telephone numbers of the village leaders;
- map(s) of the area showing location of villages and roads; and
- relevant reports and other documents.

A short visit to the primary canal system shall also be conducted in order to get a first impression and to assess the distances between the villages as well as the road conditions.

1.2 Preliminary Visit

The PIM Extensionist together with the PIM Support Team shall contact the village leaders of the concerned villages to give a brief introduction of the objectives, approach and components of the IIP.

 It is important that the PIM Extensionist and PIM Support Team meet one or more village leaders of each village in person, because they will be responsible to prepare the Community Awareness Meeting by informing all the villagers about the date, time and venue of that meeting and to explain to them the importance of their presence.

¹ The village leaders comprise at least the Village Chief (*Sheikh al Qaria*), the Deputy Village Chief (*Aqil al Qaria*) and the Public Notary (*Al Ma'mun*).

During the Preliminary Visit to a new village, the contacted village leaders will be probably informed about the IIP for the first time, although they could be aware about its existence due to other activities implemented in the area. However, the contacted village leaders will not be aware of the objectives, approach and components of the IIP.

- ☞ It is important that the PIM Extensionist with the assistance of the PIM Support Team introduces and explains the IIP briefly and clearly and that the main purpose of this visit is to agree upon the date, time and venue for the Community Awareness Meeting, during which the IIP will be explained to and discussed in more detail with all the villagers attending that meeting.

At the end of the Preliminary Visits, the contacted village leaders and the PIM Extensionist and PIM Support Team shall agree upon the date, the time and the venue for the next meeting, during which the Community Awareness Meeting will be conducted.

- ☞ **Although the PIM Extensionist and PIM Support Team could propose the date for the next meeting, the contacted village leaders shall fix the date and time for the next meeting, which is most convenient for them. The PIM Extensionist shall adapt his/her planning as much as possible to the wishes of the farmers. For instance, during the planting and harvesting season, farmers would probably prefer to conduct the meetings very early in the morning or late afternoon.**

- ☞ It is also important that a place is chosen to convene the Community Awareness Meeting that is known to all farmers and where they can assemble and speak freely and quietly. For instance, the meeting shall **not** be held along a main road with heavy traffic (noise) or in front of shops with large crowds. Preferable places could be in the vicinity of the village mosque or the village school.

- ☞ The PIM Extensionist and PIM Support Team shall also collect one or more telephone numbers, on which the village leaders could be contacted.

1.3 Awareness Campaign Publicity

To inform as many farmers in all concerned villages about the planned Community Awareness Meetings, the PIM Extensionist and PIM Support Team could decide to make use of mass media by announcing the date, time and venue of the planned Community Awareness Meetings in the different villages on the (local) radio and/or in (local) newspapers, if any.

STEP 2 COMMUNITY AWARENESS CAMPAIGN

Target Group: All farmers, including landowners, sharecroppers and tenants as well as village leaders and representatives from local administration.

Field Staff Involved: PIM Extensionist together with PIM Support Team (i.e. PIU Institutional Development Specialist, PIM Specialist and Training Expert) and any other PIU staff.

Timing: Within one to two weeks after the Preliminary Visit (PIM Step 1).

Duration: One to two months, depending on the number of villages within the command area of the primary canal system.

Main Purposes:

- Introduction of PIU staff.
- Briefing the villagers about the IIP and its objectives, PIM approach and components, including the important role of the farmers.
- Assessment of interest among farmers to participate in planning, design, construction and management of their spate irrigation schemes, including contributions to the capital costs and the payment of the O&M costs by the farmers.
- Signing of Letter of Commitment.

Documents:

- IIP Brochure (Annex 2.1).
- (Model) Letter of Commitment (Annex 2.2).

Visual Aids:

- Public notices and/or banner.
- Flip Chart.
- Map(s) and/or satellite images of entire primary canal system and boundaries of command area.

INFORMATION AND GUIDELINES

2.1 Purpose of Community Awareness Campaign

The main purposes of the Community Awareness Campaign are:

- to inform all villagers in general and the farmers, including landowners, tenants and sharecroppers, in particular about the objectives, main principles, approach and components of the IIP as well as the expected role and responsibilities of the farmers during the different stages of the formation of Water Users' Groups (WUGs) and Water Users' Association (WUA), design and construction of the scheme, and the management of the irrigation system, including the assessment and collection of Irrigation Service Fees (ISFs) to pay for the O&M of the irrigation infrastructure;
- to introduce all concerned PIU staff, who will work very closely with the farmers during all phases of the PIM Programme;
- to introduce staff of supporting agencies present during the meeting.



It is important to invite representatives from all agencies that will be directly and indirectly involved in the implementation of the PIM Programme, including staff of the TDA or RAO.

If all concerned farmers have been properly informed, they will have a clear picture of what they can realistically expect during the implementation of the IIP and its PIM Programme as well as which agencies will be involved in the execution of its different components and specific activities.

One of the main aims of the Community Awareness Campaign is that the farmers shall become aware that they themselves have to participate actively in all stages of the PIM Programme, including:

- community awareness campaign, during which the main aspects and conditions of the IIP will be explained and discussed;
- formation of WUGs and WUA, including elections;
- planning and design meetings, including the approval of the proposed rehabilitation and improvement works;
- planning and execution of rehabilitation and improvement works by the WUA;
- supervision and final inspection of rehabilitation and improvement works to be executed by contractors;
- technical and institutional strengthening of the WUA through the provision of training and support services;
- planning and implementation of agricultural extension programme;
- preparation and approval of Irrigation Management Transfer (IMT) Agreement;
- operation and maintenance (O&M) of the entire canal system as well as the administrative and financial management of the WUA; and
- annual inspections and audits to evaluate the O&M of the irrigation infrastructure by the WUA and the management of the WUA itself.

If the farmers would actively participate in the implementation of all stages of the PIM Programme, they could expect the following benefits:

- the rehabilitation and improvement works will reflect their preferences as much as possible as farmers will be actively involved in the planning and design;
- farmers will have control over the quality of the rehabilitation and improvement works, which are executed by contractors, as they will be involved in the supervision of these civil works and they undertake some civil works themselves;
- farmers have full control over the scope and quality of the maintenance works and they can decide which works will be undertaken on priority basis as their WUA will be fully responsible for the maintenance of the entire canal system;
- available spate water will be allocated and distributed equitably among all water users as their WUA will be fully responsible for the operation of the entire irrigation system;
- the farmers will not depend upon the provision of irrigation services by Government-employed staff as their WUA can employ and dismiss its own staff for the daily O&M of the scheme;
- farmers have full control over their financial resources as the ISFs and any other service charges will be set and collected by the WUA;
- less conflicts regarding the distribution of spate flows due to improved communication between water users within their WUA and between the WUA and the operators of the diversion structures; and
- any conflicts between water users could be resolved easier.

In addition to the O&M of the irrigation scheme, the WUGs and WUA could also undertake other activities to assist its members with:

- enhancing water use efficiency by introducing improved water management technologies and practices; and
- enhancing productivity of irrigated agriculture by supplying seeds, fertiliser and other inputs as well as providing agricultural extension services.

2.2 Guidelines for Preparation and Implementation of Community Awareness Meetings

A Community Awareness Meeting shall be conducted at least in each (main) village located within the command area of the primary canal system.

Regarding the preparation and execution of the Community Awareness Meetings, the following guidelines shall be observed:

Basic Guidelines for Planning Community Awareness Meeting:

- At least one week before the planned Community Awareness Meeting, the PIM Extensionist shall visit the concerned village to contact the village leaders in order to plan and agree upon the date, time and venue of this village meeting that is most convenient for the concerned farmers.

- It is very crucial that a convenient place is selected where all the farmers from the village(s) can come easily and speak freely and where the meeting could be conducted quietly and undisturbed. Ideal places would be in the vicinity of village school, mosque or the village meeting room, if any.
- To ensure that the Community Awareness Meeting can be carried out quietly and undisturbed, places along busy roads with heavy traffic or at places with many passer-byes, such as shops and market place, shall be avoided.
- The PIM Extensionist shall contact the concerned village leaders one or two days before the planned Community Awareness Meeting to confirm if the villagers have been informed about the date, time and venue of the meeting, so that the planned meeting can be conducted.

☞ To inform as many farmers in the concerned village about the planned Community Awareness Meetings, it is recommended that the PIM Extensionist shall post a written notice at public places in the village and/or use banners mentioning the date, time and venue of the planned Community Awareness Meetings.

Basic Guidelines for Conducting Community Awareness Meeting:

- A Community Awareness Meeting shall be conducted at least in each main village situated within the command area of the primary canal system.
- The PIM Extensionist shall arrive at least 30 minutes before the agreed time at the agreed venue to prepare the Community Awareness Meeting and to check if the village leaders have informed the farmers in their village. If not, the PIM Extensionist shall request the village leaders to do so by using the loudspeakers of the village mosque, if any, or any other means of communication.
- The duration of each Community Awareness Meeting shall not be longer than 1½ hours. The presentation given by the PIM Extensionist shall not last longer than 30 to 45 minutes giving the farmers sufficient time to ask questions following the presentation.
- To ensure that the attending farmers fully understand the information given during the presentation, it is crucial that the PIM Extensionist uses simple language and he/she speak slowly, clearly and loudly enough so that all attending farmers can hear him/her.
- To ensure that the attending farmers fully understand the presentation, it is very important that the PIM Extensionist does not use too many technical terms that are not familiar to all farmers and he/she shall avoid the use of English words or expressions that are difficult to understand for farmers. Use the terminology related to irrigation and agriculture, which are commonly used by the farmers.
- Before the start of the Community Awareness Meeting, all names of all attending farmers shall be registered. However, it is not recommended to register the names of the attending farmers during the presentation and subsequent discussions as it would distract the attention of the attending farmers.
- At the end of the Community Awareness Meeting, copies of the IIP Brochure shall be handed out to the attending farmers and the staff of any supporting agencies invited for the meeting.
- About ten to fifteen copies of the IIP Brochure shall also be given to the village leaders, which they shall distribute among other farmers who could not attend the Community Awareness Meeting.

2.3 Structure of Community Awareness Meeting

To conduct the Community Awareness Meeting effectively, it is important that it is structured as follows:

Introduction

The Community Awareness Meeting shall start with an introduction, during which the PIM Extensionist shall welcome all farmers and other villagers who have come to the meeting and thank the village leaders for organising the meeting. Following the welcome, the other staff of the PIU and any other supporting agencies present at the meeting shall be introduced briefly to the attending farmers and other villagers. Before starting with the presentation, the main purpose as well as major subjects and the expected duration of the meeting shall be told to the participants.

Presentation

The presentation shall be given by the responsible PIM Extensionist. However, the total length of the presentation shall not exceed 40 minutes in order to keep the attention of the audience. The presentation shall cover the following topics:

- Main objectives and activities of the IIP;
- Main actors involved in implementation of the IIP;
- Main conditions for implementation of the IIP;

- Main principles of the PIM approach, including active participation of farmers in all stages of the PIM Programme, principle of partnership between the farmers and the IIP during the implementation of the PIM Programme, formal approval of all major decisions by farmers;
- Village women will be informed and consulted throughout the entire PIM Programme;
- Formation and strengthening of WUOs at different levels to ensure effective O&M of irrigation infrastructure following transfer of the O&M responsibility;
- Expected farmers' participation during all steps of the PIM Programme;
- Expected farmers' contributions towards capital costs of rehabilitation works and the O&M of the irrigation structures following the transfer of the O&M responsibility;
- Provision of support and training to ensure that all WUOs have the necessary skills and knowledge to participate effectively in design, supervision and execution of rehabilitation works and to take over the O&M responsibility for the transferred irrigation infrastructure, including agricultural extension to assist farmers to improve their irrigated agriculture; and
- Expected benefits for the farmers.



During the presentation, a Flip Chart summarising all the major aspects of the IIP and its PIM approach shall be used.



The IIP Brochure shall be used for the preparation of the Flip Chart.

Questions and Discussion

Following the presentation, the attending farmers and other villagers shall have the opportunity to ask questions about the IIP and the PIM Programme.



As the farmers are the main target group for the Community Awareness Campaign, they shall ask the questions and participate in any discussions. If other persons than the farmers tend to dominate the discussions, the PIM Extensionist shall intervene in order to allow the attending farmers to ask their questions.



At the end of the questions and discussion, it would be useful if the PIM Extensionist could give a summary of the major issues discussed as well as any conclusions and decisions made during the session.

Assessment of Farmers' Interest

At the end of the Community Awareness Meeting, the PIM Extensionist with support of PIM Support Team shall assess if the farmers, who have attended the meeting, are enthusiastic and willing to participate actively in the rehabilitation of their irrigation scheme, including contributions to the capital costs, and to take up the O&M responsibility for the transferred irrigation infrastructure, including the payment of the O&M costs.

Closure

The PIM Extensionist shall wrap up the meeting by thanking all the attending farmers and staff of supporting agencies for their attention and participation.



At the end of the Community Awareness Meeting, a copy of the IIP Brochure shall be handed out to the attending farmers and the staff of any supporting agencies invited for the meeting.



About ten to fifteen copies of the IIP Brochure shall also be given to the village leaders, which they shall distribute among other farmers who could not attend the Community Awareness Meeting.



A copy of the IIP Brochure can be found in Annex 2.1.



If it is obvious that village women cannot attend or participate actively in the Community Awareness Meetings due to the presence of male villagers, the PIM Extensionist shall arrange separate meetings for the women in each village, during which all major aspects of the IIP and its PIM approach are explained to them.

2.3.1 Involvement of Village *Mullah*

The PIM Extensionist shall also contact the *Mullah* of each village situated in the command area of the primary canal systems to discuss the possibility to raise the awareness among the farmers by discussing the main aspects during the *Juma* prayers.

2.4 Exchange Visit

If the Community Awareness Meeting has revealed that the concerned farmers are reluctant to participate in the implementation of the IIP, it is recommended to organise an Exchange Visit to another primary canal system, where farmers have started to organise themselves in WUGs and WUA.

The planning and implementation of an Exchange Visit is a relatively labour-intensive exercise, because it has to be prepared carefully in order to ensure that it is successful. In the event that the Exchange Visit is not successful, the farmers could have serious doubts about the intention and capabilities of the agencies involved in the implementation of the IIP. As a result, they could decide to stop any further participation in the IIP.

To ensure that the Exchange Visit is properly planned and implemented, the following steps are recommended to be carried out:

Introduction and Explanation of Exchange Visit

Before the PIM Extensionist with the assistance of the PIM Support Team could start with the preparation of the Exchange Visit, he/she has to introduce and explain the purpose to the concerned farmers and assess their interest to participate in the proposed visit.

Identification of WUGs and/or WUA

If the concerned farmers have expressed their interest to participate in the proposed Exchange Visit, the PIM Extensionist shall identify a few WUGs and/or WUA that could be visited during the planned tour. During the identification of appropriate WUGs and/or WUAs, it is important that these WUGs and/or WUA are not too far away, so that it would be possible to conduct the Exchange Visit on one day.

Selection of WUGs and/or WUA

As soon as a number of appropriate WUGs and/or WUA have been identified, the PIM Extensionist shall visit these WUGs and/or WUA in order to:

- introduce and explain the purpose of the planned Exchange Visit;
- assess if the WUGs and/or WUAs are willing to be involved in the planned Exchange Visit;
- to agree upon convenient dates for the proposed Exchange Visit shall be fixed.



It is important that the WUG Leader and/or WUA Chairperson shall propose dates that are convenient for them to receive the visiting farmers during the Exchange Visit.



The PIM Extensionist shall collect one or more telephone numbers on which the WUG Leader and/or WUA Chairperson could be contacted.

Preparation of Exchange Visit

As soon as the WUGs and/or WUA have been selected for an Exchange Visit, the PIM Extensionist shall convene a meeting with the concerned farmers to discuss and agree upon the dates to visit the selected scheme(s).



The group participating in the Exchange Visit shall not be too large to ensure that all members will actively participate as well as for logistical reasons. It is also important that landowners, sharecroppers and tenants are represented by at least one person during the Exchange Visit.





If possible, at least one village woman shall also participate in the Exchange Visit, so that she can inform the other village women about the information collected during the Exchange Visit.

As soon as the concerned farmers have agreed upon the composition of the group and the dates for the Exchange Visit, the PIM Extensionist shall organise transport.

Implementation of Exchange Visit

The main purpose of the Exchange Visit is to facilitate exchange of information and discussions between the visiting farmers and the WUG Leaders and/or WUA Management Board members of the host scheme(s).

-  It is, therefore, very important that the PIM Extensionist or any member of the PIM Support Team shall not interfere in these discussions, if not necessary. Their main role is to supervise the visit, to facilitate the exchange of information and discussion, and to provide additional information, if necessary.
-  During the visits to selected scheme(s), the PIM Extensionist could make pictures that could be used during the Conclusion Meeting planned after the Exchange Visit.

Conclusion Meeting

Within one to two weeks after the Exchange Visit, the farmers, who have participated in the visit, shall inform all other farmers about their main findings and conclusions during one or more village meetings. If pictures have been made during the visit, they shall be used to illustrate the presentation.

2.5 Preparation and Signing of Letter of Commitment

If the majority of the concerned farmers has expressed their interest to participate in the IIP, a Letter of Commitment shall be prepared and signed by the village leaders on behalf of the (majority of) farmers.



A copy of a (Model) Letter of Commitment can be found in Annex 2.2.

STEP 3 AGRO-ECONOMIC, ENVIRONMENTAL, SOCIO-ECONOMIC AND GENDER SCREENING STUDIES

Target Group: Village leaders, resource persons, landowners, sharecroppers, tenants and village women.

Field Staff Involved: Screening Study Team comprising at least the PIM Extensionist, PIU Institutional Development Specialist, PIM Specialist and PIU Agronomist.

Timing: Within a few weeks after the completion of the Community Awareness Campaign (PIM Step 2).

Duration: One to two months, depending on number of villages located within the command area of the primary canal system.

Main Purposes:

- To collect reliable data and information about agro-economic, environmental, socio-economic and gender aspects of the (selected) villages situated in the command area of the spate irrigation scheme.
- To establish the baseline/benchmark data for the assessment of the economic, financial, environmental and socio-economic effects and impact of the implementation of the IIP more accurately.
- To identify key persons within the communities who could play an important role in the planning and implementation of activities during subsequent steps of the PIM approach.
- To establish firm links between the farmers and the PIM Extensionists based on mutual respect, which are essential for the implementation of other activities during subsequent steps of the PIM approach.

Documents:

- Survey forms. (Annex 3.1)
- Map(s) and/or satellite images of primary canal system.
- IIP Brochure.

Visual Aids:

- Map(s) and/or satellite images of primary canal system.
-

INFORMATION AND GUIDELINES

The following guidelines have been developed for the successful execution of the Screening Studies by the Screening Study Team. To collect reliable information and data about the scheme communities and their inhabitants, a number of data collection techniques are available which have to be used by the Screening Study Team during the execution of the Screening Studies in the communities.

The implementation of the Screening Studies is also a very good opportunity for the Screening Study Team to get a good understanding of the agro-economic, environmental, gender and socio-economic aspects of communities. It is also an opportunity to establish relationships and a basis for mutual confidence, which will be important during the planning and execution of activities during subsequent steps of the PIM Programme.

The different steps of the Screening Studies as well as different data collection techniques are described in the following sections.

3.1 Planning of Screening Studies

Before the execution of the Screening Studies could commence, the Screening Study Team shall meet the village leaders to discuss and agree upon the most convenient dates for conducting the Screening Studies. This meeting could take place at the end of the Community Awareness Meeting(s) or during a separate visit.

3.1.1 Selection of Sample Villages

If there are more than five villages situated in the command area of the primary canal, a number of sample villages shall be selected for conducting the Screening Studies. To ensure that the Screening Studies are representatives for the entire command area, at least one sample village shall be selected in the upper, middle and tail reach of the primary canal.

3.2 Collection of Information and Data from Secondary Sources

Prior to the start of the Screening Studies, the Screening Study Team shall visit the local offices of relevant agencies, such as the Agriculture Department, to collect additional, more detailed data and statistics about the concerned (sample) villages, which have not been collected during the Reconnaissance Visits (Step 1 of PIM Programme). The following (additional) information and data could be collected from secondary sources:

- size and social composition of the population;
- data on individual landholdings as well as number of wells; and
- existing cropping pattern, average yields as well as market prices.

3.3 Preparation of Screening Studies

Before the Screening Studies can be implemented, the PIM Extensionist and other PIU staff shall prepare the exercise carefully by collecting sufficient copies of all survey forms as well as sufficient stationary, such as white paper, pencils, erasers, stapler and a ring-binder file to keep the completed survey forms and other collected information together.

3.4 Data Collection Techniques

In order to collect the required information during the Screening Studies, the Screening Study Team could use different data collection techniques¹, which are described in the following sub-sections.

3.4.1 Formal Structured Interviews

Conducting formal structured interviews by using survey forms is one way to collect the required information and data about the village(s) and their inhabitants. The Screening Study Team would have the choice to conduct the interviews with one individual farmer and/or key-informant or with a group of 5 to 20 farmers. The choice depends on the type of information to be collected.

Individual Interviews

One important reason to conduct interviews with individual farmers and/or key-informants is the collection of personal information and/or information which individuals would not provide (easily) in the presence of others. For example, the PIM Extensionist and other PIU staff could only collect data on wealth indicators through interviews with individual farmers as they do not like to provide this type of information during group interviews.

The individual interviews shall preferably take place in the house of the interviewees, which will also be an opportunity for the Screening Study Team to observe different issues, such as the quality of the house, the presence of different amenities (i.e. electricity) and household possessions (i.e. means of transport, electric appliances, livestock).

Group Interviews

The main advantage of conducting group interviews is the reliability of the collected information as incorrect information given by one individual would be corrected by the others present during the group interview. In addition, the participants in the group interview would have the opportunity to discuss the different subjects before giving the answer.

¹ Terms as Rapid Rural Appraisal or Participatory Rural Appraisal techniques are often used for these data collection techniques.

3.4.2 Informal Discussions

Although a large amount of information and data will be collected during the formal interviews with the help of the prepared survey forms, there could still be additional information that would be useful during the planning of activities during subsequent steps of the PIM Programme.

There are also issues, for which information cannot always be collected through formal individual or group interviews and using (semi-)structured survey forms. For instance, the level of social cohesion among the farmers or the presence of (dormant) disputes between the farmers and/or between the community and other village(s) is difficult to assess during formal interview meetings with individuals or a group of farmers.

It is, therefore, crucial that the Screening Study Team has the opportunity to carry out informal discussions with individuals and/or small groups of farmers in order to collect additional information, which is not directly covered by the survey forms. The timing and place of these informal discussions depend on the circumstances. Sometimes, it is possible to discuss different subjects in the evening while drinking a cup of tea. Another occasion could be an informal transect walk through the village and/or the fields.

3.4.3 Transect Walks

To know the village and the existing agriculture better and to have the opportunity to have informal discussions, the Screening Study Team shall undertake one or more transect walks through the village(s) and their fields in the company of a small group of farmers.

During the transect walks through the village(s) and the fields, the Screening Study Team will have the opportunity to observe different aspects, such as the existing cropping pattern and the quality of the crops as well as the presence of agricultural equipment, such as tractors. The Screening Study Team would also have the chance to ask the farmers, who are participating in the Transect Walk or who they meet during the walk, to explain certain specific issues. For instance, the Screening Study Team could ask the farmers to explain the main reason(s) for growing certain (low-value) crops and not other (high-value) crops, the reliability of water supply from spate canals and/or existing wells, prevalence of crop diseases and the application of pesticides and herbicides and so on.

3.4.4 Village Mapping

To have a better understanding of the utilisation of the lands within the village boundaries by different groups, such as farmers, women, livestock owners and landless households, a number of group meetings with representatives of these different interest groups shall be arranged. During these group meetings, the participants shall indicate on a large map of the village which areas are used for which particular purposes, such as farming, grazing, cutting fodder, collection of fuelwood and fetching water. If necessary, one or more transect walks shall be carried out, during which the participants could indicate more accurately the land use.

3.5 Structure of Screening Studies

For the successful implementation of the Screening Studies, the following recommended guidelines shall be followed by the Screening Study Team as much as possible:

Introduction Meeting

Soon after their arrival in the village, the Screening Study Team shall organise an Introduction Meeting, during which they have to explain and discuss the purpose and expected duration of the Screening Studies as well as the expected role of the village leaders and other villagers, including village women, during the group and individual interviews, transect walks and village mapping.

Initial Transect Walk

Before the Screening Study Team start with the formal interviews, they shall begin with an Initial Transect Walk through the village(s) and/or the fields, which would be helpful during the group interviews as the PIM Extensionist and other PIU staff would have a first impression about the village(s) and the existing cropping patterns. For this purpose, one or more village leaders and/or key farmers shall be invited to accompany the Screening Study Team during its Initial Transect

Walk.

Group and Individual Interviews

Following the Introduction Meeting and the Initial Transect Walk, the Screening Study Team could commence with the interviews. It is recommended to start with group interviews on village amenities, village history and demography in order to have a better understanding of the village(s) and their inhabitants.

Transect Walks and Village Mapping

These activities shall be planned as required.

3.6 Types of Screening Studies

3.6.1 Agro-Economic Screening Studies

The Screening Study Team shall conduct group and individual interviews (see 3.4.1), village mapping and transect walks through the fields to collect data about all agro-economic aspects, including:

- total arable and cultivated area(s) in the (sample) village(s), including assessment of total area under spate and well irrigation, (main) sources of irrigation water (spate water and/or wells) and their reliability;
- existing cropping pattern, including assessment of total area under which crops in *Seif* and *Kharif* season as well as two seasonal crops;
- varieties and amounts of seed used per unit of land, including treatment of seed, costs as well as sources of purchase;
- types and amounts of fertilisers, insecticides and herbicides used for each (major) crop, including costs, timing, method and frequencies of use;
- number of labour days for each (major) crop, including sources (household/hired), types of field labour (ploughing, weeding and/or harvesting) and costs;
- yields for all (major) crops for spate and well irrigated fields;
- farm gate prices for all (major) crops;
- marketing outlets for all (major) crops;
- existing crop rotation practices and for which reason(s);
- prevalence of plant diseases, pests and other constraints in crop production;
- methods of storage, including (chemical) treatment of stored crops, and assessment of storage losses;
- types and methods of crop processing;
- availability and quality of agricultural extension and training services, including farmer-initiated and managed field trials and demonstrations; and
- assessment of possible changes in cropping pattern as envisaged by the farmers due to the implementation of the IIP.



Copies of Agro-Economic Survey Forms can be found in Annex 3.1.

Based on the information collected by the Agro-Economic Screening Studies, the necessity to provide agricultural support services for the development of irrigated agriculture by the individual farmers could be assessed (see PIM Step 14).

3.6.2 Environmental Screening Studies

The practice of irrigated agriculture has a number of generic environmental issues associated with it, largely due to the type of activities that are undertaken and their scale. In addition to the biodiversity and potential contamination issues associated with the use of agro-chemicals, the main issues are related to water quality and quantity. Construction of dams and diversion structures can interfere with fish migration and spawning and alter fluvial processes, such as reduced downstream flows in rivers.

River training works to prevent flooding and improve water abstraction can lead to loss of riparian habitat and reduce temporary wetlands that may be important for migratory birds, amphibians or characteristic flora.

By conducting group and individual interviews and transect walks through the fields, the Screening Study Team shall assess existing environmental issues as well as any expected environmental impact of the envisaged rehabilitation and improvement works under the IIP, including:

- contamination of ground water and health risks due to (increased) utilisation of fertilisers and other agro-chemicals;
- waterlogging and salinity problems;
- water-borne diseases, such as malaria;
- loss of wetlands and/or habitats of fauna and flora; and
- competition between different demands for water.

The Screening Study Team shall also assess the need for necessary measures to mitigate existing environmental risks and any negative environmental impact as much as possible.



Copies of Survey Forms for Environmental Screening Studies can be found in Annex 3.1.

3.6.3 Socio-Economic Screening Studies

The Screening Study Team shall conduct group and individual interviews, informal discussions as well as transect walks to collect information about the following socio-economic issues:

- history and demographic profile of the (sample) village(s), including socio-cultural composition of the village population, in- and out-migration;
- presence of social amenities in (sample) village(s);
- land tenure, including existing land distribution pattern, tenancy/sharecropping and sale of land;
- presence of solidarity mechanisms and forms of cooperation in the (sample) village(s), including existence of cooperative societies and any other village organisations;
- wealth indicators;
- use of spate and base flows for irrigation; and
- use of ground water for irrigation.



Copies of the Socio-Economic Survey Forms can be found in Annex 3.1

Main Purposes of Socio-Economic Screening Studies:

- On the basis of the collected socio-economic data, the Screening Study Team could assess social cohesion and solidarity within the (sample) villages, which are important indicators for the viability of group formation, cash contributions and transfer of irrigation management.
- Screening Study Team would have a picture of the socio-economic and socio-cultural composition of the (sample) villages, which is crucial to assess if all socio-economic and/or socio-cultural groups participate actively in all stages of the scheme development process and if they are duly represented in the future WUGs and WUA.
- Screening Study Team could assess the existence of (traditional) forms of cooperation that could be mobilised for the execution of rehabilitation works through the WUA.
- Screening Study Team would be able to identify any social disputes within and/or between the (sample) villages that may affect the future O&M of the primary canal system through the WUA.
- Screening Study Team would be able to identify key persons in the (sample) villages, who could play an important role as “facilitators” or “social mobilisers” during the planning, preparation and implementation of different activities during subsequent steps of the PIM Programme.
- The socio-economic data collected during the Socio-Economic Screening Studies will constitute the baseline/benchmark data for the assessment of the socio-economic impact of the IIP following the completion of the rehabilitation works and the formal transfer of the O&M responsibility for the primary canal system to the WUA.

3.6.4 Gender Screening Studies

Through group and individual interviews with village women, the Screening Study Team shall collect information on various gender issues, including:

- role of village women in agriculture and livestock;
- assessment of women’s workload, including domestic tasks;
- assessment of nutrition and health issues;
- marketing of agricultural produce and/or other income-generating activities;
- decision-making within households, including monetary expenditures;
- education and training; and
- membership of village-based organisation.



Copies of the Gender Survey Forms can be found in Annex 3.1

The Screening Study Team shall assess the need for the development and implementation of any measures to alleviate any negative impact of the execution of the IIP on the position of women in the villages as well as possible activities to strengthen their socio-economic situation.

3.7 Basic Rules for Execution of Screening Studies

The group interviews shall be carried out by at least two Screening Study Team members together, so that they can support each other in their effort to understand the different aspects of the (sample) village(s) and to discuss among themselves those issues, which are not immediately clear or very complicated.

During the implementation of the Screening Studies, the Screening Study Team shall pay special attention to the following basic rules:

- To conduct the group interviews properly, it is essential that a place is chosen that is known by all farmers and where they can assemble comfortably and speak freely and quietly.
 - It is important that each interview session shall not last longer than 2 to 3 hours. If a session lasts longer than 2 to 3 hours, the concentration of the respondents (farmers) and the interviewers will become less, which will negatively affect the quality of the information obtained. It is, therefore, recommended to stop a group interview session as soon as the Screening Study Team notice that the participants becomes tired and less motivated to answer the questions.
 - It is important that all answers given by the respondents are written down on the survey forms for the following two reasons: a) to check easily if no important questions have been forgotten; and b) all information collected is available in one document, which would facilitate the processing and analysis of the collected information. If there is not sufficient space under each question to write down the answer, use the backside of the previous page.
 - Always fill in the survey forms with pencil in order to make it easy to make corrections and changes.
 - It is important to respect all appointments made for interviews as well as to be polite and patient as the farmers are giving a lot of their time to assist the Screening Study Team during the implementation of the Screening Studies.
 - During a group interview, it is recommended that one Screening Study Team member asks the questions, whereas another writes down the answers given by the respondents. In this way, the Screening Study Team member asking the question can concentrate on the interview, whereas the other on writing down all the acquired data and information completely and accurately.
 - At the end of each interview, the Screening Study Team member(s) shall check if all questions on the survey forms have been answered.
- ✘ Never appear to be in a hurry to finish the interviews and always give the respondents enough time to consider their replies. If a question is not properly understood, formulate it in another way and always make sure to speak clearly and not too quickly. If the respondents want to discuss subjects that are not (directly) part of the survey, they shall be allowed to do so, because it could reveal important information. However, very long discussions shall be cut short to ensure that the duration of the interview will not be extended too much.
- ♀ It is very important that the village women have the opportunity to participate actively in all Screening Studies and not only during the Screening Study on Gender. If necessary, separate meetings for the village women shall be arranged, so that they can express freely their opinions and preferences during the group interviews and village mapping. One or more transect walks with only village women could also be planned.

3.7.1 Guidelines for Group and Individual Interviews

With regard to the execution of group and individual interviews, the following guidelines shall be strictly applied during the Screening Studies:

- In principle, only one group interview for each subject shall be conducted in each (sample) village.
- For each group interview, knowledgeable persons shall be invited. For instance, sharecroppers, tenants and landholders leasing land to sharecroppers shall participate in the group interview on tenancy and sharecropping.
- At least 10 individual interviews on wealth indicators shall be conducted in each (sample) village.
- To ensure that the individual interviews are representative, the individual households shall be selected randomly in accordance with the a set of criteria:

- Size of the landholdings shall be representative of the landholding patterns of the (sample) village;
 - If land is owned and/or cultivated by women (i.e. female-headed households), at least one female-owned and/or -operated farm shall be selected; and
 - If land is cultivated by sharecroppers and/or tenants, at least one households that cultivates other persons' land shall be selected.
- Three to five individual interviews on tenancy and sharecropping shall be conducted in each (sample) village where a significant proportion of land (25% and more) is cultivated under tenancy and/or sharecropping arrangements.

STEP 4 ASSESSMENT OF DEFERRED MAINTENANCE AND REHABILITATION REQUIREMENTS

Target Group: Government-employed O&M staff and Canal Masters.

Field Staff Involved: Design Engineers with support from PIM Extensionist, if required.

Timing: Within one month after the completion of the Community Awareness Campaign (PIM Step 2).

Duration: Several months.

Main Purposes:

- Inventory of all as-built irrigation and associated structures.
- Detailed inspection of all spate irrigation infrastructure and associated structures in order to assess deferred maintenance, rehabilitation and improvement requirements.
- Preparation of report on deferred maintenance, rehabilitation and improvement requirements.

Documents:

- As-built drawings, if any.
- Map(s) and/or satellite images of entire spate irrigation system.

Visual Aids: None

INFORMATION AND GUIDELINES

4.1 Inventory of As-Built Structures

An inventory of all as-built irrigation infrastructure and associated structures (i.e. road culverts, bridges) within the command area of each spate irrigation system is required in order to assess the alignment, size and length of entire canal system as well as the types, number, size and location of control and associated structures along the canal system.

A complete inventory of all as-built structures within the command area of each spate irrigation system will facilitate the assessment of deferred maintenance and rehabilitation requirements.

An accurate as-built inventory of all scheme components, including canals, regulators, flow division structures, outlets and associated structures will also form the basis for the preparation of the annual O&M plans by the WUAs and the concerned agencies responsible for the O&M of the diversion weirs.

4.2 Assessment of Deferred Maintenance and Rehabilitation Requirements

If farmers are asked to take over the O&M responsibility of a spate irrigation system that is in a poor condition, they may argue that they will not be able to operate the scheme, because they will be unable to raise the necessary funds to finance the deferred maintenance or even rehabilitation and improvement works. As a result, the farmers may refuse to take over the O&M responsibility for the spate irrigation system.

Therefore, a comprehensive assessment of deferred maintenance and rehabilitation requirements shall be carried out in order to have an accurate and up-to-date picture of the general condition of the entire spate irrigation system and to assess the scope and preliminary costs of the necessary deferred maintenance and rehabilitation works.

In order to assess the deferred maintenance and rehabilitation requirements, the Design Engineer(s) shall carry out a detailed inspection of the physical condition of all irrigation infrastructure and associated structures within the command area of each spate irrigation system in collaboration with the concerned Government-employed O&M staff and the Canal Masters, because they could provide valuable information about each structure.

4.3 Preparation of Report on Deferred Maintenance and Rehabilitation Requirements

Following the assessment of deferred maintenance and rehabilitation requirements, the Design Engineer(s) shall prepare a Report on Deferred Maintenance and Rehabilitation Requirements, in which all the findings, conclusions and recommendations are presented.

With regard to the deferred maintenance and rehabilitation requirements, the report shall contain the following information:

- Date of inspection;
- Location of works;
- Type of works identified with indicative quantities and relevant comments related to the need for repairs; and
- Classification of works (maintenance or rehabilitation/improvement) and priority (top, second, lowest).

This report will form the basis for the participatory planning and design meetings with the WUA in order to prepare and agree upon a plan for the execution of deferred maintenance and rehabilitation works (PIM Step 7).

4.4 Role of PIM Extensionist

The PIM Extensionist does not have a specific role during the assessment of the deferred maintenance and rehabilitation requirements. If necessary, the PIM Extensionist could assist the Design Engineer(s) by contacting the concerned Canal Masters.

STEP 5 ASSESSMENT OF EXISTING WATER RIGHTS, WATER MANAGEMENT AND OPERATION & MAINTENANCE PRACTICES

Target Group: Village leaders, Canal Masters, Government O&M staff and individual water users.

Field Staff Involved: Water Management Specialist, PIM Specialist and PIM Extensionist.

Timing: Within one month after the completion of the Community Awareness Campaign (PIM Step 2)

Duration: Several months.

Main Purposes:

- Collection and review of information on existing (traditional) water rights of the different diversion structures along the Wadi and individual farmers along the primary canal systems.
- Collection and review of information on existing (traditional) rules with regard to the distribution of base and spate flows at the level of the Wadi and the primary canal systems.
- Collection and review of information on existing procedures for the O&M of the diversion structures, primary canal system and tertiary canals.
- Preparation of report(s) on existing (traditional) water rights and water distribution rules as well as the actual O&M of the diversion structures, primary canal systems and tertiary canals.

Documents:

- Map(s) and/or satellite images of entire primary canal systems.
- O&M Manual(s), if any.
- (Annual) Maintenance Inspection Reports, if any.
- (Annual) O&M Plans and Budgets, if any.
- (Annual) Maintenance Implementation Reports, if any.
- (Annual) Operation Report, if any.
- (Annual) Flow Measurement Report, if any.
- All relevant documents on water allocation and water use rights.
- Terms of reference for O&M staff.

Visual Aids:

- Map(s) and/or satellite images of entire primary canal systems.

INFORMATION AND GUIDELINES

Legal Framework

The legal framework of spate irrigation management is mostly based on customs or unwritten laws, which stem from the Sharia'ah and can be defined as "the continued repetition of certain behaviours by a community in the conviction that such behaviours are legally binding". Customary rules are an instrument to implement the Sharia'ah and may vary from place to place depending on a number of local circumstances, including climate, water availability, socio-economic conditions and the prevailing Islamic schools.

Legal Status of Water

Based on the Sharia'ah, Article 1366 of the Civil Code provides that water is originally nobody's property (*mubah* or *res nullius*). As such, it is the entitlement of the whole community and may not be privately owned, unless contained in a receptacle (i.e. reservoir, canal) that separates it from the source. However, Article 8 of the 1994 Constitution states that all natural resources, including surface and ground water, are owned by the State, which is responsible for ensuring their optimum exploitation in the public interest. The Constitution prevails over any other written law, including the Civil Code. Since water is owned by the State, only the State may regulate the manner in which water may be used. According to Article 18 of the Constitution, no concessions for the exploitation of natural resources may be granted, except on the basis of a law, which shall determine the cases in which the State's property may be transferred freely as well as the modalities and the procedures for such transfer.

The new Water Law 2002 stipulates in Article 4 that water is a right that is accessible to all and does not become privately owned except by means of transport, acquisition or any other related methods.

Water Use Rights

The fundamental rule governing the use of water for irrigation purposes grants upstream users a priority right to irrigate his land. However, the downstream users may not be denied the right to surplus water after the upstream user has exercised his right to a quantity of water sufficient to satisfy his needs. The Civil Code contains a number of provisions regarding water use rights, such as:

- Article 1367 stipulates that *res nullius* water is the entitlement of whoever reaches it first, even if the water is located in someone else's property, but the water taken may not exceed the appropriator's needs;
- Article 1371 states that sufficiency is to be determined on the basis of water use when the land was first reclaimed or, if this use rate is unknown, on the basis of use when the land began to be irrigated. In spate irrigation, the quantitative measure of the right of the upstream user is customarily established at the height of man's ankle; and
- Article 1370 specifies that the right to use water for irrigation is an appurtenance to the land, so that it is inheritable but it cannot be sold separately from the land, neither may it be rented or donated, except in accordance with a recognised custom.

According to the Sharia'ah principles, water must be equitably allocated among the members of a water-using community and no changes in the distribution system may take place without the consent of all partners in the community. Reflecting the Sharia'ah and custom, the Civil Code has the following provisions:

- Article 1372 states that "a person is not allowed to draw water to irrigate land that has no water right if such appropriation harms those who have a water right";
- Article 1368 specifies that "a partner in a common canal has no right to connect another channel to it unless he obtains the other partners' permission";
- Article 18 states that "anyone using his right in a way that contravenes Sharia'ah and custom is liable for the damage caused to others as a result of his unjustified use".

The new Water Law 2002 has the following provisions with regard to water use:

- Article 6 states that all beneficiaries of any of the water resources shall enjoy the right to benefit from this resource in such a way as not to harm the interests of other beneficiaries and shall carry out all the duties required to him with respect to the conservation of these resources and safeguard them from depletion and pollution;
- Article 27 specifies that the right of water use authorises the holder thereof to dispense the water in such a way as not conflict with public interests and the prevailing customs and traditions in each water Zone or Water Basin;
- Article 28 states that traditional rights to use spate water for irrigation shall be exercised in accordance with regional traditions and customs; and
- No beneficiary may exceed the amounts or purposes spelled out by General Authority for Water Resources in the permit and must comply with all the terms spelled out in the license.

5.1 Assessment of Existing Water Rights and Water Management Practices

The main objective of the assessment of existing water rights and water management practices is to compare the existing allocation and distribution of spate water at Wadi and primary canal levels with the existing water (use) rights at both levels. In order to make such a comparison, the following two activities shall be carried out:

- collection and review of information on existing, both formal and informal, water rights with regard to the allocation and distribution of spate water between primary canal systems along the Wadi and between individual farmers along the primary canal system;
- collection and review of detailed information and data on the actual allocation and distribution of spate water between primary canal systems along the Wadi and between individual farmers along the primary canal system;
- collection of information on any conflicts over the allocation and/or distribution of spate water between primary canal systems along the Wadi and/or between farmers along the primary canal system; and
- collection of information and data on the conjunctive use of spate water and ground water, including the identification of areas where spate water is used together with ground water, capacity of open and tube-wells as well as frequency of irrigation.

☞ As it is not feasible to collect and review information and data concerning water rights, actual allocation and distribution of spate water and any water use conflicts along all primary canals, a number of primary canals shall be selected for detailed assessment in accordance with the following selection criteria:

- primary canals with modern diversion weirs and traditional diversion structures (i.e. *uqum*);
- primary canals from the upper, middle and tail reach of the Wadi; and
- primary canals with small, medium and large command areas.

5.1.1 Collection and Review of Information and Data

The information and data on existing water (use) rights and the actual allocation and distribution of spate water at Wadi and primary canal levels shall be collected and reviewed by the Water Management Specialist, PIM Specialist and PIM Extensionist by undertaking the following activities:

Existing Water (use) Rights:

- examination of relevant documents, reports and records; and
- interview of concerned (retired) Government staff, Canal Masters and any other resource persons.

Actual Allocation and Distribution of Spate Water:

- if existing and available, examination of all relevant documents and records of the concerned Government agencies, including Flow Measurement Records as well as (Annual) Operation Records, in which the actually irrigated areas are reported;
- interviews and discussions with Government staff responsible for the operation of the diversion weirs and the canal systems;
- interviews and discussions with Canal Masters;
- group interviews and focus group discussions with farmers in the upper, middle and tail reaches of the Wadi and the primary canal systems.
- observation and recording of allocation and distribution of spate water between primary canal systems along the Wadi and individual farmers along primary canals as well as conjunctive use of ground and spate water.

☞ To ensure that all important topics with regard to water (use) rights, actual allocation and distribution of spate water and any conflicts of use of spate water are covered during the interviews and focus group discussions, the Water Management Specialist, PIM Specialist and PIM Extensionist shall use check lists and/or survey forms.

5.1.2 Preparation of Water Rights and Management Report

Following the assessment and review of the existing water (use) rights and the actual allocation and distribution of spate water at Wadi and primary canal level, the Water Management Specialist and PIM Specialist shall prepare a Water Rights and Management Report, which shall contain the following issues:

Wadi level:

- description existing, both formal and informal, water (use) rights;
- description of actual allocation and distribution of spate water between the primary canals along the Wadi;
- description of any conflicts over the allocation and/or distribution of spate water; and
- analysis of any discrepancies between the existing water (use) rights and the actual allocation and distribution of spate water along the Wadi.

Primary canal level:

- description existing, both formal and informal, water (use) rights;
- description of actual allocation and distribution of spate water between the primary canals along the Wadi;
- description of any conflicts over the allocation and/or distribution of spate water;
- analysis of any discrepancies between the existing water (use) rights and the actual allocation and distribution of spate water along the (selected) primary canals; and
- description of conjunctive use of spate and ground water, including the total area under conjunctive use, capacity of different types of wells as well as frequency of irrigation.

This report will form the basis for the preparation of the envisaged Wadi Water Management Plan (PIM Step 17) and Primary Canal Water Management Plans (PIM Step 18) as well as for the development and execution of support and training activities to strengthen the technical capacities of the WUA and the concerned agencies responsible for the operation of the diversion weirs.

5.2 Assessment of Existing Operation and Maintenance Procedures and Practices

The main objective of the assessment of the existing O&M procedures and practices is to create a complete picture of the existing procedures and practices concerning the O&M of the entire spate irrigation systems, including diversion structures (i.e. weirs and *uqum*) and the canal systems from the primary canal down to the tertiary unit. Such a complete picture of the existing O&M procedures and practices can only be developed through the collection and analyses of information and data.

With regard to the O&M of the diversion structures, primary (and secondary) canals and the tertiary units, the following issues shall be covered during the assessment activities:

- role as well as number and qualifications of Government-employed staff, including their job descriptions;
- role of Canal Masters;
- role and responsibilities of farmers, including contribution of cash and/or labour;
- formal O&M procedures;
- actual O&M activities;
- available equipment and machinery;
- allocated and available budget;
- mechanisms and procedures for mobilisation of cash and/or labour among farmers;
- decision-making regarding diversion of spate water into primary canals (i.e. opening and closing head gates);
- decision-making with regard to scope and timing of execution of maintenance, including expected inputs from farmers;
- communication between Government-employed staff, Canal Masters and farmers regarding diversion of spate water into primary canal system;
- communication between Government-employed staff, Canal Masters and farmers concerning mobilisation of cash and/or labour for O&M of diversion weirs, traditional diversion structures and/or primary (and secondary) canals;
- communication between Government-employed staff, Canal Masters and farmers concerning scope and timing of maintenance works, including the required input from farmers; and
- decision-making and communication regarding, distribution of spate water within tertiary unit, scope and timing of execution of maintenance works as well as required inputs from each individual farmer.



As it is not feasible to collect and review information and data concerning water rights and actual allocation and distribution of spate water along all primary canals, a number of spate irrigation systems shall be selected for detailed assessment in accordance with the following selection criteria:

- schemes with modern diversion weirs and traditional diversion structures (i.e. *uqum*);
- schemes from the upper, middle and tail reach of the Wadi; and
- schemes with small, medium and large command areas.

Traditional Flood Assessment Indicators

During interviews and discussions with Canal Masters and key farmers, the Water Management Specialist, PIM Specialist and PIM Extensionist shall assess if traditional indicators are used to assess the volume of floods in the Wadi in order to make operational decisions regarding the allocation and distribution of spate water between primary canal systems along the Wadi. Possible traditional indicators may include:

- development of clouds over the catchment area, including size and colour;
- increased air moisture;
- behaviour of animals; and
- characteristics of initial flood, including size and/or colour.

5.2.1 Collection and Review of Information and Data

The information and data on existing O&M procedures and practices shall be collected and reviewed by the Water Management Specialist, PIM Specialist and PIM Extensionist by undertaking the following activities:

Existing O&M Procedures:

- examination of relevant documents, reports and records, including any O&M Manual and terms of reference for O&M staff; and
- interview of concerned (retired) Government staff, Canal Masters and any other resource persons.

Existing O&M Practices:

- if existing and available, examination of all relevant documents and records of the concerned Government agencies, including (annual) maintenance inspection reports, (annual) O&M plans, (annual) O&M budgets, (annual) maintenance implementation reports;
- interviews and discussions with Government staff responsible for the O&M of the diversion weirs and the canal systems;
- interviews and discussions with Canal Masters;
- group interviews and focus group discussions with farmers in the upper, middle and tail reaches of the Wadi and the primary canal systems; and
- observation and recording of the O&M of the diversion structures (i.e. weirs and *uqum*), primary (and secondary) canals and tertiary units.

☞ To ensure that all important topics with regard to existing O&M procedures and practices, including traditional flood assessment indicators, are covered during the interviews and focus group discussions, the Water Management Specialist, PIM Specialist and PIM Extensionist shall use check lists and/or survey forms.

5.2.2 Preparation of Operation and Maintenance Procedures and Practices Report

Following the assessment and review of the existing O&M procedures and practices at different levels of the selected spate irrigation systems, the Water Management Specialist and PIM Specialist shall prepare an O&M Procedures and Practices Report that covers all the above-mentioned issues with regard to the O&M of the diversion structures, primary (and secondary) canals and tertiary units.

This report will form the basis for the preparation of (revised) O&M Manual(s) as well as for the development and execution of support and training activities to strengthen the O&M capacities of the WUAs (PIM Step 13) and the concerned agencies responsible for the management of the diversion weirs.

5.3 Role of PIM Extensionist

During the assessment of the existing water (use) rights, water allocation and distribution, and O&M procedures and practices, the main role of the PIM Extensionist will be the planning of meetings with Canal Masters, individual farmers as well as group of farmers for interviews and focus group discussions on these topics. If necessary, the PIM Extensionist shall support the Water Management Specialist and PIM Specialist during these meetings.

STEP 6 FORMATION OF WATER USERS' GROUPS

Target Group: All landowners, sharecroppers and tenants, who are owning and/or cultivating land within the command area of each tertiary unit.

Field Staff Involved: PIM Extensionist and PIM Support Team.

Timing: Within one month after the Screening Studies (PIM Step 3).

Duration: Two to three months, depending on the number of tertiary units within the command area of the primary canal system.

Main Purposes:

- **Identification of boundaries of tertiary units and preparation of lists of all farmers owning and/or cultivating land within each tertiary unit.**
- **Identification of existing, informal farmers' groups.**
- **Introduction of all major aspects of WUG and WUA during WUG Mobilisation and Formation Meetings.**
- Assessment of farmers' interest to establish WUG.
- Preparation of WUG Membership List.
- Formulation and adoption of first set of internal Rules & Regulations.

Documents:

- IIP Brochure.
- Map(s) and/or satellite images of entire primary canal system.
- Tertiary Unit List proforma. (Annex 6.1)
- Form 1: Request for Registration of WUG with WUG Membership List proforma. (Annex 6.2)
- WUG Non-Membership List proforma. (Annex 6.3)

Visual Aids:

- Flip Charts.

INFORMATION AND GUIDELINES

WUG Formation Principles

- Local user-based groups, such as WUG, are generally more effective than government agencies in carrying out equitable water sharing to individual farmers, achieving compliance with operating rules, collecting water fees and enforcing sanctions if required.
- The main principle underlying the introduction of WUGs is that they shall be developed as farmer-generated organisations as distinct from farmers participating in groups designed by others.
- The greatest possible level of flexibility in the process of formation of WUGs at the tertiary unit level shall be allowed. It must seek to create a sense of ownership on the part of the farming community by placing the responsibility for control of water distribution and the collection of ISFs as close to the farmer as possible. Sense of ownership of the system among the farmers ensures that damage is minimised, repairs are carried out quickly and that those damaging the system are made responsible for the repairs.
- The farmer at the grass root level is the key to successful O&M of irrigation systems and, therefore, he/she must feature at the centre of all activities as the end-user of water for irrigation purposes. The farmers' participation in the IIP must be seen as a partnership, in which they carry out certain responsibilities and functions as equal partners with the bulk water suppliers, such as the WUA and the operators of the diversion weirs. This partnership must be recognised by these bulk water suppliers.

6.1 Identification of Tertiary Units

One of the basic principles is that participation shall begin at the very lowest level in order to offer opportunities for all individuals to be involved. Another basic principle is that participation will be more predictable, productive and sustainable if it is channelled through appropriate organisations.

Therefore, the farmers will be organised in WUGs that will be formed on the basis of the smallest hydraulic units. In spate irrigation systems, the smallest hydraulic units are formed by the tertiary units and they can be defined as follows:

- the command area irrigated by a tertiary canal taking spate water from secondary canal or directly from the primary canal;
- the group of fields sharing the same *ma'aqam* in the primary canal.

Before the PIM Extensionist and PIM Support Team can commence with the organisation of farmers sharing the same tertiary unit in WUGs, the tertiary units must be identified. The PIM Extensionist shall undertake this task in close collaboration with the local Canal Master(s), who are locally known as *Sheikh al Obar* or *Sheikh al Shareej*. The recommended procedure for the identification of the tertiary units is as follows:

- collect map(s) of the entire primary canal system and/or (high resolution) satellite images with the canal system indicated;
- If existing maps and/or satellite images of the canal system are not available, the PIM Extensionist shall prepare sketches (schematics), on which the alignment of all canals, outlet structures and/or *ma'aqem* as well as the command area of each outlet structure and/or *ma'aqam* are indicated;
- walk-through along all canals in order to:
 - check if the number and location of outlet structures and/or *ma'aqem* as indicated on the map(s) are correct;
 - indicate the location of (additional) outlet structures and/or *ma'aqem* on the map(s) if they are not indicated yet;
 - collect information on the number and size of all plots of land served by each outlet structure and/or *ma'aqam*;
 - collect the names of the owners of all plots of land served by each outlet structure and/or *ma'aqam*; and
 - collect the names of the sharecroppers and/or tenants for each plot of land that is not cultivated by the owner him-/herself.



It may be possible that the tertiary units, including their boundaries and size, have already been identified during Step 4 or Step 5 of the PIM approach.

6.1.1 Preparation of Tertiary Unit Lists

Following the walk-through along all canals, the PIM Extensionist shall prepare a list for each identified tertiary unit, in which for each plot the following details are specified:

- name of farmer;
- name of village where farmer is resident;
- size of land within command area of tertiary unit;
- land tenure by indicating if farmer is owner-operator, sharecropper or tenant; and
- name of landowner if farmer is not owner of the land that he/she cultivates.



Copy of the prescribed Tertiary Unit List proforma can be found in Annex 6.1.

6.2 Identification of Existing Farmers' Groups

Reportedly, informal farmers' groups exist in varying degrees in the spate irrigation systems in response to decreasing O&M activities by the responsible Government agencies. These farmers' groups with a limited number of farmers have been formed spontaneously in order to take care of the O&M of minor canals, which convey spate water into the fields. However, there are also examples where these informal farmers' groups have even undertaken more important maintenance works.

In many cases, the traditional canal masters (i.e. *Sheikh al Obar* or *Sheikh al Shareej*) take the initiative to organise the farmers in informal groups in order to carry out maintenance works on minor canals. In some cases, farmers have even appointed small committees at village level to organise O&M and to avoid that gates are damaged or stolen.

These existing farmers' groups at village level are clear evidence that farmers are aware of the necessity of undertaking the O&M of "their" spate irrigation systems. It also shows that farmers have started the initiative without waiting for help from outside and to become self-reliant. They are also learning to make their own decisions.

These existing, informal farmers' groups, which have been formed to ensure the O&M of the minor canals that are irrigating their fields, shall be the building blocks for the WUGs.

6.2.1 Inventory of Existing Farmers' Groups

Following the identification of the tertiary units and before the start of the Mobilisation and Formation Meetings, it is required that the PIM Extensionist makes an inventory of all informal farmers' groups that exist at the level of the identified tertiary units and/or village. For this purpose, the PIM Extensionist shall:


- consult the results of the social surveys (PIM Step 3);
- consult the results of the assessment of existing water management and O&M practices (PIM Step 5); and
- consult the traditional water masters and village leaders.


The result of the consultation shall be that the PIM Extensionist can prepare a list with the following details:

- total number of existing, informal farmers' groups;
- number of farmers organised in each farmers' group;
- name/number of canal(s) as well as total area for which each farmers' group carries out O&M activities;
- types of O&M activities carried out by each farmers' group;
- role of traditional water master in each farmers' group;
- mechanism for collection of funds to cover O&M costs as well as annual amount of funds collected for each farmers' group; and
- relationship of each farmers' group with concerned Government agency (i.e. Irrigation Department, TDA).

6.3 WUG Mobilisation and Formation Meetings

Following the identification of the tertiary units and the preparation of complete lists of all landowners, sharecroppers and tenants, who are owning and/or cultivating land within the command area of each tertiary unit, the PIM Extensionist and PIM Support Team shall plan and conduct a series of WUG Mobilisation and Formation Meetings in order to form the WUGs at the level of the tertiary units.

 If possible, the PIM Extensionist shall plan these WUG Mobilisation and Formation Meetings in collaboration with the concerned Canal Master and/or the village leaders.

 To invite all farmers, including landowners, sharecroppers and tenants, for the WUG Mobilisation and Formation Meetings, the PIM Extensionist shall use the Tertiary Unit Lists with the names of all farmers, including landowners, sharecroppers and/or tenants, sharing the same tertiary unit.

6.3.1 Mobilisation of Farmers at Tertiary Unit Level

Before the farmers sharing the same tertiary unit have to decide upon the formation of the WUG, they shall be informed about the envisaged institutional framework at different levels, the main aspects of the WUG as well as an general introduction of the WUA that will be established at the level of the primary canal following the formation of WUGs on the majority of tertiary units within the command area of the primary canal system. The following issues shall be covered during these meetings:

Institutional Framework

Before the PIM Extensionist explains the main purposes and functions of the WUG and the WUA to the farmers sharing the same tertiary unit, it is important that the concerned farmers are correctly informed about which institutions will be formed at different levels of the entire Wadi system. It is envisaged that the following institutions are formed:

- WUGs at the level of the tertiary canals or *ma'aqem*
- WUAs at the level of the primary canals
- Scheme Water Users' Federations (SWUFs) at the level of (sub-)Wadi

- Irrigation Council at the level of the entire Wadi system

Main Aspects of WUG

The farmers shall be informed about the following main aspects of the WUG:

Main Purposes of WUG Formation:

- to ensure the effective O&M of the tertiary unit; and
- to ensure effective participation of all farmers at all levels of their spate irrigation system, in particular with regard to the planning, design, supervision and execution of the rehabilitation works as well as the O&M of their irrigation system, including the allocation and distribution of spate water between primary canal systems at Wadi level and between individual farmers along the primary canal system.

Main Reasons for WUG Formation:

- management of the tertiary unit requires good coordination and cooperation among all farmers with land served by the same tertiary unit, so that the available spate water is shared equitably to meet the needs of all individual farmers;
- operation of the tertiary unit needs detailed knowledge of the local layout of the distribution system and its characteristics, irrigation practices and the individual farmers, which could be best provided by groups of farmers that are organised at tertiary level; and
- routine maintenance of the tertiary unit is relatively simple and within the capability of groups of farmers with appropriate training, which will use local labour and locally available equipment.

WUG Functions:

- to provide the WUA with all necessary information, including number of members and non-members as well as planned irrigated area;
- to receive bulk water supply from the WUA in accordance with the Primary Canal Water Management Plan;
- to distribute water equitably among all individual water users within the command of the tertiary unit;
- to set its own Rules & Regulations concerning the O&M of its tertiary unit, including sanctions for offences;
- to maintain the tertiary unit in operational condition;
- to have regular general meetings to consult and inform all its members about the management of the O&M of the tertiary unit, the O&M of the primary and secondary canal system by the WUA, issues to be discussed and decisions made by the WUA, including the setting of the annual ISF;
- to undertake and pay for rehabilitation or improvements to the tertiary unit as required;
- to elect one or more representatives for the General Assembly of the WUA; and
- to provide any other service as required to its members in order to improve irrigated agriculture.

It is possible that the WUA would make the WUGs responsible for the collection of ISFs among its individual members and non-members for the O&M and other services provided by the WUA.

Criteria for WUG Membership:

In principle, every landowner having land within the command area of the tertiary unit as well as tenant and sharecropper cultivating land within the command area of the tertiary unit are eligible to become member of the WUG. However, it is not possible that both the landowner and his/her tenant(s) and/or sharecroppers are members of the WUG at the same time.



As farmers could own and/or cultivate different plots of land that are situated in different tertiary units, they could become members of more than one WUG.

As the WUG is mainly responsible for the O&M of its tertiary unit, including the equitable distribution of spate water among all water users within its command area, it is strongly recommended that only those who are cultivating and irrigating the fields become members of the WUG. This would mean that non-operating landowners shall not be members of the WUG, but that they are represented by their tenant(s) and/or sharecropper(s) in the WUG, who shall become members.

In principle, landowners, sharecroppers and tenants can become members of their WUG on a voluntary basis. The main advantages of WUG membership are:

- to participate and vote in meetings and elections of the WUG; and
- to stand for election.

In addition, the WUA may decide that members have to pay a lower ISF than non-members.

Condition for WUG Formation:

As membership of the WUG is not compulsory, it is possible that not all landowners, tenants and/or sharecroppers decide to become a member of the WUG. To ensure that the WUG is representative and has sufficient authority, it is required that at least 50% of all landowners, tenants and/or sharecroppers owning or cultivating land within the command area of the tertiary unit decide to become members of their WUG.

Main Aspects of WUA

Although the WUG is established during this particular step of the PIM approach, it is required to inform the individual farmers in each tertiary unit briefly about the main aspects of the proposed WUA for the following two main reasons:

- the WUA will be responsible for the O&M of the primary canal system and the equitable supply of spate water to their respective tertiary units largely depends on the performance of the WUA; and
- most farmers will become automatic members of the WUA through their membership of the WUG and, therefore, they have the right to be informed about their (future) WUA.

WUA Goal:

The overall goal of the WUA shall be to safeguard and promote the common interests of the owners and users of land in the command area of the WUA with regard to irrigation and agriculture.

WUA Objectives:

- **the WUA shall be responsible for the operation of the rehabilitated irrigation canal system in an equitable manner to ensure that each member and non-member of the WUA receives a fair supply of spate water;**
- **the WUA shall take all reasonable measures to maintain and protect the transferred spate irrigation system and prevent unauthorised encroachments on to the transferred spate irrigation system and any adjacent land that is included in that system.**

Main Functions and Power of WUA:

- to manage, operate and maintain the primary and secondary canal system and associated infrastructure within its command area, including the preparation of (annual) Primary Canal Water Management Plan to ensure equitable distribution of spate water as well as annual maintenance inspections and preparation of Annual Maintenance Plan with corresponding budget
- to ensure the bulk supply of spate water from the diversion structure in accordance with its water use rights and the Wadi Water Management Plan;
- to ensure the equitable supply spate water to members and non-members of the WUA, who own or cultivate land within its command area, in accordance with the Primary Canal Water Management Plan;
- to employ permanent, temporary and seasonal staff as required;
- to develop an appropriate and equitable basis for setting ISFs;
- to assess and collect or arrange the collection of ISFs and any other service charges;
- to improve water management practices, including conjunctive use of ground water with spate water for irrigation of crops, and other improved land and agricultural input practices;
- to provide other irrigation and agricultural support services to improve agricultural production and economic well-being of its members;
- to undertake development and construction activities necessary to achieve the purposes listed above;
- to arbitrate and settle any internal dispute arising over the O&M among its members and non-members;
- to procure and/or lease equipment, machines, tools and other matters required for the O&M of all irrigation and associated infrastructure within its command area;
- to enforce discipline by imposing sanctions against any member or non-member of the WUA, who unlawfully violates the Articles of Association or Internal Rules & Regulations of the WUA;
- to open and manage one or more bank accounts; and
- to join a Federation of WUAs to ensure the equitable distribution of spate water among all concerned WUAs.

Organisational Structure of WUA:

- General Assembly comprising WUG Leaders and representatives from non-operating landowners;
- Management Board, including Chairman, Secretary and Treasurer, who are elected among the members of the General Assembly; and
- Standing Committees, such as Audit Committee.



The PIM Extensionist shall use Flip Chart summarising all the main aspects of the WUG and WUA.



Handouts summarising the main aspects of the WUG and WUA shall be distributed among all attending farmers at the end of the mobilisation meeting.

6.3.2 Formation of Water Users' Groups

Following the presentation and explanation of the main aspects of the WUG, including the membership criteria and conditions for WUG formation, the PIM Extensionist with the assistance of the PIM Support Team shall assess the interest among the attending farmers to establish a WUG for their tertiary unit and to become members.



The WUG can only be formed if at least 50% of the farmers, who own and/or cultivate land in the tertiary unit, are willing to become members of the WUG.



If the majority of farmers within one tertiary unit is reluctant to form a WUG, the PIM Extensionist shall consider to organise an Exchange Visit to one or more existing WUGs, which are preferably located in the command area of the same primary canal system.

If it is clear that the majority of landowners, tenants and/or sharecroppers, who are owning and/or cultivating land within the command area of the tertiary unit, are willing to become members of the WUG, the PIM Extensionist and PIM Support Team can proceed with the formation of the WUG by undertaking the following activities:

Preparation of WUG Membership List:

The PIM Extensionist shall prepare the WUG Membership List, in which the following details shall be specified:

- name and address of each member;
- size in hectares of that member's landholding and, if different, the name of the owner of the plot of land;
- location of the member's land by specifying the name/number of the tertiary canal or *ma'aqam* by which the member's land is served; and
- membership of another WUG.



It is important to register if the new WUG member is already member of another WUG by having another plot of land in another tertiary unit in order to avoid that this person is counted more than one time as member of the (future) WUA.



The PIM Extensionist shall use the prescribed proforma for the WUG Membership List.



Copy of the prescribed WUG Membership List proforma can be found in Annex 6.2.

Signing of WUG Membership List and Payment of Membership Fee:

Each new WUG member shall sign WUG Membership List and pay the membership fee of YR_____ (100), which is required to cover the costs related to the formation and registration of the WUA.

Preparation of WUG Non-Membership List

In addition to the WUG Membership List, the PIM Extensionist shall also prepare a WUG Non-Membership List with the same details as specified for the WUG Membership List for all landowners, tenants and/or sharecroppers owning and/or cultivating land within the command area of the newly formed WUG, who have not become members of the newly formed WUG.



The PIM Extensionist shall use the prescribed proforma for the WUG Non-Membership List.



Copy of the prescribed WUG Non-Membership List proforma can be found in Annex 6.3.

Election of WUG Leader:

Each member of the WUG is also automatically member of the WUA, which will be established at the level of the Primary canal. As a WUA may have more than hundred members, it is not possible to organise meetings, in which all its members will participate. Therefore, each WUA will have a representative system, whereby each WUG will be represented by one elected representative.

To ensure the effective management of the newly established WUG and the representation of the WUG in the General Assembly of the WUA, the WUG members shall elect the WUG Leader among themselves. Before the WUG members elect their leader, the PIM Extensionist and PIM Support Team shall explain that a suitable candidate shall fulfill at least the following qualifications:

- literate
- good standing and respected
- permanently resident
- 18 year or older

Before the election of the WUG Leader, the PIM Extensionist and PIM Support Team shall also explain the main functions and duties of the WUG Leader:

- to represent the WUG in the General Assembly of the WUA;
- to call and preside meetings of WUG and ensure that all WUG members are informed in time about the exact date, time and venue of the meeting;
- to ensure the effective and efficient maintenance of all irrigation infrastructure within the tertiary unit, including the mobilisation of labour and/or cash among all members and non-members of the WUG as required for the execution of all necessary maintenance works;
- to ensure the equitable distribution of spate water among all members and non-members of the WUG;
- to ensure the enforcement of penalties and sanctions against any member or non-member of the WUG for any offence committed;
- To arbitrate in any dispute between individual WUG members;
- To ensure the execution of any other activity as approved by the WUG members or instructed by the WUA; and
- If the WUG has been made responsible for the collection of the due ISFs on behalf of the WUA, to ensure the collection of the ISFs and any other service charges among all members and non-members of the WUG.



The PIM Extensionist shall use Flip Chart summarising all the minimum qualifications for WUG Leader as well as his/her main functions and duties.



Handouts summarising the minimum qualifications for WUG Leader as well as his/her main functions and duties shall be distributed among all attending farmers at the end of the mobilisation meeting.

Name of WUG:

Following the election of the WUG Leader, the WUG members shall agree upon a name for their WUG. However, the WUG shall never be named after the WUG Leader.

Formulation and Adoption of Internal Rules & Regulations:


At the level of the tertiary unit, a considerable degree of group autonomy is desirable, whereby the farmers' view and preferences on all aspects of water management and maintenance, including the mobilisation of resources among all farmers sharing the same tertiary unit, shall be respected.

It is essential that each WUG develops a minimum set of Internal Rules & Regulations with regard to the O&M of the tertiary unit and the management of the WUG itself. It is recommended that each WUG shall formulate its own set of Internal Rules & Regulations that cover at least the following aspects:

- criteria for WUG membership, including payment of (annual) membership fee, and procedures for admission of new members as well as resignation and expulsion of existing members;
- rights and obligations of members;
- rights and obligations of non-members, including payment of higher ISF;
- frequency of meetings and procedures for calling meetings;
- procedures for (re-)election of WUG Leader, minimum qualifications and term of office;
- main functions and duties of the WUG Leader;
- procedures for assessment of maintenance requirements as well as planning and execution of maintenance works;
- penalties and sanctions for any offences, including unauthorised irrigation as well as wilful and accidental damage

- of irrigation infrastructure, and procedures for appeal;
- sanctions for non-payment of maintenance charge and/or non-contribution of labour for the maintenance of the irrigation infrastructure within the tertiary unit;
- penalties and sanctions for late and non-payment of ISF if WUG has been made responsible for the collection of the due ISFs among all members and non-members on behalf of the WUA; and
- procedures for resolution of conflicts between farmers within the tertiary unit.

If possible, the new WUG members shall start with the formulation of the Internal Rules & Regulations for their newly formed WUG during the WUG Mobilisation and Formation Meeting. They may also decide to form a committee comprising a few members, which shall prepare a set of draft Internal Rules & Regulations for approval by the WUG members during the first formal general meeting of the WUG.

 To facilitate the formulation of the Internal Rules & Regulations for the WUG, it is recommended that the PIM Extensionist with the assistance of the PIM Support Team shall assist the WUG members or the committee by providing guidelines and examples.

6.3.3 Structure of WUA Mobilisation and Formation Meetings

To ensure that WUGs are properly formed, the WUA Mobilisation and Formation Meetings shall be structured as follows:

- Check existing farmers' list by reading the names of all farmers mentioned in the list and to control if corresponding land size and land tenure (i.e. owner-operator, sharecropper, tenant, beneficiary or non-operating landowner) are correct;
- Present main aspects of WUG and briefly the WUA;
- Ask attending farmers if they have questions about the WUG presentation;
- Assess if attending farmers are interested to form a WUG for their tertiary unit;
- Prepare the WUG Membership List using the proforma attached to Form 1: Request for Registration of WUG;
- Explain minimum qualifications for position of WUG Leader;
- Request attending farmers to elect their WUG Leader and WUG Secretary;
- Request farmers to agree upon a name for their newly formed WUG;
- Read content of Form 1: Request for Registration of WUG before WUG Leader has to sign it;
- If possible, formulate a number of internal rules and regulations, in particular with regard to the term of office for the position of WUG Leader;
- Copy of the completed Form 1: request for Registration of WUG shall be submitted to the WUG Leader.



Copy of Form 1: Request for Registration of WUG can be found in Annex 6.2.

6.4 Election of Representatives for Non-Operating Landowners

The majority of WUGs could determine in its Internal Rules & Regulations that:

- only landowners, who are cultivating and irrigating their fields, can become members of the WUG; and
- non-operating landowners shall not be members of the WUG, but that they are represented by their tenant(s) and/or sharecropper(s) in the WUG.

To avoid the alienation of landowners, who are not operating their lands themselves, it is important that they are formally represented in the WUAs, so that they can be involved in the WUA affairs, including the participatory planning and design process.

If at least two-third of the WUGs have determined that non-operating landowners are not eligible to become members, the PIM Extensionist and PIM Support Team shall organise one or more meetings for non-operating landowners, during which they shall elect their representatives to the WUA General Assembly.

In order to safeguard the interests of the large number of (small) owner-operators, sharecroppers and tenants as the actual "water users", appropriate mechanisms shall be developed to avoid that large and medium landowners will dominate/monopolise the decision-making and management of the WUAs. Such appropriate mechanisms may include that:

- the WUG representatives have a large majority (66% or 75%) in the General Assembly of the WUA by restricting

the total number of representatives from the large and medium landowners, Government and *Waqf* Trusts to 25% or 33% of the total number of seats; and

- at least 66% or 75% of the seats in the Management Board of the WUA are reserved for WUG representatives.

☞ The details of the number of reserved seats for WUG representatives shall be ultimately specified in the Internal Rules & Regulations of the WUA (PIM Step 8).

☞ The total number of representatives to be elected by the non-operating landowners shall be one for every three or four WUGs formed within the command area of the primary canal system.

☞ The names of all non-operating landholders can be found on the Tertiary Unit Lists, which have been prepared by the PIM Extensionist before the start of the WUG Mobilisation and Formation Meetings.

The same information as given to the farmers at tertiary unit level during the WUG Mobilisation and Formation Meetings, shall also be presented during the meeting(s) with the non-operating landholders, before they elect one or more representatives to the General Assembly of the WUA.

STEP 7 PARTICIPATORY PLANNING AND DESIGN OF REHABILITATION WORKS

Target Group: WUG Leaders and WUG members.

Field Staff Involved: Design Engineer and PIM Extensionist (PIU Design Team).

Timing: Following the formation of the WUGs (PIM Step 6).

Duration: Several months.

Main Purposes:

- Formation and training of Farmers' Design Committee.
- Inventory of farmers' preferences concerning scheme rehabilitation and improvement during WUG Pre-Design Meetings.
- Preparation of Preliminary Rehabilitation Plan & Cost Estimates.
- Review of Preliminary Rehabilitation Plan & Cost Estimates with Farmers' Design Committee.
- Preparation of Final Rehabilitation Plan & Cost Estimates and O&M Manual.
- Review and adoption of Final Rehabilitation Plan and O&M Manual by Farmers' Design Committee.
- Review and approval of Final Rehabilitation Plan & Cost Estimates by WUG members during WUG Design Meetings.
- Signing of the approved Final Rehabilitation Plan & Cost Estimates by WUA Chairperson and PIU Director.
- Assessment of deferred maintenance requirements for tertiary units by WUGs.
- Planning of the execution of the deferred maintenance of tertiary units by WUGs.
- Execution of the deferred maintenance works on tertiary units by WUGs.

Documents:

- Report on Deferred Maintenance and Rehabilitation Requirements.
- Form 2: Inventory of Priority Deferred Maintenance and Rehabilitation Works (Annex 7.1).

Visual Aids:

- Map(s) and/or satellite images of the entire spate irrigation system.

INFORMATION AND GUIDELINES

The way a design has been prepared is crucial for the sustainability of the rehabilitated irrigation infrastructure. Traditionally, the rehabilitation of irrigation infrastructure has been designed by engineers without consulting the farmers as the main users of these structures. Consequently, the rehabilitated irrigation facilities were not satisfying (all) the needs and preferences of the users. The final result was that the users of the rehabilitated irrigation structures did not consider the O&M of the schemes as their responsibility, because they did not develop a sense of ownership. The farmers regarded the irrigation agency, which had designed and rehabilitated the irrigation infrastructure, to be responsible for O&M. But due to financial constraints and other reasons, these agencies were often not capable or willing to perform the required O&M tasks. Consequently, the performance of irrigation systems in many developing countries is poor and their sustainability is low.

To develop a sense of ownership and responsibility for O&M among the users of irrigation structures, it is required that the users are involved in all the stages of the rehabilitation of an irrigation system. Especially during the planning and design of the rehabilitation works, maximum farmer participation is a prerequisite for sustainable management of the rehabilitated infrastructure, because important decisions are made during this stage.

To enable the farmers to participate effectively in the planning and design of the rehabilitation of 'their' irrigation system, it is important to consider the elaboration of the planning and design as a step-by-step process during which farmers' priorities and preferences are matched with technical and financial possibilities.

7.1 Formation and Training of Farmers' Design Committee

Before the PIU Design Team could commence with the planning and design of the rehabilitation works in collaboration with the farmers, a Farmers' Design Committee shall be formed in order to facilitate farmers' participation.

It is envisaged that the WUG Leaders shall become members of the Farmers' Design Committee as they are the formal (elected) representatives of all farmers sharing the same tertiary units, for which they have formed the WUGs.

7.1.1 Farmers' Design Committee Formation Meeting

Before the Farmers' Design Committee can be formed, the PIU Design Team shall introduce and explain the main principles of the participatory design process as well as the purpose and functions of the Farmers' Design Committee to the WUG Leaders during the Farmers' Design Committee Formation Meeting.

Participatory Design Principles

The PIU Design Team shall start the Farmers' Design Committee Formation Meeting with explaining the following main principles of the participatory design process:

- Active participation of farmers, both men and women, in all stages of the planning and design process starting from the formation of Farmers' Design Committee and inventory of the farmers' preferences regarding the rehabilitation of their irrigation system to the approval of the agreed Rehabilitation Plan & Cost Estimates;
- Step-by-step approach of the participatory design process, including:
 - formation and training of Farmers' Design Committee;
 - inventory of farmers' preferences during WUG Meetings;
 - preparation of Preliminary Rehabilitation Plan & Cost Estimates by PIU Design Team;
 - review of Preliminary Rehabilitation Plan & Cost Estimates by Farmers' Design Committee;
 - review and approval of Final Rehabilitation Plan & Cost Estimates by Farmers' Design Committee;
 - presentation of Final Rehabilitation to all WUG members for review and approval during WUG Meeting(s);
 - signing of Final Rehabilitation Plan & Cost Estimates by Farmers' Design Committee/WUA and PIU Director;
 - preparation of Detailed Designs and O&M Manual by PIU Design Team;
 - review and approval of the O&M Manual by Farmers' Design Committee;
- Need for approval from both male and female farmers at crucial stages of planning and design process.

Purpose of Farmers' Design Committee

As it would not be possible and practical to consult all farmers continuously during the participatory planning and design process and a WUA has not been established yet at this stage of the PIM Programme, it is required to form a Farmers' Design Committee, which would have the authority to represent all the farmers during the Design Meetings with the PIU Design Team.






Functions and Powers of the Farmers' Design Committee

The Farmers' Design Committee will have the following functions and powers:

- to organise WUG Meetings to assess the farmers' and women's preferences regarding the rehabilitation of their irrigation system;
- to participate in Design Meetings with the PIU Design Team in order to present and discuss the different preferences regarding the rehabilitation of the irrigation infrastructure;
- to review, amend and approve the Preliminary Rehabilitation Plan & Cost Estimates;
- to review, amend and approve the Final Rehabilitation Plan & Cost Estimates;
- to present the Final Rehabilitation Plan & Cost Estimates as the outcome of the Design Meetings to all WUG members for review and approval during WUG Meetings;
- to sign the Final Rehabilitation Plan & Cost Estimates following the approval of the Final Rehabilitation Plan & Cost Estimates by the majority of WUG members; and
- to review, amend and approve the O&M Manual during Design Meetings with the PIU Design Team.

Composition of Farmers' Design Committee

In principle, all WUG Leaders shall become members of the Farmers' Design Committee. However, if the total number of WUG is too large (i.e. more than 15), it is recommended to the WUG members elect 5 to 10 members of the Farmers' Design Committee among themselves.

-  If the Farmers' Design Committee consists of 5 to 10 elected members, it is required that the head, middle and tail reaches of the distribution system are properly represented.
-  As village women would also be involved in irrigated agriculture and related economic activities (i.e. livestock), it is recommended that at least one woman is elected or nominated as member of the Farmers' Design Committee, so that the views and preferences of village women are also incorporated in the Final Rehabilitation Plan & Cost Estimates.
-  In order to assess the views and preferences of village women with regard to the rehabilitation of the irrigation infrastructure, it is recommended to plan and conduct a number of focus group discussions in the head, middle and tail reaches of the distribution system.
-  It is recommended that the PIU Design Team utilises a Flip Chart summarising the main principles of the participatory planning and design process as well as the purpose and functions of the Farmers' Design Committee during the presentation.
-  A Leaflet summarising the main principles of the participatory design process as well as the purpose and functions of the Farmers' Design Committee shall be distributed among the WUG Leaders at the end of the Farmers' Design Committee Formation Meeting.

7.1.2 Training of Farmers' Design Committee

Following the formation of the Farmers' Design Committee, its members shall be briefed more in detail on the participatory planning and design approach, including its steps, and the main duties and authorities of the Farmers' Design Committee during the different steps of the participatory planning and design process. The Farmers' Design Committee members shall also receive some training in technical and financial aspects of rehabilitation.

Selection of Chairperson and Secretary of Farmers' Design Committee

At the end of the training course for the Farmers' Design Committee members or during the first meeting of the Farmers' Design Committee following the training course, the Farmers' Design Committee members shall select a Chairperson and Secretary of the Farmers' Design Committee.

The main responsibilities of the Farmers' Design Committee Chairperson would be as follows:

- to call and inform all Farmers' Design Committee members in time about the exact date, time and venue of next meeting;
- to preside meetings of the Farmers' Design Committee; and
- to maintain contact with PIU Design Team.




The main responsibilities of the Farmers' Design Committee Secretary would be as follows:

- to prepare minutes of the Farmers' Design Committee meetings; and
- to maintain records of the Farmers' Design Committee.

7.2 WUG Pre-Design Meetings

The planning and design of the rehabilitation of the irrigation infrastructure has to incorporate the preferences of the (male and female) farmers as much as possible but within the technical and financial means available. Before the first Design Meetings between the Farmers' Design Committees and the PIU Design Team can be held, the farmers' preferences shall be identified during WUG Pre-Design Meetings. The Farmers' Design Committee shall carefully register the farmers' preferences, because it will need this information during the Design Meetings to check if Preliminary Rehabilitation Plan & Cost Estimates has incorporated these preferences as much as possible.

All proposals and suggestions raised by the WUG members shall be considered as equally important and registered by the Farmers' Design Committee.

-  It is recommended that the PIU Design Team also makes notes of the farmers' preferences regarding the rehabilitation of their distribution system to ensure that all proposed preferences could be reviewed by the PIU Design Team during the preparation of the Preliminary Rehabilitation Plan & Cost Estimates.
-  As it is the first time that the newly established Farmers' Design Committee has to organise a meeting, the assistance of the PIU Design Team will be required, but its role shall be strictly limited to support and facilitation.
-  The PIU Design Team shall avoid to take over the responsibility for organising the WUG Pre-Design Meetings from the Farmers' Design Committee. If not, the Farmers' Design Committee will continue to rely heavily on the PIU Design Team to plan and carry out meetings.


All farmers' preferences regarding deferred maintenance and rehabilitation works of their spate irrigation system shall be recorded on Form 2: Inventory of Priority Deferred Maintenance and Rehabilitation Works. Before Form 2 is signed by the WUG Leader, all recorded farmers' preferences regarding deferred maintenance and rehabilitation works shall be presented to all attending WUG members.



Copy of Form 2: Inventory of Priority Deferred Maintenance and Rehabilitation Works can be found in Annex 7.1.


7.2.1 Presentation of Assessed Maintenance and Rehabilitation Requirements

At the start of the WUG Pre-Design Meetings, the PIU Design Team shall present the deferred maintenance and rehabilitation requirements as assessed during PIM Step 4 to the attending WUG members. In this way, the WUG members will have a clear idea of which deferred maintenance and rehabilitation have already been identified by the PIU Design Team before they present their views and preferences concerning the rehabilitation of their irrigation system.

-  It is recommended that all assessed maintenance and rehabilitation requirements are presented from the head to the tail with the help of enlarged maps, on which the headworks and the primary and secondary canals are clearly indicated.

7.2.2 Assessment of Farmers' Views and Preferences

Following the presentation of the assessed maintenance and rehabilitation requirements, the PIU Design Team shall make an inventory of all farmers' views and preferences with regard to the rehabilitation of their spate irrigation system.

-  It is important that all farmers' views and preferences concerning the rehabilitation of their spate irrigation system are properly recorded as the Design Engineer(s) shall use this information during the preparation of the Preliminary Rehabilitation Plan.

7.2.3 Technical and Economic Constraints

During the presentation of the assessed maintenance and rehabilitation requirements as well as during the assessment of farmers' views and preferences regarding the rehabilitation of the irrigation infrastructure, the PIU Design Team shall clearly explain that not all proposed rehabilitation works can be executed due to technical and/or economic constraints.

7.3 Preparation of Preliminary Rehabilitation Plan & Cost Estimates

After the last WUG Pre-Design Meeting, the PIU Design Team shall start with the preparation of a Preliminary Rehabilitation Plan & Cost Estimates, in which the assessed maintenance and rehabilitation requirements and the registered farmers' and women's views and preferences are included as long as they are technically and economically feasible.

7.4 Design Meetings

Following the preparation of the Preliminary Rehabilitation Plan & Cost Estimates by the PIU Design Team, the first Design Meeting with the Farmers' Design Committee could be arranged.

7.4.1 Presentation of Preliminary Rehabilitation Plan & Cost Estimates

During the first Design Meeting, the PIU Design Team shall present the Preliminary Rehabilitation Plan & Cost Estimates to the Farmers' Design Committee members.



To present the Preliminary Rehabilitation Plan & Cost Estimates clearly to the Farmers' Design Committee, an enlarged map shall be used, on which the proposed rehabilitation works are clearly indicated together with the site of the headworks and the alignment of the primary, secondary and tertiary canals.

To ensure that the Farmers' Design Committee members understand the Preliminary Rehabilitation Plan & Cost Estimates, it is important that the following issues are given due attention during the presentation and explanation:



Before starting to introduce and explain the different elements of the Preliminary Rehabilitation Plan & Cost Estimates, the location of the main villages, rivers and major roads shall be indicated clearly on the map to ensure that the Farmers' Design Committee members can understand the approximate locations of the different elements of the Preliminary Rehabilitation Plan & Cost Estimates.



It is very important that a logical sequence is followed during the explanation of the Preliminary Rehabilitation Plan & Cost Estimates. The most appropriate sequence will be from head to tail by starting from the headworks and finishing at the tail of the main canal.

7.4.2 Walkover

Following the introduction of the Preliminary Rehabilitation Plan & Cost Estimates during the first Design Meeting, it is strongly recommended that the PIU Design Team arranges a joint Walkover with the members of the Farmers' Design Committee along the entire distribution system.

During the joint Walkover, the PIU Design Team will have the opportunity to explain the site and scope of the proposed rehabilitation works to the Farmers' Design Committee members.



During the joint Walkover, important decisions regarding the rehabilitation works could be made by the Farmers' Design Committee members and/or PIU Design Team. However, important information could be lost if it is not recorded immediately during the joint Walkover. Therefore, the Secretary of the Farmers' Design Committee with the support of the PIU Design Team shall make detailed notes of all the suggestions and decisions made during the Walkover, which shall be reviewed during a subsequent Design Meeting.

7.4.3 Review of Preliminary Rehabilitation Plan & Cost Estimates

Following the presentation of the Preliminary Rehabilitation Plan & Cost Estimates and the Walkover, the Farmers' Design Committee and the PIU Design Team shall review the Preliminary Rehabilitation Plan & Cost Estimates in detail. During the review, they shall check if all farmers' and women's preferences concerning the Rehabilitation Plan & Cost Estimates have been incorporated within the technical and economic possibilities.



It is recommended that the Farmers' Design Committee members shall receive a copy of the Preliminary Rehabilitation Plan & Cost Estimates a few days before the first Design Meeting, so that they can study it.

Every proposed change in the Preliminary Rehabilitation Plan & Cost Estimates shall be discussed between the Farmers' Design Committee and the PIU Design Team to assess if it corresponds with the farmers' and women's preferences and if it is technically and economically feasible. If the Farmers' Design Committee proposes changes to the Preliminary Rehabilitation Plan & Cost Estimates that are totally unrealistic from a technical and/or economic perspective, the PIU Design Team shall explain that clearly.



Detailed minutes of each Design Meeting shall be prepared by the Secretary of the Farmers' Design Committee. At the end of each Design Meeting, the draft minutes shall be presented to all participants to ensure that the main findings, conclusions and decisions are properly recorded.

7.5 Preparation of Final Rehabilitation Plan & Cost Estimates

After the Farmers' Design Committee has completed the review of the Preliminary Rehabilitation Plan & Cost Estimates, the PIU Design Team shall commence with the preparation of the Final Rehabilitation Plan & Cost Estimates, in which all alterations as agreed with the Farmers' Design Committee shall be incorporated.



If any alteration to the Preliminary Rehabilitation Plan & Cost Estimates as agreed during one of the Design Meetings cannot be included in the Final Rehabilitation Plan & Cost Estimates due to technical and/or economic reasons, the PIU Design Team shall mention it explicitly and explain the reasons to the Farmers' Design Committee during the subsequent Design Meeting.

7.6 Approval of Final Rehabilitation Plan & Cost Estimates by Farmers' Design Committee

As soon as the PIU Design Team has prepared the Final Rehabilitation Plan & Cost Estimates, another Design Meeting shall be held, during which the Farmers' Design Committee shall review the Final Rehabilitation Plan & Cost Estimates before it has to take the decision to approve or reject it.


7.6.1 Approval of Final Rehabilitation Plan & Cost Estimates by Farmers' Design Committee

The Design Meeting shall start with a detailed presentation of the Final Rehabilitation Plan & Cost Estimates by the PIU Design Committee. All alterations compared with the Preliminary Rehabilitation Plan & Cost Estimates shall be clearly explained to the members of the Farmers' Design Committee. The reasons for the non-inclusion of any previously agreed alteration shall also be explained and discussed.



To facilitate the presentation of the Final Rehabilitation Plan & Cost Estimates to the Farmers' Design Committee, an enlarged map shall be used, on which the finally proposed rehabilitation works are clearly indicated together with the site of the headworks and the alignment of the primary, secondary and tertiary canals.

Following the presentation of the Final Rehabilitation Plan & Cost Estimates, the Farmers' Design Committee has to decide if it could approve the Final Rehabilitation Plan & Cost Estimates as prepared by the PIU Design Team.

 If necessary, the Farmers' Design Committee shall be given enough time to review the Final Rehabilitation Plan & Cost Estimates by planning another Design Meeting, during which the Farmers' Design Committee will present the findings of its review of the Final Rehabilitation Plan & Cost Estimates.

7.6.2 Rejection of Final Rehabilitation Plan & Cost Estimates by Farmers' Design Committee

If the Farmers' Design Committee insists on the inclusion of one or more changes in the Rehabilitation Plan & Cost Estimates, which have been rejected by the PIU Design Team for technical and/or economic reasons, the PIU Design Team shall study the Farmers' Design Committee's request(s) once more and formulate one or more possible alternatives. The organisation of an additional Walkover may also be useful to check and discuss the possibilities and impossibilities of any requested alteration at site.


During another Design Meeting, the PIU Design Team shall present any alternative that may solve the pending issue(s). If the Farmers' Design Committee and the PIU Design Team could come to an agreement, the former shall formally approve the Final Rehabilitation Plan & Cost Estimates with the agreed alteration(s).

It is, however, possible that the Farmers' Design Committee decides to reject the Final Rehabilitation Plan & Cost Estimates. During the subsequent WUG Meetings, the Farmers' Design Committee shall explain its reasons for rejecting the Final Rehabilitation Plan & Cost Estimates to the WUG members.

7.7 Approval of Final Rehabilitation Plan & Cost Estimates by WUG Members

Before the Rehabilitation Plan & Cost Estimates Agreement can be signed, all WUG members have the right to be informed about the outcome the participatory planning and design process and to approve or reject the Final Rehabilitation Plan & Cost Estimates.


During WUG Design Meetings, the Farmers' Design Committee with the support of the PIU Design Team shall present and explain its reasons for approving or rejecting the Final Rehabilitation Plan & Cost Estimates to all attending WUG members.

 To inform all concerned farmers about the date, time and venue of the WUG Design Meeting, the concerned WUG Leader shall inform all WUG members formally.

7.7.1 Presentation of Final Rehabilitation Plan & Cost Estimates to WUG Members


To illustrate that the design process has been participatory, the Farmers' Design Committee shall clearly indicate which farmers' and women's preferences as well as all alterations proposed by the Farmers' Design Committee have been included in the Final Rehabilitation Plan & Cost Estimates. It shall also explain why one or more preferences and/or proposed alterations could not be included.


Following the presentation of the Final Rehabilitation Plan & Cost Estimates, the attending WUG members shall be given the opportunity to ask questions about the different components of the Final Rehabilitation Plan & Cost Estimates.

 To facilitate the presentation of the Final Rehabilitation Plan & Cost Estimates to all farmers, an enlarged map shall be used, on which the finally proposed rehabilitation works are clearly indicated together with the site of the headworks and the alignment of the primary, secondary and tertiary canals.

7.7.2 Approval of Final Rehabilitation Plan & Cost Estimates by WUG Members

Following the presentation of the Final Rehabilitation Plan & Cost Estimates, the Farmers' Design Committee shall formally request the attending WUG members to approve or reject the Final Rehabilitation Plan & Cost Estimated as presented to them.


 The approval of the Final Rehabilitation Plan & Cost Estimates is an important decision during the PIM Programme as it will be very difficult to propose any major alterations after the Rehabilitation Plan & Cost Estimates is signed. Therefore, the approval of the Final Rehabilitation Plan & Cost Estimates shall be endorsed by a majority of WUG members attending the WUG Design Meeting. Therefore, at least 51% or 66% of all WUG members shall attend the WUG Design Meeting.


 To facilitate the active involvement of village women in the review and approval of the Final Rehabilitation Plan & Cost Estimates, it may be required to organise one or more special meetings for them. At the end of each meeting, the attending women shall either approve or reject the Final Rehabilitation Plan & Cost Estimates as presented to them.

7.7.3 Rejection of Final Rehabilitation Plan & Cost Estimates by WUG Members

If the majority of WUG members has valid arguments for rejecting the Final Rehabilitation Plan & Cost Estimates, the Farmers' Design Committee and the PIU Design Team shall have another Design Meeting to review these arguments carefully and to assess if any alterations to the Final Rehabilitation Plan & Cost Estimates are feasible that would alleviate the farmers' and/or women's concerns.

During other WUG Design Meetings, the Farmers' Design Committee shall explain to the WUG members how the Final Rehabilitation Plan & Cost Estimates has been modified to address their earlier concern(s) as much as possible. If it is not possible to alter the Final Rehabilitation Plan & Cost Estimates to alleviate the farmers' and/or women concerns, the Farmers' Design Committee shall clearly explain the reasons.

 During a number of meetings, the (female member of the) Farmers' Design Committee shall also explain to the village women how their earlier concerns have been addressed by revising the Final Rehabilitation Plan & Cost Estimates as well as the reasons if that was not possible.

 **Exit:** If the majority of WUG members has decided to reject the Final Rehabilitation Plan & Cost Estimates, the PIU Director shall inform the concerned Farmers' Design Committee/WUA about its decision to cancel the rehabilitation of the irrigation infrastructure.

7.8 Signing of Final Rehabilitation Plan & Cost Estimates

Only if the majority of WUG members has approved the Final Rehabilitation Plan & Cost Estimates, the WUA Chairperson and the PIU Director can proceed with the signing of the Rehabilitation Plan & Cost Estimates.

For this purpose, the PIU Design Team shall have prepared a document, in which all details of the approved Final Rehabilitation Plan & Cost Estimates are systematically and clearly listed and described. All WUA Management Board

members and the PIU Design Team members shall sign at least three copies of the Rehabilitation Plan & Cost Estimates Agreement as witnesses.

- ☞ To allow all WUA Management Board members to read the Rehabilitation Plan & Cost Estimates carefully before they have to sign it on behalf of all WUA members, a copy of this document shall be submitted to each WUA Management Board member at least one week before the planned date of the signing.

7.9 Participatory Planning and Execution of Deferred Maintenance of Tertiary Units

One of the main purposes of the formation of WUGs is to ensure the effective O&M of the tertiary units. However, the WUGs will only be able to operate their respective tertiary units effectively if all irrigation structures situated in the tertiary units are functional, so that spate water can be distributed efficiently to all fields located in the tertiary units. It is, however, possible that tertiary units are only partly functional or non-functional at all due to lack of sufficient maintenance for a number of years.

7.9.1 Assessment of WUG Members' Interest for Execution of Deferred Maintenance

To assess if the WUG members are interested to undertake any deferred maintenance works within their respective tertiary unit, the PIM Extensionist shall request the WUG Leader to invite all WUG members for a meeting, during which the following issues shall be presented and discussed:

- necessity for executing any deferred maintenance works; and
- procedures for the assessment, planning and execution of the deferred maintenance works.

- ☞ The PIM Extensionist shall only plan such WUG meetings for tertiary units that have received spate water on a regular basis during the last years.

- The PIM Extensionist shall not plan WUG meetings to discuss the execution of deferred maintenance for tertiary units that have not received any spate water for a number of years as it may create expectations among the members and non-members of the WUGs that spate water would become available the upcoming irrigation season.

7.9.2 Assessment of Deferred Maintenance Requirements of Tertiary Unit

Only when the majority of WUG members have expressed their willingness to undertake any deferred maintenance works within their tertiary unit, the WUG shall carry out an inspection of all the irrigation structures within its tertiary unit in order to assess their deferred maintenance requirements.

- ☞ It may be necessary that the WUG needs support and technical advice during the assessment of deferred maintenance requirements, which shall be provided by the PIU Design Team.

7.9.3 Planning of Execution of Deferred Maintenance Works for Tertiary Unit

Based on the results of the assessment of the deferred maintenance requirements, the WUG shall prepare a work plan, in which the following issues concerning the execution of the deferred maintenance works are described:

- types and quantities of deferred maintenance works to be executed;
- estimates of labour input and equipment requirements;
- estimates of capital costs for procurement of materials, lease of equipment and/or recruitment of hired labour; and
- timing and time-schedule.

- ☞ As the WUG members would not have prepared a work plan for the execution of deferred maintenance works before, it may be expected that they will need support and technical advice during the first year in the form of a formal training course and/or on-the-job training, which shall be provided by the PIU Design Team.

7.9.4 Modalities for Execution of Deferred Maintenance Works for Tertiary Unit

Most if not all deferred maintenance works within the tertiary unit can be carried out by the members and non-members of the WUG as the envisaged works are technically simple and only require the input of unskilled labour, such as the desilting of the tertiary canals. With regard the execution of the technically simple, labour-intensive works, each WUG has to decide if:

- these works will be carried out by its members and non-members, who will provide (free) labour for one or more days; or
- these works will be executed by hired labourers.

If concrete structures, such as outlets and drop structures, need to be rehabilitated, it may be required that the WUG recruits a skilled mason.

7.9.5 Preparation and Execution of Deferred Maintenance Works within Tertiary Unit

Before the execution of the deferred maintenance works can commence, it may be required that the WUG has to procure materials (i.e. cement, sand, bricks), lease equipment and recruit skilled and/or unskilled labour in accordance with the agreed work plan.

The execution of the deferred maintenance works shall be coordinated and supervised by the WUG Leader, who may delegate this responsibility to one or more WUG members.

- ☞ It may be necessary that the WUG needs support and technical advice during the execution of the deferred maintenance works, which shall be provided by the PIU Resident Engineer with the support of the PIM Extensionist.

STEP 8 FORMATION AND REGISTRATION OF WATER USERS' ASSOCIATIONS

Target Group: Members of the General Assembly of the WUA.

Field Staff Involved: PIM Extensionist and PIM Support Team.

Timing: Within one month after the completion of the WUG formation (PIM Step 6).

Duration: One to two months.

Main Purposes:

- WUA Introduction Meeting to introduce the main purposes and functions of the WUA as well as its organisational structure and the specific functions of the different organs.
- WUA Preparation Meeting(s) to review of WUA Articles of Association and formulation of Internal Rules & Regulations.
- Constitutive General Assembly Meeting to establish the WUA formally by:
 - adopting WUA Articles of Association and Internal Rules & Regulations
 - preparing List of Representatives to WUA General Assembly
 - electing members for WUA Management Board.
- Opening of bank account in the name of WUA.
- Preparation and submission of Application for WUA Registration.

Documents:

- (Model) WUA Articles of Association. (Annex 8.1)

Visual Aids:

- Flip Chart.

INFORMATION AND GUIDELINES

Principles of WUA Formation

WUAs as social structures are seen as making farmer participation in irrigation management activities (processes) more effective than if farmers were to attempt such activities on an individual basis. Social structures, such as WUAs, are inter-linked with and are affected by the physical structures, which are usually referred to as 'irrigation systems'. Actually, organisational structures for management shall be recognised as integral parts of such 'systems'.

The following principles concerning the organisation of water users for PIM are important for the establishment of successful WUAs:

- WUAs must set their own tasks and agendas as farmers will establish a sustainable organisation not merely for O&M or any other task a government and/or donor agency wants, but for activities they think are profitable for them;
- WUAs cannot be formed just administratively by order. The term 'social engineering' has often been used, but it is not a good term as one cannot engineer genuine farmer organisations;
- Attitude of the irrigation agency and/or irrigation project must be supportive, whereby government/project staff shall talk less and listen more, respect farmer's experience and intelligence, forget bureaucratic sense of authority, and give the farmers the opportunity to identify their own problems;
- Irrigation agency and/or irrigation project must be accountable to the water users, whereby government/project staff shall deal with farmers as clients and the word 'beneficiaries' shall be dropped from irrigation vocabulary as it is a patronizing term and may lead farmers to continue to expect that the government provide development for free;
- WUAs shall be built using social capital that exist, such as existing indigenous organisations, forms of cooperative labour and leadership as any attempt to establish unfamiliar types of organisation, in which farmers

have no understanding, may not work. Therefore, it is necessary to understand existing kinds of groups and organisational procedures and, where possible, WUAs can be grafted onto existing institutions;

- Good local leaders are required;
- No single model can be imposed uniformly as there is a huge variety of possible ways farmers can organise themselves and farmers themselves have to decide locally what kind of organisation they can support;
- WUAs must mobilise their own resources (cash and kind) and be sustainable without subsidies. Any effort to set up WUAs may fail if the government gives subsidies to start them as farmers may form WUAs on paper just for getting the subsidy and when the subsidy ends, they disintegrate. Sustainable WUAs mean that they have their own income and budget and are largely free of government subsidies and procedural control;
- Training is required at all levels in the fields of O&M of the irrigation system, water management and irrigated agriculture, mobilisation and management of financial resources, administrative and financial management of WUA, formulation and enforcement of Internal Rules & Regulations, preparation and execution of (service) contracts, and so on. Persons providing local technical services require technical training for their tasks;
- Forming WUAs takes time, and it may take longer than the execution of construction works. The establishment of sustainable WUAs takes time as farmers need time to trust their leaders, to trust each other, to trust a new system, to trust the attitudes of the bureaucracy, and to find out if the proposed new activities are profitable to them;
- To facilitate the successful implementation of PIM and the O&M of irrigation facilities by WUAs, it may be required to amend existing irrigation legislation and/or to promulgate new laws.

Lessons Learned on WUAs

With respect to the formation of sustainable WUAs, the following important lessons from experiences around the world with particular reference to Asian countries have been learned:

- Farmers are willing to become organised in order to improve irrigation system management;
- Organising farmers can lead not only to better production and more equitable water distribution, but also to better relations between farmers and agency officials;
- Farmers' participation through farmer organisations can contribute positively to planning, design, construction, water management, resource mobilisation and conflict resolution;
- There is no maximum size limit for WUAs;
- WUAs must have real power and control over resources;
- WUAs, whose main function is irrigation system management, shall reach a level of managerial sophistication that ensures a reliable water supply before it undertakes other agriculture-related activities which can augment the productivity of water;
- Efforts to organise farmers or strengthen existing WUAs shall begin well before the physical works are initiated;
- Farmers' willingness to contribute labour, cash and other resources to O&M and to collectively bargain with agencies is directly related to their power to make real decisions;
- Due to the complexity of the process in shifting from reliance on government agencies to reliance on WUAs, which requires change from both parties, no detailed blue print for achieving this shift is possible. Instead, the process requires experimentation, negotiation, adaptation to local circumstances, and time. It shall be emphasized that planners must be prepared to take a long time period to achieve sustainable changes needed at all levels; and
- Utilisation of Community Organisers (i.e. PIM Extensionists) can be an effective way to facilitate the formation of WUAs and to establish contacts and communication between the WUAs and irrigation agency.

World-wide experiences show that WUAs succeed when:

- They are legally recognised institutions responsible for providing essential services;
- They have control over the distribution of water with clearly defined water rights;
- They control revenue generated from the ISFs; and
- They are large enough to generate sufficient funds for supporting their institutional setup as well as technical staff needed for assisting in the O&M of the system.

WUA Formation

In order to establish the WUA at primary canal level, the PIM Extensionist and PIM Support Team will conduct the following meetings:

- WUA Introduction Meeting;
- WUA Preparation Meeting(s); and

- Constitutive General Assembly Meeting.

8.1 WUA Introduction Meeting

The PIM Extensionist and PIM Support Team shall start the WUA formation process by planning the WUA Introduction Meeting in order to introduce and explain:

- purpose for WUA formation;
- functions of the WUA;
- organisational structure of the WUA;
- rights and responsibilities of members and non-members of the WUA; and
- main functions and powers of the WUA General Assembly, WUA Management Board, WUA Chairperson and any WUA-employed staff.

Representatives of all established WUGs and non-operating landowners, if any, shall be formally invited for the WUA Introduction Meeting.

- ☞ To ensure that all representatives are properly informed about the date, time and venue of the WUA Introduction Meeting, the PIM Extensionist and PIM Support Team shall send written invitation to them at least ten days before the planned meeting.
- ☞ The venue of the WUA Introduction Meeting shall be at a place that is easily accessible for all invited representatives.
- ☞ As the WUA Introduction Meeting could be considered as a Preliminary General Meeting of the General Assembly of the WUA, it is important that at least 50% of all invited representatives are present. If less than 50% of the invited representatives are present, the WUA Introduction Meeting shall be postponed.

Goal and Overall Objective of WUA

The overall goal of the WUA shall be to safeguard and promote the common interests of the owners and users of land in the command area of the WUA with reference to activities related to irrigation and agriculture.

The overall objective of the WUA shall be the management of the transferred spate irrigation system in an equitable manner so as to ensure that each member and non-member of the WUA receives a fair supply of spate water.

Principles of WUA

The establishment and management of the WUA shall be guided by the following principles:

- Non-discrimination: The WUA shall not unfairly discriminate against different members or categories of member on any basis, including gender, religion or ethnicity, in so far as the provision of services is concerned;
- Transparency and participation: The WUA shall operate on the principle of transparency and shall promote and support the participation of all of its members;
- Fairness in decision-making: The WUA shall establish and implement fair and equitable decision-making procedures which permit all members to have genuine rights to participate;
- Fair and equitable use of resources: The WUA shall ensure the fair and equitable use of resources, including irrigation water, having regard to the needs of members, non-members and other water users within the WUA command area; and
- Rational use of resources: The WUA shall ensure the rational use of resources so as to prevent waste, over-watering, erosion and pollution and to promote the protection of the environment.

Functions and Powers of WUA

- to operate the spate irrigation system and associated infrastructure within its command area to convey spate water from the diversion structure to individual and/or groups of farmers, including the preparation of the Primary Canal Water Management Plan;
- to maintain the spate irrigation system and associated infrastructure within its command area fully and timely or make arrangements and pay for the work to be carried out by others, including the preparation of annual

- maintenance plan;
- to inspect all irrigation facilities, including existing metal parts (gates), and associated infrastructure within its command area every year;
- to encourage the adoption of improved water use and management practices, including conjunctive use of ground water with spate water for irrigation of crops, and other improved land and agricultural input practices;
- to prevent wastage of spate water and control of proper utilisation of supplied spate water by members and non-members;

- to participate in the development and implementation of activities to improve the spate irrigation system as well as the supply of services to its members and non-members, including agricultural extension services and land development, to enhance agricultural productivity;
- to supervise water distribution within its command area;
- to develop an appropriate and equitable basis for ISF;
- to assess and collect ISF and any other service charges;
- to employ permanent, temporary and seasonal staff as required;
- to remove obstructions in the entire canal system within its command area during O&M;
- to enter into contracts for obtaining loans and grants and setting a repayment schedule;
- to enter into (sub-)contracts with government agencies, non-government organisations and private sector for the O&M and/or rehabilitation of the spate irrigation system within its command area or for the provision of any other services;
- to procure and/or lease equipment, machines, tools and other matters required for the O&M of all irrigation and associated infrastructure within its command area;
- to procure, lease or construct storage facilities;
- to issue rules regarding the extraction of ground water for irrigation purposes by members and non-members of the WUA;
- to arbitrate and settle any dispute arising over the O&M of the spate irrigation system and associated infrastructure within its command area among individual and/or groups of members and non-members;
- to enforce discipline by imposing sanctions against any member or non-member of the WUA, who unlawfully violates the Articles of Association or Internal Rules & Regulations of the WUA;
- to open and manage one or more bank accounts;
- to take and defend legal proceedings in the interests of all its members;
- to liaise with other WUAs and/or any other agency for the O&M of the diversion structures along the Wadi to ensure the equitable distribution of spate water among all concerned WUAs;
- to liaise with support and advisory organisations in the interests of all its members;
- to develop long-term plans for the development of the spate irrigation system; and
- to undertake any other lawful activities to promote the interests of the WUA and its members and to enhance the economic and social well being of all its members in accordance with existing legislation.

Organisational Structure of WUA

The WUA shall have as a minimum the following organisational structure:

- Members;
- General Assembly; and
- Management Board.

The WUA may also establish committees, such as an Audit Committee, Construction Committee or Maintenance Committee, as specified in its Internal Rules & Regulations.

Members:

Membership of the WUA shall be entirely voluntary. The WUA may have the following natural and legal persons as members:

- owner-operators, sharecroppers and tenants cultivating land within the command area of the WUA; and
- non-operating landowners, including Government and *Waqf* trusts, owning land within the command area of the WUA.

Rights of the WUA members:

- to be elected as WUG Leaders to represent the WUGs in the General Assembly of the WUA;
- to vote in the election of WUG Leaders, provided they have paid their due fees, charges and penalties to the WUA, in accordance with the representative system of the WUA;
- to obtain other services provided by the WUA;
- to examine the books, records and accounts of the WUA;
- to propose matters for discussion during meetings of the General Assembly regarding the management of the WUA as well as the O&M of the spate irrigation system and associated infrastructure; and
- to suggest improvements in the O&M of the spate irrigation system.

Rights of member and non-members of the WUA:

- to receive spate water in accordance with the existing rules concerning the distribution of water;
- to use ground water in conjunctive use with canal water to irrigate their crops;
- to have freedom of crops to be grown in their fields;
- to receive information about water availability and timing of irrigation turns as well as closure of primary canal system;
- to receive compensation where they suffer damage to crops, land or other assets as a result of the negligence of any staff employed by the WUA or as a result of O&M activities undertaken without "due care" by the WUA on their land; and
- any other right(s) as specified in the Internal Rules & Regulations.

Duties and responsibilities of members and non-members of the WUA:

- to adhere to spate water distribution schedules as specified in the Primary Canal Water Management Plan;
- to use supplied spate water economically and efficiently by preparing land for proper irrigation, including the construction and maintenance of field bunds, and leveling of land to ensure uniform distribution of water within the fields and to avoid over-irrigation;
- to avoid any misuse and wastage of water;
- to participate in collective activities of the WUA, such as collective cleaning of canal system and/or repair of service roads;
- to pay ISF, charges and penalties levied by the WUA in time and/or contribute an agreed amount of labour;
- to avoid any damage to any irrigation and associated infrastructure or equipment used or owned by the WUA and to report damage to any irrigation or associated facility immediately to the WUA;
- to pay the costs of repairing or replacing any irrigation and associated infrastructure or equipment used or owned by the WUA, which they damage;
- to supply the WUA with all relevant data and information requested;
- to allow the WUA to use any irrigation and associated infrastructure needed for the provision of irrigation and/or drainage services, which are located on their land (right of way);
- to allow the WUA and its staff access to their land for the purpose of operating and maintaining any irrigation and/or associated infrastructure;
- to comply with the provisions of the Articles of Association and Internal Rules & Regulations of the WUA; and
- any other duties as specified in the Internal Rules & Regulations.

General Assembly

As the principal decision-making body, the General Assembly is the seat of the highest authority in the WUA. The General Assembly shall have at least one Annual General Meeting during each financial year.

Composition of General Assembly

The General Assembly shall be formed by ___ Representatives, whereby [two-third OR three-quarter] of the total number of Representatives are elected by the members of the Water Users' Groups and [one-third OR one-quarter] of the total number of Representatives are elected by the non-operating landholders.

Functions and authorities of the WUA General Assembly:

- to elect and dismiss the members of the Management Board and the Chairperson of the WUA;
- to review and approve annual O&M plan, proposed budget, Annual Account and Income & Expenditure Statement of the WUA;
- to review and amend these Articles of Association;

- to prepare, amend and approve the Internal Rules & Regulations of the WUA;
- to review and approve the level of ISF and any other service charges to be paid by members and non-members to the WUA for the services provided;
- to review and approve penalties and sanctions to be imposed by the WUA against defaulters and offenders for unlawfully violating the provisions in these Articles of Association and/or Internal Rules & Regulations of the WUA;
- to decide on the admission of a new member or expulsion of existing member of the WUA;
- to review and approve the creation of posts, the actual number of executive staff to be employed by the WUA as well as their terms and conditions of employment;
- to review and approve any contract of the value of YR_____ or more for purchase, lease or sale of, both movable and immovable, assets or inputs, the acquisition of services or to obtain a loan;
- if necessary, to review and re-determine the boundaries of the representative zones;
- to make decisions regarding the merger of the WUA with one or more other WUAs, membership of a Federation or voluntary liquidation of the WUA;
- to elect one or more representatives of the WUA to the Federation and/or the Irrigation Council; and
- to undertake any other functions to promote the interests of the WUA and its members as provided for in these Articles of Association or Internal Rules & Regulations of the WUA.

Management Board

The WUA Management Board shall be responsible to the General Assembly for supervising the management of the WUA as well as the O&M of the spate irrigation system and associated infrastructure within its command area. The WUA Management Board shall have at least one meeting every month and each Management Board member will have one vote.

Composition of WUA Management Board

The Management Board shall comprise ___ [no less than 5 and not more than 10] members and shall include:

- at least ___ Representatives who are elected by the members of the Water Users' Groups [66% OR 75% of total number of members]; and
- at least ___ Representatives from the tail section of the command area of the WUA [33% of total number of members]; and/or
- at least one Representative from each village that has land in the command area of the WUA.

WUA Office Bearers

The Management Board shall have the following Office Bearers, who are elected by the Management Board from among its members:

- Chairperson;
- Deputy Chairperson;
- Secretary; and
- Treasurer.

Election of WUA Management Board members

- Candidates for a position in the Management Board, including the post of Chairperson, shall be elected Representatives to the General Assembly and they shall be elected by the General Assembly among its members.
- Each member of the Management Board, including the Chairperson, shall hold office for a term of [4] years with the right to stand for re-election.
- Any conditions regarding the eligibility of any person for election as member of the WUA Management Board, including the Chairperson, shall be specified in the WUA Internal Rules & Regulations. However, it is recommended that candidates for the WUA Management Board shall fulfill at least the following qualifications:
 - ✓ literate;
 - ✓ acceptable for all farmers and be respected by them;
 - ✓ good standing;
 - ✓ permanently resident; and
 - ✓ 18 years or older.

Functions and authorities of the WUA Management Board

- to announce the meetings of the General Assembly;
 - to prepare the Annual Account and the Income & Expenditure Statement of the WUA for approval by the General Assembly;
 - to prepare draft annual work plan and budget for approval by the General Assembly, including maintenance plan and Primary Canal Water Management Plan;
 - to propose the level of annual ISF(s) and any other service charges payable by members and non-members of the WUA for the supply of water and the provision of any other services for approval by the General Assembly;
 - to propose the level of fines and penalties to be imposed by the WUA for approval by the General Assembly;
 - to prepare draft Internal Rules & Regulations for the WUA for approval by the General Assembly;
 - to prepare contracts for approval by General Assembly and award contracts following approval by General Assembly;
-
- to organise the execution of the O&M of all irrigation infrastructure and associated facilities within the command area of the WUA, including appropriate measures to ensure equitable distribution of spate water;
 - to approve all bill of quantities relating to contracts entered into by the WUA;
 - to employ and dismiss staff of the WUA following approval by General Assembly and supervise the performance of the executive staff;
 - to monitor and control the operations and financial performance of the WUA;
 - to propose the expulsion of one or more members for approval by the General Assembly;
 - to propose the removal of the Chairman for approval by the General Assembly in case that he/she acts against the provisions of the Articles of Association and Internal Rules & Regulations of the WUA;
 - to monitor the relationship between the WUA and the Federation and/or Irrigation Council; and
 - to undertake any other functions to promote the interests of the WUA and its members as provided for in these Articles of Association or the Internal Rules & Regulations of the WUA.

Chairperson

Each WUA shall have a Chairperson who must be a member of the General Assembly. The main functions and authorities of the Chairperson are as follows:

- to represent or cause to be represented the WUA in all relations with third parties and in judicial proceedings;
- to announce and chair the meetings of the Management Board and General Assembly;
- to prepare annual maintenance plan and Primary Canal Water Management Plan in collaboration with the executive staff for approval by General Assembly;
- to ensure the preparation of the annual work plan, annual budget, Annual Account and Income & Expenditure Statement by the WUA Treasurer and employed Accountant, if any;
- to ensure and monitor the execution of all decisions of the Management Board and General Assembly as well as the implementation of approved work plans;
- to supervise the activities of all staff employed by the WUA, including the regular maintenance of all books and records of the WUA;
- to co-sign contracts for purchase or lease of assets or inputs, the acquisition of services or to obtain a loan following approval by the Management Board and General Assembly;
- to co-sign cheques for withdrawal of money from bank account(s) in name of the WUA;
- to be overall responsible for the equitable supply of spate water to all water users as well as the cost-effective maintenance of the transferred irrigation infrastructure by the WUA;
- to impose sanctions against any member or non-member of WUA for unlawfully violating the provisions in these Articles of Association or the Internal Rules & Regulations of the WUA, including non-payment of due ISF and any other service charges;
- to obtain comments from the members of the WUA concerning the management of the WUA and the O&M of the spate irrigation system and associated infrastructure within the command area of the WUA; and
- to undertake any other functions to promote the interests of the WUA and its members as provided for in these Articles of Association or the Internal Rules & Regulations of the WUA.



It is recommended that the PIM Extensionist and PIM Support Team use Flip Chart summarising the main functions and powers of the WUA and its General Assembly, Management Board and Chairperson as well as the main rights and responsibilities of WUA members and non-members.



A Leaflet summarising the main functions and powers of the WUA and its General Assembly, Management Board and Chairperson as well as the main rights and responsibilities of WUA members and non-members shall be distributed among the participants at the end of the WUA Introduction Meeting(s).

8.2 WUA Preparation Meeting(s)

Before the Constitutive General Assembly Meeting of the WUA, the Representatives to the WUA General Assembly shall review the WUA Articles of Association during one or more WUA Preparation Meetings. It may also be required to start with the formulation of a number of Internal Rules & Regulations for the WUA during the same meeting(s).

8.2.1 Review of WUA Articles of Association

The WUA Articles of Association provide the minimum legal requirements concerning the structure, objectives and powers of the WUA, procedures for the management of the WUA as well as the rights and responsibilities of its members and non-members, General Assembly, Management Board and Chairperson.

Normally, the WUA Articles of Association include provisions concerning the following subjects:

- Name and location of the WUA;
- Establishment and registration of the WUA;
- Status, objectives and principles of the WUA;
- Functions and powers of the WUA;
- Membership of the WUA;
- Organisational structure of the WUA, including functions and powers of General Assembly, Management Board, Chairperson and executive staff;
- Property, finances and records;
- Audit and inspection of the WUA;
- Liability of the WUA and its members;
- Offences and sanctions;
- Dispute Resolution;
- Merger of WUAs;
- Establishment and membership of Federation of WUAs; and
- Dissolution and liquidation of the WUA.



The PIM Extensionist and PIM Support Team shall introduce the WUA Articles of Association to the WUA General Assembly Representatives by explaining its main purpose and presenting its main issues.



Copies of the WUA Articles of Association shall be distributed among all Representatives to the WUA General Assembly at least one week before the WUA Preparation Meeting.



Copy of the (Model) WUA Articles of Association can be found in Annex 8.1.

8.2.2 Formulation of Internal WUA Rules & Regulations

In addition to the WUA Articles of Association, it is also essential that each WUA develops its own Internal Rules & Regulations concerning the management of the WUA itself and the O&M of the spate irrigation system, including the procedures for assessment and collection of water rates among its members and non-members using spate water for irrigation purposes. The contents of the Internal Rules & Regulations shall be approved by the WUA General Assembly and shall reflect the Principles of the WUA (see 8.1.1).

The Internal Rules & Regulations of the WUA may at any time be amended by a simple majority of votes cast by the Representatives during a General Meeting of the WUA General Assembly unless otherwise specified in the WUA

Internal Rules & Regulations.

The Internal Rules & Regulations of the WUA may include, though not necessarily be limited to, provisions relating to:

- criteria for WUA membership, including membership fee;
- terms of office and procedures for election and removal of WUA Management Board members and Chairperson;
- procedures for calling meetings of the General Body and Management Board;
- voting procedures and quorum for meetings of the WUA General Assembly and Management Board;
- duties and authorities of any Standing Committees constituted by the General Assembly or Management Board;
- functions and powers of any WUA-employed staff and procedures for appointment and dismissal of staff;
- procedures for preparation of O&M plans;
- policies of water rights and water distribution to members and non-members;
- procedures for executing O&M activities;
- procedures for the assessment and collection of ISFs and any other service charges to be paid by members and non-members for the services provided by the Association;
- powers of the WUA to recover due ISFs and any other service charges
- powers of the WUA to impose sanctions against defaulting members and non-members, including a schedule of fines and the power to cease the supply of water;
- procedures for dispute resolution;
- liability of the WUA and its members;
- inventory of assets owned by the WUA; and
- procedures for distribution of assets in the event of dissolution of the WUA following the completion of the liquidation process.

Water Rights

The right to spate water of each farmer within the command area of the spate irrigation system and the conditions under which he/she may exercise to use that right are important factors in achieving acceptance and understanding of individual water rights by the farmers. The details and nature of the water rights for individual farmers may differ in each irrigation system. Therefore, the WUA shall be clearly defined the water rights in its Internal Rules & Regulations in a form that is understandable to each farmer.

The WUA shall also describe very clearly in its Internal Rules & Regulations when a member or non-member will lose its right to use spate water for irrigation purposes, such as non-payment of ISF, repeated stealing of water and/or wilful damage to irrigation structures.

Equitable Distribution of Spate Water

Internal Rules & Regulations concerning the equitable distribution of spate water among individual farmers are one of the most important ones that have to be developed by the WUA. Equitable water distribution refers to the sharing or allocation of available water resources among all farmers in accordance with their legal or established right to that water. Factors that bear directly on the attainment of equity include:

- existence of system rules which are known clearly by both farmers and operators;
- adherence to those rules in actual water supply operation; and
- confidence among farmers that the WUA will apply the rules fairly without undue favour or penalty to individuals.

In addition, the WUA shall also specify in its Internal Rules & Regulations which procedures with regard to the distribution of water will be applied in case of (acute) shortage of water due to climatic conditions, breaches and any other circumstances.

Penalties and Sanctions

For any violation of any provision in its Articles of Association and/or Internal Rules & Regulations, the WUA must be prepared to take appropriate action to rectify the situation if it can find the wrongdoer. If the WUA is not willing or able to impose sanctions against all offenders, it could have serious consequences for the effective O&M of the spate irrigation system and the management of the WUA itself. Members and non-members will ignore the WUA Articles of Association and Internal Rules & Regulations, because they realise that sanctions are not imposed effectively in case of any offence.

The most common penalties and sanctions applied for various offences are:

- Verbal and written warnings;
- Fines;
- Interest for late payment of water and other charges;
- Labour duties;
- Confiscation of agricultural equipment, such as tractors, crops, livestock and/or other assets;
- Cessation of water supply;
- Disqualification as member of the WUA; and
- Submission of complaint to judiciary.



Although it is not necessary or even possible to formulate all possible Internal Rules & Regulations before the formal establishment of the WUA during the Constitutive General Assembly Meeting, it is required to draft a number of Internal Rules & Regulations with regard to the following issues before or at the start of the Constitutive General Assembly Meeting:

- Criteria for WUA Membership;
- Composition and number of Management Board members;

- Adoption of WUA Articles of Association and Internal Rules & Regulations by simple majority or two-third of the votes cast during the Constitutive General Assembly Meeting; and
- Voting procedures.



It may be recommended that the Representatives to the WUA General Assembly should form a special committee of 5 to 10 members, which will prepare the first set of draft Internal Rules & Regulations before the Constitutive General Assembly Meeting.

8.3 Constitutive General Assembly Meeting

Following the review of the WUA Articles of Association and the formulation of a number of Internal Rules & Regulations by the Representatives to the WUA General Assembly, the Constitutive General Assembly Meeting shall be conducted in order to establish the WUA formally by:

- adopting the Articles of Association and Internal Rules & Regulations of the WUA;
- preparing the List of Representatives to WUA General Assembly; and
- electing the Management Board members, including the WUA Chairperson.



The Constitutive General Assembly Meeting is one of the most important meetings during the entire PIM Programme as its main objective is the formal establishment of the WUA, which will be ultimately fully responsible for the O&M of the spate irrigation system. Therefore, it is required that the required quorum as specified in the draft Internal Rules & Regulations, attend this meeting.



If the required quorum is not present at the start of the Constitutive General Assembly Meeting, the PIM Extensionist and PIM Support Team shall postpone the meeting. It is recommended that another Constitutive General Assembly Meetings shall be planned within one month.

8.3.1 Adoption of WUA Articles of Association

The first step in the establishment of the WUA is the adoption of the WUA Articles of Association by the General Assembly of the WUA during its Constitutive General Meeting.



Although the main subjects of the (Model) WUA Articles of Association were introduced to the Representatives during the WUA Preparation Meeting(s), it is recommended that the PIM Extensionist and PIM Support Team shall start the meeting with a brief review of the (Model) WUA Articles of Association before the WUA General Assembly would commence with the adoption of this important document.

☞ It is very important to explain to the Representatives to the WUA General Assembly members once more that the articles of (Model) WUA Articles of Association cannot be changed once they have been adopted. However, the WUA General Assembly would always have the authority to formulate and/or amend Internal Rules & Regulations of the WUA within the provisions of the (Model) WUA Articles of Association, so that the management of the WUA can be adapted to the local circumstances as much as possible.

8.3.2 Review and Adoption of Internal Rules & Regulations

Before the first set of Internal Rules & Regulations can be formally adopted by the WUA General Assembly, they shall be presented properly to all Representatives that are attending the Constitutive General Assembly Meeting. The best way to present the Internal Rules & Regulations is by reading them article by article. Any approved amendments of the Internal Rules & Regulations shall be correctly recorded.

8.3.3 Preparation of List of Representatives to WUA General Assembly

Following the adoption of the WUA Articles of Association and Internal Rules & Regulations but before the election or nomination of the Management Board members, the List of Representatives to WUA General Assembly shall be prepared in accordance with the provisions in the adopted WUA Articles of Association and Internal Rules & Regulations.

☞ Only the Representatives from the WUGs and non-operating landowners, whose names are included in the List of Representatives to WUA General Assembly, are eligible to vote and to be elected as a member of the WUA Management Board.

8.3.4 Election of Management Board Members

With the adoption of the Internal Rules & Regulations, the size and composition of the Management Board will be known. Although the functions and powers of the Management Board have already been introduced during the WUA Introduction Meeting(s) (see 8.1.3), it is recommended that the PIM Extensionist and PIM Support Team present them once more before the Representatives to the WUA General Assembly elect the members of the WUA Management Board.

Prior to the election or nomination of any person for the position of Chairperson, Secretary and Treasurer of the WUA, the PIM Extensionist and PIM Support Team shall present the functions and powers of these WUA Office Bearers to the Representatives to the WUA General Assembly.

☞ The functions and powers of the WUA Chairperson are listed in 8.1, whereas the main duties and powers of the Secretary and Treasurer are described below.

WUA Secretary:

- preparation of meetings of Management Board and General Assembly, including the preparation and distribution of the invitations and agenda to the Representatives to the General Assembly;
- preparation of minutes of meetings of the Management Board and the General Assembly;
- preparation of annual report on all activities conducted by the WUA during the last financial year;
- all administrative tasks and correspondence of the WUA, including management of executive staff; and
- maintenance of all non-financial books and records of the WUA, including the register of members and non-members.

WUA Treasurer:

- all financial tasks and transactions of the WUA, including preparation of annual budget, balance sheet and statements on income and expenditure;
- maintenance and regular control of all financial books and records of the WUA;
- receiving and recording all payments made to the WUA by water users, including ISFs and any other services charges, fines and membership fees;

- co-signing cheques for withdrawal money from the bank account(s) in the name of the WUA;
- report monthly to the Management Board about the financial situation of the WUA; and
- preparation of list of defaulters.

☞ The election of the Management Board members is an internal affair of the newly established WUA. Therefore, the PIM Extensionist and PIM Support Team shall limit its role to monitor the election process and assess if the election of the Management Board members was carried out in accordance with the adopted WUA Articles of Association and Internal Rules & Regulations.

☞ The PIM Extensionist and PIM Support Team shall assess, in particular, if the composition of the Management Board is in accordance with the WUA Internal Rules & Regulations. If the WUA Internal Rules & Regulations specify that each main village, religious community and/or social group shall be represented in the Management Board, the PIM Extensionist and PIM Support Team shall check if the WUA members have adhered to that particular condition in the Internal Rules & Regulations. If not, the PIM Extensionist and PIM Support Team shall report it to the WUA members.

8.3.5 Selection of Name for WUA

The PIM Extensionist and PIM Support Team shall request the General Assembly to select an appropriate name for the newly established WUA.

☞ It shall be avoided that the WUA is named after one of the WUA Management Board members or after one village if more villages are involved.

8.3.6 Signing of WUA Formation Statement

At the end of the Constitutive General Assembly Meeting, all Representatives to the WUA General Assembly shall sign a statement, in which they endorse the formal establishment of the WUA, including the adoption of the WUA Articles of Association and Internal Rules & Regulations as well as the election of the Management Board members and the WUA Chairperson.

8.4 Opening of Bank Account in Name of WUA

As soon as the WUA has been established, the newly elected Chairperson and Treasurer of the WUA Management Board shall open a bank account in the name of the WUA.

8.5 Preparation and Submission of Application for Registration of WUA

As a WUA will be involved in financial transactions (i.e. bank loans and collection of ISFs), acquire fixed assets and has to enter into contracts and agreements with the Government and other institutions, it shall be registered as a legal body with the Government.

8.5.1 Procedures for Registration of WUA

Following the adoption of the WUA Articles of Association and Internal Rules & Regulations, election of the Management Board members and opening of bank account in the name of the WUA, the newly elected Management Board members shall prepare an application for the registration of their newly established WUA.

☞ In accordance with Article 10 of the new Water Law 2002, the procedures for the registration of the WUA shall be specified in the Executive Procedures, which shall be prepared by the General Authority for Water Resources and issued as a Decree of the Council of Ministers within six months from the date of the adoption of the new Water Law.

8.5.2 Legal Status of Registered WUA

If the WUA is duly registered, it shall have the legal status as corporate body by the name under which it is registered and having perpetual succession with the power to hold property, both movable and immovable, and it shall by the said name sue and be sued.

MILESTONE 1: WATER USERS' ASSOCIATION ESTABLISHED AND APPLIED FOR REGISTRATION

STEP 9 PREPARATION AND SIGNING OF WORKS AND SUPPORT AGREEMENTS

Target Group: WUA Management Board members and WUA General Assembly members.

Field Staff Involved: PIM Extensionist and PIM Support Team.

Timing: Within one month after the formation of the WUA (PIM Step 8) and/or completion of the Participatory Planning and Design of Rehabilitation Works (PIM Step 7).

Duration: One month.

Main Purposes:

- Preparation of Works and Support Agreement, which specifies the rights and obligations of all signing parties during the construction of the Contractor Works and WUAs' Works, the technical and institutional strengthening and support of the WUGs and WUA.
- Review and approval of Works and Support Agreement by the General Assembly of the WUA.
- Signing of the Works and Support Agreement by the WUA Chairperson on behalf of the WUA and the PMU Director on behalf of the IIP/MAI.

Documents:

- (Model) Works and Support Agreement (Annex 9.1).

Visual Aids: None.

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To ensure that the PIM approach will be properly implemented, so that farmers can take up the management of the completed scheme immediately and make full utilisation of all irrigation infrastructure, a Works and Support Agreement shall be signed by all concerned parties, in which the conditions and time schedules for the implementation of the rehabilitation works (PIM Steps 10 and 11), the technical and institutional strengthening of the WUGs and WUAs (PIM Step 13) and the agricultural extension programme (PIM Step 14).

9.1 Preparation of Works and Support Agreement

The Works and Support Agreement shall specify the rights and obligations of all parties involved in the implementation of the PIM approach as well as the conditions and time schedules for the implementation the construction of the Main and WUA Works, the technical and institutional strengthening of the WUGs and WUA, and the planning and implementation of the agricultural extension programme.

9.1.1 Main Issues of the Works and Support Agreement

The Works and Support Agreement shall cover at least the following issues:

Contractor Works and WUA Works

- Detailed inventory of all irrigation facilities to be rehabilitated under the Contractor Works Contract and WUA Works Contract(s);
- Detailed time schedules for execution of Contractor Works Contract and WUA Works Contract(s);
- Authorities of WUA to contract out WUA Works Contract(s) to third parties;
- Provision of training of the WUA Construction Committee by the PIU Construction Team before the start of the construction of the WUA Works;
- Provision of technical assistance to the WUA by the PIU Construction Team during the preparation of detailed Work Plans and the execution of the WUA Works;
- Leasing of any government-owned machinery and equipment to the WUA for the execution of the WUA Works;
- Minimum standards of workmanship;
- Responsibilities for any losses and damage resulting from non-compliance with any of the obligations in the signed Works and Support Agreement and/or from execution of the Contractor Works and WUA Works;
- Supervision of Contractor Works and WUA Works;
- Financing schedule for farmers' contributions, including sanctions for late and non-payment;
- Emergency procedures in case of calamities due to extreme climatic conditions, such as flash floods;
- Communication and reporting procedures;
- Right-of-way; and
- Procedures for joint inspections of completed Contractor Works and WUA Works.

Provision of Training and Support

- Responsibilities and obligations of the PIU with regard to the technical and institutional strengthening of the WUGs and WUA through the provision of training and support, so that the WUGs and WUA would have the necessary technical and organisational skills for the effective O&M of the rehabilitated distribution system and the (administrative and financial) management of the WUA itself; and
- Responsibilities and obligations of the PIU in collaboration with the Agricultural Extension Department within MAI and/or contracted service provider with regard to the participatory planning and execution of a comprehensive agricultural extension programme.

Procedures

- Procedures to be followed in case of non-compliance by any party with any of the responsibilities and obligations described in the Works and Support Agreement;
- Procedures for changing or termination of the Works and Support Agreement; and
- Procedures for settlement of disputes.

Farmers' Contributions to Rehabilitation Costs

Farmers will be particularly interested in their expected contributions to the estimated rehabilitation costs of the headworks and the distribution system. Therefore, this issue shall be very clearly specified in the Works and Support Agreement and discussed in detail with the WUA members.

Farmers are expected to contribute about 30% of the costs of the civil works and it will be collected in two stages:

- a contribution of about 7% of the civil works costs during the implementation of the civil works, which may be provided either as labour, materials or in cash; and
- an annual cash repayment of about 25% of the civil works expenditures, starting 5 years after completion of the civil works, over a 20-year period.

Farmers' Contributions to O&M Costs

The annual payment of ISFs to cover the costs of operating and maintaining the primary and secondary canal systems, including all structures (i.e. cross-regulators, drop structures and intake structures) is also an issue that farmers want to know clearly.

Farmers are expected to payment an Irrigation Service Fee (ISF) to WUA that will gradually increase over 7-year period following completion of rehabilitation so that all O&M costs are fully recovered.

The actual amount of money that each farmer shall pay as an ISF per hectare/*feddan* of land to the WUA will be different for each spate irrigation systems as it mainly depends on the type, number and size of irrigation structures. In addition, the ISF may also vary every year on each spate irrigation system as the estimated maintenance costs may be different each year.

Water Allocation and Distribution

One of the two main goals of the IIP is to ensure sustainable and efficient distribution and use of water in spate irrigation schemes through rehabilitation and improvement of irrigation infrastructure and implementation of PIM.

In principle, available spate water shall not only be distributed efficiently but also as equitably as possible, so that as many farmers as possible will have access to spate water to irrigate their fields. Equitable distribution of spate water can only be achieved if the farmers through their WUAs would agree that available spate water is distributed in accordance with (existing) water distribution rules, such as the *Ala'ala Fala'ala* (locally known as *Rada'ah* in Wadi Tuban), which gives precedence to upstream users, both between and within diversion structures and canal systems. This means that upstream users have the right to a single full irrigation before their downstream neighbours.

It is envisaged that a Wadi Water Management Plan will be formulated and adopted through the Irrigation Council (PIM Step 17) for the efficient and equitable distribution of spate water between all spate irrigation system along the Wadi. In addition, each WUA shall formulate and adopt a Primary Canal Water Management Plan (PIM Step 18) to ensure the efficient and equitable distribution of spate water along the entire primary and secondary canal system.

It shall be clearly stated in the Works and Support Agreement that:

- the WUA shall adhere to the rules for the distribution of spate among all spate irrigation systems along the Wadi as stipulated in the Wadi Water Management Plan that will be formulated and approved through the Irrigation Council at a later stage; and
- the WUA shall distribute spate water efficiently and equitably in accordance with rules as stipulated in the Primary Canal Water Management Plan, which shall be formulated and approved by the WUA before the signing of the Irrigation Management Transfer Agreement (PIM Step 19).

Right-of-Way

One issue that could hinder the smooth execution of the Main and WUA Works by the contractor and the WUA respectively is the matter of 'right-of-way', whereby the owners of the land allows the contractor and WUA to cross their fields during the implementation of the construction works.

To ensure that the 'right-of-way' issue will not prohibit the smooth implementation of any construction works, the WUA shall collect a written statement from all concerned landowners that none of them have objections that: staff of the contractor and/or WUA can cross their fields during the construction and inspections of the works. If required, the landowners shall be (financially) compensated for any damage to crops and any structure on the land.

The 'right-of-way' statements signed by all concerned landholders shall be attached to the Works and Support Agreement as an annex.

9.2 Review and Approval of Works and Support Agreement by WUA General Assembly

Before the Works and Support Agreement could be signed by the WUA Chairperson on behalf of the WUA and the PMU Director on behalf of the IIP/MAI, the WUA General Assembly shall formally approve this important document following a review of its content.



To allow the General Assembly members to read the Works and Support Agreement, the PIM Extensionist shall submit a number of copies of the translated version of the Works and

Support Agreement to the WUA Committee at least one week before the planned Meeting of the WUA General Assembly.

After having explained and discussed the Works and Support Agreement, the PIM Extensionist and PIM Support Team shall ask the members of the WUA General Assembly if the content is clear to them and that they could formally approve the Works and Support Agreement as presented to them.



It is very important that the PIM Extensionist and PIM Support Team emphasise that the Works and Support Agreement is a type of contract between equal parties, the WUA and the IIP, specifying their specific rights and obligations prior and during the implementation of the construction works, strengthening of the WUA and the agricultural extension and land development programme.



A copy of a (Model) Works and Support Agreement can be found in Annex 9.1.

9.2.1 Rejection of Works and Support Agreement by WUA General Assembly

If the WUA General Assembly does not agree with one or more articles of the Works and Support Agreement, the PIM Extensionist and PIM Support Team shall discuss with its members the main reason(s) for their objection. If possible, the PIM Extensionist and PIM Support Team shall ask the General Assembly to change the content of the concerned article(s) in such a way, that it will be acceptable for them. The proposed alterations in one or more articles of the Works and Support Agreement have to be approved by the other parties before a final version of the Works and Support Agreement with the approved alterations could be prepared by the PIU.

However, if the IIP cannot accept the alterations proposed by the WUA General Assembly, its objections shall be discussed with the members of the WUA General Assembly during another meeting in an attempt to find a consensus, which will be acceptable for both parties.



Exit: If the WUA General Assembly formally decides to reject the Works and Support Agreement, the IIP does not have another choice than to cancel the rehabilitation of the concerned spate irrigation systems and the transfer of irrigation management to the WUA. The WUA Management Board shall be formally informed in writing about the IIP's decision.

9.3 Signing of Works and Support Agreement

After the WUA General Assembly has formally approved the Works and Support Agreement, the PIM Extensionist and PIM Support Team in collaboration with the WUA Management Board shall arrange a special ceremony, during which the Works and Support Agreement will be signed by the WUA Chairperson on behalf of the WUA and the PMU Director on behalf of the IIP/MAI.

**MILESTONE 2:
WORKS AND SUPPORT AGREEMENT SIGNED BY WUA CHAIRPERSON ON
BEHALF OF WUA AND PMU DIRECTOR ON BEHALF OF IIP/MAI**

STEP 10 TENDER AND EXECUTION OF CONTRACTOR WORKS

Target Group: Contractor(s) and WUA Construction Committee.

Field Staff Involved: PIU Construction Team (i.e. PIU Resident/Construction Engineer, PIM Extensionist and PIM Support Team).

Timing: Following the signing of the Works and Support Agreement (PIM Step 9) and at least two to three months before the start of the construction season.

Duration: 8 to 9 months.

Main Purposes:

- Tender and award of Contractor Works Contract.
- Execution of Contractor Works by the contractor.
- Progress monitoring and quality control by PIU and WUA Construction Committee.
- Regular Contractor Works Monitoring Meetings.

Documents:

- Final Rehabilitation Plan & Cost Estimates.
- Contractor Works Contract and specifications.
- Works and Support Agreement.
- Relevant Quality Control Guidelines.

Visual Aids:

- Map(s).
 - Drawings.
-

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10.1 Tender and Award of Contractor Works Contract

Following the signing of the Works and Support Agreement, the PIU/PMU could start the tendering and the award of the Contractor Works Contract in accordance with the existing Government and World Bank procedures.

10.2 Execution of Contractor Works

Following the award of the Contractor Works Contract, the contractor shall commence the construction works in accordance with the agreed time schedule. The PIU Construction Team shall monitor the execution of the construction works closely. To avoid serious delays in the execution of the Contractor Works Contract, the PIU Construction Team shall identify any problems as early as possible and try to resolve them immediately in consultation with the contractor and the WUA Construction Committee.

10.3 Progress Monitoring and Quality Control of Contractor Works

During regular (two-weekly) Contractor Works Monitoring Meetings, the PIU Construction Team, site engineers, contractor and WUA Construction Committee shall review the progress and the quality of the construction works and discuss any problems encountered during the execution of the Contractor Works.

A quality assurance audit of test results to ensure compliance with specifications must be completed and duly signed by all parties.

If necessary, the PIU Construction Team, contractor and WUA Construction Committee shall jointly visit the site(s) where the contractor of the Contractor Works has encountered problems during the execution of the construction works. If possible, the problems shall be resolved immediately. However, if major changes have to be made in the detailed system designs, the PIU Construction Team shall discuss the matter with the concerned Design Engineers before any decision can be made.

If the progress review has revealed that the execution of the Contractor Works is behind schedule with the execution of its construction works, the PIU Construction Team and the contractor shall assess the possibilities to adjust the work plan, so that the construction of the Contractor Works can catch up with the time schedule as agreed in the signed Works and Support Agreement as well as the Contractor Works Contract.

STEP 11 EXECUTION OF WATER USERS' ASSOCIATION WORKS

Target Group: WUA Construction Committee and WUA Management Board.

Field Staff Involved: PIU Construction Team (i.e. PIU Resident/Construction Engineer, PIM Extensionist and PIM Support Team).

Timing: Following signing of Works and Support Agreement (PIM Step 9) and at least one month before the start of the construction season (the month of October).

Duration: 6 to 7 months.

Main Purposes:

- Formation and training of WUA Construction Committee.
- Preparation of work plan and detailed budget for WUA Works.
- Procurement of materials and mobilisation of labour and equipment.
- Execution of WUA Works.
- Progress monitoring and quality control by PIU and WUA Construction Committee.
- Regular WUA Works Monitoring Meetings.

Documents:

- Final Rehabilitation Plan & Cost Estimates.
- (Model) WUA Works Contract (Annex 11.1).
- Works and Support Agreement.
- Relevant Quality Control Guidelines.

Visual Aids:

- Map(s).
- Drawings.

INFORMATION AND GUIDELINES

The Procurement and Disbursement Arrangements for the Irrigation Improvement Project are specified in Annex 6 of the Project Appraisal Document (August 2000). These arrangements specify that, "*subject to prior agreement with IDA in each case and practical considerations, works below an estimated value of US\$ 10,000 up to an aggregate amount of US\$ 1.0 million equivalent may occasionally be implemented, instead, by using direct contracting with the nearest available source*". (p.70) It is also specified that "*IDA Guidelines shall be followed for all types of procurement, with some simplification of procedures and documents for small sub-projects, especially community involvement projects*". (p.73)

It seems that the Procurement and Disbursement Arrangements for IIP allow that small works can be executed through direct contracts with the nearest available source, which can be the WUA. These same arrangements also allow that works can be implemented through "community involvement sub-projects", for which simplified procedures and documents may be developed.

Proposed Method of Farmers' Contributions to Rehabilitation Works

The Project Appraisal Document (August, 2000) stipulates that beneficiaries shall contribute 10% of the costs of civil works (except headworks, see p 65) and that their share may be provided either in labour, materials or in cash. (p16 and p 60).

It is anticipated that it will be difficult to collect cash contributions equivalent to 10% of the civil works costs from the farmers. Therefore, it is proposed that farmers through their WUA undertake part of the rehabilitation works (e.g. earthworks) on their spate irrigation system by themselves, using direct contracting. The WUA would sign a contract (contract value below US\$ 10,000) with the Project, in which the WUA agrees to carry out a certain amount of rehabilitation works against the engineer's cost estimates minus their 10% contribution towards the capital costs of the rehabilitation works.

The execution of part of the rehabilitation works by the WUA also has the following two main advantages:

- WUA will acquire the necessary technical and organisational skills to plan, execute and supervise civil works, which are needed for the implementation of O&M works following the formal transfer of the O&M responsibility;
- Farmers will develop a greater sense of ownership as they have directly implemented a part of the rehabilitation works on their spate irrigation system.

11.1 Formation and Training of WUA Construction Committee

To ensure the smooth execution of the WUA Works, the WUA Management Board could decide to establish a WUA Construction Committee for that particular purpose. During a meeting of the WUA Management Board, the concept of the WUA Construction Committee and its main functions and authorities shall be presented to its members before the WUA Construction Committee could be established.


11.1.1 Functions and Authorities of WUA Construction Committee

With regard to the execution of the WUA Works, the WUA Construction Committee will have the following functions and responsibilities:

- To prepare a detailed work plan and budget for the execution of WUA Works in collaboration with the PIU Construction Team;
- To procure the materials and mobilise labour and equipment;
- To prepare and let contracts for works beyond WUA's capacity;
- To supervise the execution, control the quality and monitor the progress of the WUA Works;
- To report to the WUA Management Board on the progress, quality and problems regarding the execution of the WUA Works and, if required, to discuss any changes in the work plan;
- To monitor the implementation progress and control the quality of the Contractor Works;
- To participate in regular meetings with the PIU Construction Team and the contractor of the Contractor Works to review the progress of the Contractor Works and to discuss any problems encountered;
- To investigate and resolve any dispute, such as right-of-way, to avoid any unnecessary delay or suspension in the execution of the WUA Works and Contractor Works; and
- To participate in the final inspections of the Contractor Works and WUA Works as soon as they have been completed.

11.1.2 Formation of WUA Construction Committee

The WUA Construction Committee shall have five to ten members. To have an effective WUA Construction Committee, the election or nomination of competent members is crucial. Candidates for the WUA Construction Committee shall be literate in order to be able to read work plans and budgets, instructions, designs and inspection reports. If possible, candidates with (some) experience in planning and/or execution of construction works shall be proposed.

 It is recommended that the WUA Construction Committee shall consist of representatives from the head, middle and tail reaches of the primary canal. At least one seat in the WUA Construction Committee may be reserved for the village women.

In principle, the members of the WUA Construction Committee shall be elected or nominated among the WUA members. However, one or more non-members could also be nominated because of their specific skills and experience with respect to planning and/or monitoring of construction works.

11.1.3 Training of WUA Construction Committee

Following the formation of the WUA Construction Committee, its members shall receive some training in relevant technical issues that are required for the supervision, monitoring and quality control of the construction works, including:

- preparation of work plan and budget
- procurement of materials;
- mobilisation of labour and equipment;
- progress monitoring; and
- quality control.

The provision of training for the WUA Construction Committee members shall be arranged by the PIU Construction Team in accordance with provisions in the signed Works and Support Agreement.

11.2 Preparation and Signing of WUA Works Contract

Following the formation and training of the WUA Construction Committee, the PIU Construction Team shall introduce the WUA Works Contract to its members. Following a detailed review of the WUA Works Contract, the WUA Construction Committee and the PIU Construction Team shall prepare a scheme-specific version of the contract, which shall be submitted to the WUA Management Board and General Assembly for review and approval.

11.2.1 Review and Approval of WUA Works Contract by WUA General Assembly

Before the WUA Works Contract could be signed by the WUA Chairperson on behalf of the WUA and the PIU Director on behalf of the MAI/IIP, the WUA General Assembly shall formally approve this important document following a review of its content.



To allow the General Assembly members to read the WUA Works Contract, the PIU Construction Team shall submit a number of copies of the translated version of the WUA Works Contract to the WUA at least one week before the planned Meeting of the WUA General Assembly.

After having explained and discussed the WUA Works Contract, the PIU Construction Team shall request the members of the WUA general Assembly if the content is clear to them and that they could formally approve the WUA Works Contract as presented to them.



A copy of a (Model) WUA Works Contract can be found in Annex 11.1.

11.2.2 Rejection of WUA Works Contract by WUA General Assembly

If the majority of members of the WUA General Assembly do not agree with one or more conditions and/or specifications of the WUA Works Contract, the PIU Construction Team shall discuss with them the main reason(s) for their objection. If possible, the PIU Construction Team shall ask the General Assembly to suggest any alterations to the WUA Works Contract, so that it will be acceptable for them. The proposed alterations to the WUA Works Contract have to be approved by the PIU Director before a final version of the WUA Works Contract with the approved alterations could be prepared by the PIU Construction Team.

However, if the PIU cannot accept the alterations as proposed by the WUA General Assembly, their objections shall be discussed with the WUA General Assembly during another meeting in an attempt to find a consensus, which will be acceptable for both parties.



Exit: If the WUA General Assembly formally decides to reject the WUA Works Contract, the IIP does not have another choice than to cancel the rehabilitation of the concerned spate irrigation system and the transfer of irrigation management to the WUA. The WUA Management Board shall be formally informed in writing about the IIP's decision.

11.2.3 Signing of WUA Works Contract by WUA and PIU Director

After the WUA General Assembly has formally approved the WUA Works Contract, it can be signed by the WUA Chairperson on behalf of the WUA and the PIU Director on behalf of the MAI/IIP.

11.3 Preparation and Approval of Work Plan and Budget

Following the signing of the WUA Works Contract, the WUA Construction Committee shall commence with the preparation of a detailed work plan and budget for the WUA Works that will be undertaken by the WUA in accordance with the provisions in the signed Works and Support Agreement.

As it is unlikely that the newly established WUA Construction Committee has any previous experience with the preparation of a work plan and detailed budget for the execution of construction works, the PIU Construction Team shall provide the necessary technical support to ensure that the construction works will be carried out properly and in a timely manner.


11.3.1 Modalities for Execution of WUA Works

With the assistance of the PIU Construction Team, the WUA Construction Committee shall assess if the WUA shall carry out the construction works itself or to contract them out by evaluating if the WUA and its members and non-members have:

- the technical capacity to undertake the works; and
- sufficient time to execute the works.

If the WUA Works are technically simple, the WUA Construction Committee could propose to the WUA Management Board that the WUA shall undertake these works. However, if the concerned WUA Works are technically complicated and the input of qualified technical staff is required, the WUA Construction Committee could propose that the works shall be (partly) contracted out.

A hybrid formula is also possible whereby the WUA will undertake the technically simple, labour-intensive construction works, whereas a contractor will execute the technically more complicated, capital-intensive WUA Works.

 The PIU Construction Team shall explain to the WUA Construction Committee that contracting out the execution of WUA Works may be more expensive as a contractor wants to make a profit and his overhead costs may also be higher.

11.3.2 Approval of Work Plan and Budget

If the WUA Construction Committee has proposed that the WUA Works could be executed by the WUA itself, the prepared work plan and detailed budget have to be reviewed and approved by the WUA Management Board.


If the WUA Construction Committee has recommended that the execution of the WUA Works shall be contracted out (partly), the prepared work plan and detailed budget shall be reviewed by the WUA Management Board before a contract is prepared. Subsequently, the prepared work plan, detailed budget and contract shall be submitted to the WUA General Assembly for approval.

Rejection of Work Plan and Budget

In case that the prepared work plan and detailed budget proposed by the WUA Construction Committee is rejected by either the WUA Management Board or General Assembly, the members of the WUA Construction Committee shall review their proposed work plan and budget once more with the assistance of the PIU Construction Team. During the review, they shall assess the possibility to incorporate the comments and suggestions from the WUA Management Board or General Assembly in the original work plan and budget.

If the WUA Construction Committee has succeeded to adjust the work plan and budget in accordance with the comments and suggestions of the WUA Management Board or General Assembly, they shall be submitted for a second review and approval.

However, if the WUA Construction Committee has come to the conclusion that not all the comments and suggestions from the Management Board or General Assembly could be incorporated in the work plan and budget, it shall inform the WUA Management Board accordingly. The WUA Management Board shall then decide if it would like to submit the non-revised work plan and budget to the General Assembly for a review and approval once more.

 **Exit:** The final rejection of the work plan and budget by the WUA General Assembly would mean that the IIP does not have another choice than to cancel the Works and Support Agreement and abandon the rehabilitation of the spate irrigation system and the transfer of irrigation management to the WUA. In that case, the IIP shall inform the concerned WUA formally in accordance with the provisions in the signed Works and Support Agreement.

11.4 Preparation of WUA Works

As mentioned in 11.2.1, the WUA has the option to undertake all WUA Works itself or to contract a part or all the works out to a contractor. In the following sections, the requirements of both options are briefly described.

11.4.1 Procurement of Materials and Mobilisation of Labour and Equipment

If the WUA would decide to carry out a part or all the works itself, it would have to procure the necessary materials and mobilise the required amount of skilled and unskilled labour as well as equipment.

With regard to the mobilisation of unskilled labour, the WUA would have the following two options:

- All WUA members and non-members shall provide free labour for a number of days; or
- Unskilled labour is recruited temporarily in the market, whereby WUA members would be given priority.

For the mobilisation of skilled labourers, such as masons, the WUA shall recruit qualified and experienced candidates in the market. If one or more WUA members are qualified as skilled labourers, they shall be given the first choice and hired against prevailing market prices.

Equipment, such as tractors (with blades) and cement mixers, shall also be hired in the market at competitive prices by the WUA.

The procurement of materials, such as cement, gravel and sand, shall be done through competitive bidding, whereby (short-listed) suppliers shall be invited to submit quotations for the supply of the requested materials.

11.4.2 Selection of Contractor

In case that the WUA has decided to contract some or all WUA Works out, a contractor shall be selected through competitive bidding, whereby (short-listed) construction/consulting engineering companies are invited to submit their quotations for the execution of the requested works. For the evaluation of the quotations, the WUA could request the technical assistance of the PIU Construction Team.

11.5 Execution of the WUA Works

11.5.1 Execution of WUA Works by WUA

In case that the WUA undertakes some or all WUA Works, the WUA Construction Committee has the responsibility to coordinate and supervise the implementation of the works, monitor its progress and control the quality of the completed works. If required, the WUA could request the PIU Construction Team to provide technical assistance in accordance with provisions in the signed Works and Support Agreement.

11.5.2 Execution of WUA Works by Contractor

If some or all WUA Works will be carried out by a contractor, one of the main functions of the WUA Construction Committee is progress monitoring and quality control. If necessary, the WUA could request the PIU Construction Team to provide technical assistance in accordance with provisions in the signed Works and Support Agreement.

11.6 Progress Monitoring and Quality Control of WUA Works

During regular (two-weekly) WUA Works Monitoring Meetings, the PIU Construction Team and the WUA Construction Committee shall review the progress and the quality of the construction works and discuss any problems encountered during the execution of the WUA Works.

If necessary, the PIU Construction Team and the WUA Construction Committee shall jointly visit the site(s) where the WUA has encountered problems during the construction of the works. If possible, the problems shall be resolved immediately by both parties. However, it may be necessary that the PIU Construction Team and the WUA Construction Committee have to discuss the matter with the concerned Design Engineer and WUA Management Board respectively before any decision can be made with regard to changes in the design.

If the progress review has revealed that the WUA is behind schedule with the execution of its construction works, the PIU Construction Team and the WUA Construction Committee shall assess the possibilities to adjust the work plan, so that the WUA can catch up with the time schedule as agreed in the signed Works and Support Agreement as well as the WUA Works Contract.

STEP 12 FORMATION AND REGISTRATION OF SCHEME WATER USERS' FEDERATION(S)

Target Group: WUA Representatives.

Field Staff Involved: PIM Support Team.

Timing: Within one month after the formation of the last WUA (PIM Step 8).

Duration: Two to three months.

Main Purposes:

- Review of SWUF Articles of Association and formulation of Internal Rules & Regulations.
- Adoption of SWUF Articles of Association and Internal Rules & Regulations.
- Preparation of SWUF Membership List comprising delegates from WUAs.
- Election of members for SWUF Management Board.
- Opening of bank account in the name of SWUF.
- Preparation and submission of Application for SWUF Registration.

Documents:

- (Model) SWUF Articles of Association.

Visual Aids:

- Flip Chart.

INFORMATION AND GUIDELINES

It is envisaged that WUAs would be federated into a SWUF at the level of the Wadi. As a SWUF would not be responsible for the O&M of any irrigation infrastructure along the Wadi, its main duties and responsibilities are defined as follows:

- monitoring of water distribution between WUAs at Wadi level;
- coordination between WUAs as operators of the primary canal systems and the agencies responsible for the O&M of the headworks;
- resolution of water-related conflicts between WUAs;
- representation of the WUAs in the Irrigation Council;
- provision of support services to WUAs regarding training, financial and/or administrative management (i.e. accounting) and/or procurement/lease of equipment; and
- exploration, development and implementation of additional activities that are not directly related to irrigation management.

In order to establish the SWUF at Wadi level, the PIM Support Team will conduct the following two meetings with delegates of the WUAs:

- SWUF Introduction Meeting;
- SWUF Preparation Meeting; and
- Constitutive General Assembly Meeting.




12.1 SWUF Introduction Meeting

The PIM Support Team shall start the SWUF formation process by planning the SWUF Introduction Meeting in order to introduce and explain:

- purpose for SWUF formation;
- functions of the SWUF;

- organisational structure of the SWUF; and
- main functions and powers of the General Assembly, Management Board and Chairperson of the SWUF.

Delegates from all established WUAs shall be formally invited for the SWUF Introduction Meeting.




-  To ensure that all WUAs are properly informed about the date, time and venue of the SWUF Introduction Meeting, the PIM Support Team shall send written invitation to them at least ten days before the planned meeting.
-  The venue of the SWUF Introduction Meeting shall be at a place that is easily accessible for all invited WUA Delegates.
-  As the SWUF Introduction Meeting could be considered as a Preliminary General Meeting of the General Assembly of the SWUF, it is important that at least 50% of all invited representatives are present. If less than 50% of the invited WUA Delegates are present, the SWUF Introduction Meeting shall be postponed.

12.2 SWUF Preparation Meeting(s)

Before the Constitutive General Assembly Meeting of the SWUF, the WUA Delegates shall review the SWUF Articles of Association during one or more WUA Preparation Meetings. It may also be required to start with the formulation of a number of Internal Rules & Regulations for the WUA during the same meeting(s).

12.2.1 Review of WUA Articles of Association

The SWUF Articles of Association provide the minimum legal requirements concerning the structure, objectives and powers of the SWUF, procedures for the management of the SWUF as well as the rights and responsibilities of its members, General Assembly, Management Board and Chairperson.

-  The PIM Support Team shall introduce the WUA Articles of Association to the WUA Delegates by explaining its main purpose and presenting its main issues.
-  Copies of the SWUF Articles of Association shall be submitted to the WUAs at least one week before the WUA Preparation Meeting.
-  Copy of the (Model) SWUF Articles of Association can be found in Annex 12.1.

12.2.2 Formulation of Internal Rules & Regulations

In addition to the SWUF Articles of Association, it is also essential that the SWUF develops its own Internal Rules & Regulations concerning the management of the SWUF itself and the execution of its specific tasks and responsibilities. The contents of the Internal Rules & Regulations shall be approved by the General Assembly of the SWUF.

The Internal Rules & Regulations of the WUA may at any time be amended by a simple majority of votes cast by the General Assembly of the SWUF unless otherwise specified in the SWUF Internal Rules & Regulations.

12.3 Constitutive General Assembly Meeting

Following the review of the SSWUF Articles of Association and the formulation of a number of Internal Rules & Regulations by the WUA Delegates, the Constitutive General Assembly Meeting shall be conducted in order to establish the SWUF formally by:

- adopting the Articles of Association and Internal Rules & Regulations of the SWUF;
- preparing the List of Delegates to the SWUF General Assembly; and
- electing the Management Board members, including the SWUF Chairperson.

- ☞ The Constitutive General Assembly Meeting is one of the most important meetings. Therefore, it is required that the required quorum as specified in the draft Internal Rules & Regulations, attend this meeting.
- ✘ If the required quorum is not present at the start of the Constitutive General Assembly Meeting, the PIM Support Team shall postpone the meeting. It is recommended that another Constitutive General Assembly Meetings shall be planned within one month.

12.3.1 Adoption of SWUF Articles of Association

The first step to the establishment of the SWUF is the adoption of the SWUF Articles of Association by the WUA Delegates during its Constitutive General Meeting.

- ☞ Although the main subjects of the (Model) SWUF Articles of Association were introduced to the WUA Delegates during the SWUF Preparation Meeting(s), it is recommended that the PIM Support Team shall start the meeting with a brief review of the (Model) SWUF Articles of Association.
- ☞ **It is very important to explain to the Representatives to the WUA General Assembly members once more that the articles of (Model) WUA Articles of Association cannot be changed once they have been adopted. However, the WUA General Assembly would always have the authority to formulate and/or amend Internal Rules & Regulations of the WUA within the provisions of the (Model) WUA Articles of Association, so that the management of the WUA can be adapted to the local circumstances as much as possible.**

12.3.2 Review and Adoption of Internal Rules & Regulations

Before the first set of Internal Rules & Regulations can be formally adopted, they shall be presented properly to all WUA Delegates that are attending the Constitutive General Assembly Meeting. The best way to present the Internal Rules & Regulations is by reading them article by article. Any approved amendments of the Internal Rules & Regulations shall be correctly recorded.

12.3.3 Preparation of List of WUA Delegates to SWUF General Assembly

Following the adoption of the SWUF Articles of Association and Internal Rules & Regulations but before the election or nomination of the Management Board members, the List of WUA Delegates to the SWUF General Assembly shall be prepared in accordance with the provisions in the adopted SWUF Articles of Association and Internal Rules & Regulations.

- ☞ Only the WUA Delegates, whose names are included in the List of WUA Delegates to the SWUF General Assembly, are eligible to vote and to be elected as a member of the SWUF Management Board.

12.3.4 Election of Management Board Members

With the adoption of the Internal Rules & Regulations, the size and composition of the SWUF Management Board will be known. Although the functions and powers of the Management Board have already been introduced during the SWUF Introduction Meeting(s), it is recommended that the PIM Support Team present them once more before the WUA Delegates to the SWUF General Assembly elect the members of the Management Board of the SWUF.

Prior to the election or nomination of any person for the position of Chairperson, Secretary and Treasurer of the SWUF, the PIM Support Team shall present the functions and powers of these SWUF Office Bearers to the WUA Delegates of the SWUF General Assembly.

- ☞ The election of the Management Board members is an internal affair of the newly established SWUF. Therefore, the PIM Support Team shall limit its role to monitor the election process and assess if the election of the Management Board members was carried out in accordance with the adopted SWUF Articles of Association and Internal Rules & Regulations.

☞ The PIM Support Team shall assess, in particular, if the composition of the SWUF Management Board is in accordance with the SWUF Internal Rules & Regulations.

12.3.5 Selection of Name for WUA

The PIM Extensionist and PIM Support Team shall request the General Assembly to select an appropriate name for the newly established WUA.

12.3.6 Signing of WUA Formation Statement

At the end of the Constitutive General Assembly Meeting, all WUA Delegates to the SWUF General Assembly shall sign a statement, in which they endorse the formal establishment of the SWUF, including the adoption of the SWUF Articles of Association and Internal Rules & Regulations as well as the election of the Management Board members and the SWUF Chairperson.

12.3.7 Opening of Bank Account in Name of WUA

If necessary, the newly elected Chairperson and Treasurer of the SWUF Management Board shall open a bank account in the name of the SWUF.

12.4 Preparation and Submission of Application for Registration of SWUF

As the SWUF may be involved in financial transactions (i.e. bank loans), acquire fixed assets and/or has to enter into contracts and agreements with the Government and other institutions, it shall be registered as a legal body with the Government.

12.4.1 Procedures for Registration of SWUF

Following the adoption of the SWUF Articles of Association and Internal Rules & Regulations, election of the Management Board members and opening of bank account in the name of the SWUF, the newly elected Management Board members shall prepare an application for the registration of their newly established SWUF.

☞ In accordance with Article 10 of the new Water Law 2002, the procedures for the registration of the SWUF shall be specified in the Executive Procedures, which shall be prepared by the General Authority for Water Resources and issued as a Decree of the Council of Ministers within six months from the date of the adoption of the new Water Law.

12.4.2 Legal Status of Registered SWUF

If the SWUF is duly registered, it shall have the legal status as corporate body by the name under which it is registered and having perpetual succession with the power to hold property, both movable and immovable, and it shall by the said name sue and be sued.

STEP 13 TECHNICAL AND INSTITUTIONAL STRENGTHENING OF WATER USERS' GROUPS, WATER USERS' ASSOCIATIONS AND SCHEME WATER USER'S FEDERATION(S)

Target Group: WUA Management Board members and WUA staff, SWUF Management Board and WUG Leaders.

Field Staff Involved: PIM Support Team, PIM Extensionist and Subject Matter Specialists in the field of O&M and financial management.

Timing: Following the signing of the Works and Support Agreement (PIM Step 9) and before the signing of the Irrigation Management Transfer (IMT) Agreement (PIM Step 19).

Duration: 8 to 12 months.

Main Purposes:

- Establishment of WUA office.
- Employment of WUA staff.
- Training of WUA Management Board members and WUA staff in administrative and financial management, including set-up of financial management system.
- Development of Irrigation Service Fee (ISF) policy for WUA.
- Training of WUA Management Board members and WUA staff in technical skills for O&M of the primary and secondary canal systems, including the preparation of annual O&M plans and budgets.
- Training of WUGs in technical skills for O&M of tertiary canals as well as on-farm water management.
- Training of SWUF Management Board members in administrative management skills, conflict resolution skills as well as technical skills required for the monitoring of water distribution.

Documents:

- Works and Support Agreement.
- O&M Manual.
- WUA Articles of Association and Internal Rules & Regulations.

Visual Aids:

- Map(s) and schematic(s).
- Drawings.
- Flip Charts.

INFORMATION AND GUIDELINES

Before the newly established WUAs can take up the O&M of the rehabilitated spate irrigation system, it has to set up itself properly and acquire the necessary administrative, financial and technical capacities and skills. In addition, the newly formed SWUF(s) also need training and support in order to enhance their skills required for the execution of their specific tasks and responsibilities.

INSTITUTIONAL STRENGTHENING OF WATER USERS' ASSOCIATIONS AND SCHEME WATER USERS' FEDERATION(S)

13.1 Establishment of WUA Office and Recruitment of Staff

Only after the signing of the Works and Support Agreement, the WUA shall start with activities to set itself up properly by:

- establishing an office with furniture, office equipment and communication facilities;

- employment of qualified permanent and temporary staff for the management of the WUA itself and the O&M of the spate irrigation system; and
- procurement and/or lease of means of transport and any equipment required for the O&M of the spate irrigation system.

13.1.1 Establishment of Office

To accommodate its staff and to store its files and equipment, the WUA has to establish an office at a central place that is easily accessible for all its members and non-members.

In order to make its office operational, the WUA shall procure at least the following items:

- Office furniture, including chairs, desks, book shelves and filing cabinet;
- Communication equipment, including telephone connection; and
- Stationary, registers and books.

In addition, the WUA also needs the following equipment and means of transport to ensure the effective management of the WUA itself and the execution of the O&M of the spate irrigation system:

- (Motor)cycles;
- Calculator; and
- O&M equipment, including spades, buckets and torch.

13.1.2 Minimum Staff Requirements

In theory, the administrative and financial management of the WUA and the day-to-day operation of the spate irrigation system could be carried out by the WUA Management Board, including the WUA Chairperson, with the assistance of one or more special committees. However, it is more likely that the WUA members would not have sufficient time and/or necessary skills to carry out all these tasks properly. Therefore, the employment of at least the following skilled staff on a permanent or temporary basis shall be considered by the WUA:

Accountant (part-time) with responsibility for:

- preparation of budgets on the basis of the Annual Work Plan;
- maintenance of all financial records of the WUA;
- preparation and distribution of ISF bills for members and non-members of the WUA;
- collection of ISFs and any other service charges;
- preparation of list of defaulters;
- accounting for fines and late payment charges and follow up on recovery of monies due;
- issue of receipts for all payment made to WUA;
- preparation of (monthly/quarterly) financial report for WUA Management Committee;
- maintenance of inventory of WUA property, both movable and immovable; and
- preparation of accounts and financial statements for audit and assist auditors in completing audit.

O&M Technician with responsibility for:

- preparation of Annual O&M Plan;
- day-to-day operation of spate irrigation system;
- operational maintenance of the system, such as removal of any obstructions;
- preparation of reports on the condition and operation of the irrigation system;
- regular inspection of the entire spate irrigation system; and
- preparation, coordination and supervision of (routine) maintenance and repair works.

The actual number of O&M Technician depends upon the size of the area of jurisdiction of the WUA, including the length of the canal system.

13.2 Financial Management of WUA

13.2.1 Principles of Financial Management

Financial autonomy of the WUA responsible for O&M of the primary and secondary canal system is a prerequisite for improved performance. The WUA budget mainly depends upon collection of ISFs. Therefore, it shall give full and active consideration to what its members need as they shall be able to make a connection between paying for services and the quality of service. The full recovery of the actual O&M cost is important for achieving financial sustainability of O&M of the spate irrigation systems.

13.2.2 Financial Requirements of WUA

A basic requirement of managing the spate irrigation system is that WUA has the authority for assessing and recovering the ISFs and other service charges, including the power to impose any sanctions against defaulters.

O&M Account: The ISFs shall be set by the WUA itself prior to the irrigation season/year to which they apply. They shall be based on an estimate of the expenditures for WUA management and O&M of the spate irrigation system. Variation between actual and estimated expenditure would be carried over and adjusted in the ISF for the following year. Establishment of the amount of ISFs prior to the commencement of the irrigation season/year is intended to provide the WUA with working capital early in the year and also to inform its members of the exact level of ISFs for the coming season/year before it is incurred.

Regarding the setting of ISFs by the WUA, the following principles shall at least be applied:

- ISFs shall cover all operating costs, including salaries, administration, travel, allowances, rents, communication, taxes, duties, insurance, stationary, materials, services, consultancy, office operation, equipment operations; and
- ISFs shall cover all maintenance costs as estimated in the Annual Maintenance Plan.

The collected ISFs shall be deposited in the O&M Account in the name of the WUA.

Development Account: In addition, the WUA shall also raise sufficient financial resources for the development of working capital reserve, which could be used by the WUA to:

- Develop, maintain and operate supplementary water supplies from ground water pumping;
- Pay for emergency repairs to canal system;
- Procure and replace vehicles, machinery and equipment;
- Construct system improvement works; and
- Cover bad and doubtful debts.

One way to mobilise financial resources for such a Development Fund would be an increase of the ISFs by a fixed percentage to be collected as a surcharge for a number of years and then as required. However, the WUA may also generate development funds from sources, such as:

- Annual membership fees;
- Incomes from contracts;
- Lease of land; and/or
- Funds provided by donors.

The generated development funds shall be deposited in a Development Fund Account in the name of the WUA.

13.3 Assessment and Collection of ISFs

The economic effects of low ISFs are negative as users are given inappropriate price signals for the supply of irrigation water. Therefore, water shall be priced so that at least the full O&M costs of supplying water to the end users are covered. It may even be suggested that the true opportunity costs of water shall be charged, which includes all capital development costs and the value of water for other uses (i.e. power, industrial use).

13.3.1 Assessment of ISFs

The basic principle shall be that the WUA itself could decide its own method of charging the users of the delivered services, provided that it is sufficient to recover all its costs. In general, ISFs could be assessed on the basis of:

- Types of crop and total area cultivated;
- Actual volume of water supplied; and/or
- Flat rate for each unit of irrigable area, irrespective of cropping.

Differentiated ISFs

The Project Appraisal Document (World Bank, 2000, p17) suggests that the actual O&M charges shall be weighted towards those farmers deriving the most benefit, in particular towards farmers enjoying perennial flow, so that charges to poorer farmers would be correspondingly less. The actual payment of O&M charges could take into account the following criteria:

- the type of flow with separate fees to cover perennial base flow, whereby farmers receiving base flow would likely to pay at least double the fee for spate flow;
- the actual area cropped shall be accounted for in the charges; and
- the type of crop grown, whereby farmers growing crops with high gross margins shall expect to pay higher fees than those growing subsistence crops alone.

It is fair to charge farmers, who are deriving more benefits from spate irrigation scheme, a higher ISFs than farmers, who are benefiting less in terms of financial returns from irrigated agriculture using spate water. However, it is costly and time-consuming to assess the ISF for each individual farmer using spate water in accordance with above-mentioned criteria. For instance, the crop-area method is very costly and time-consuming exercise as detailed information on types of crops and/or area cultivated for each individual water user has to be collected and cross-checked in the field before the bills/invoices with the actual ISFs for all individual irrigators can be prepared and issued. Volumetric charging requires detailed and verified records of water flows. Both the crop-area method and volumetric charging are less transparent and they could be subject to errors and favouritism. In addition, the incomes of the WUA are less predictable as types of crop, cultivated area and/or volume of supplied water change for every irrigation season.

Assessing ISFs in accordance with the size of the irrigable area, irrespective if all irrigable land is cultivated and irrigated, would have the following advantages:

- Each water user will exactly know how much money (s)he and other water users have to pay as ISF;
- The method is relatively simple, more accountable and transparent and less time-consuming and costly; and
- Stability and predictability of the incomes of the WUA are more or less guaranteed as their expected annual incomes from ISFs could be calculated more exactly as the total irrigable area is more or less constant.

For spate irrigation systems, a flat rate per unit of irrigable land (hectare or *feddan*) is considered to be most appropriate for charging farmers for the service provided by the WUA. If farmers would agree upon different ISFs corresponding with the benefits derived from spate irrigation, it shall be based on one or more simple and transparent criteria, such as access to perennial base flow.

Issue:

The rationale behind the idea that farmers with less access to spate water, who are often situated in the middle and tail reaches of the main canals, shall contribute less to the O&M costs may not be correct. Farmers in the middle and tail reaches of a main canal system will have more access to spate water if the main canal system is properly operated and maintained. Therefore, they may be willing to pay more ISFs than upstream farmers if their access to spate water would be improved due to proper O&M of the main canal system by their WUA.

Differentiated ISFs for Members and Non-Members of WUA

The WUA may also decide to charge non-members a higher ISF than for its members, so that farmers have a financial incentive to become members of the WUA. Each WUA shall decide for itself if it wants to charge a higher ISF for non-members and how much more non-members shall pay for the services provided than WUA members. However, the ISF to be paid by non-members shall not be higher than twice the amount to be paid by members of the WUA.

13.3.2 Collection of ISFs

In order to simplify the collection of ISFs and any other charges, the WUA could decide that WUGs would be made responsible or given the option to become responsible for the collection of the due ISFs and other fees in their respective command areas. The main reasons for considering this option are:

- Experience elsewhere in the world has shown that the recovery rate of ISFs would be higher if the responsibility for collection is as close to the farmers as possible; and
- Possibility to introduce a financial incentive for WUGs to achieve high levels of ISF collection by allowing them to retain a certain proportion of the due ISFs for the O&M of the irrigation facilities in their respective command areas and other purposes.

If the WUA wants to become financially autonomous, it is important that ISFs are paid when they are due and that effective means of sanction in case of default could be applied. Therefore, the WUA shall have the authority to impose at least a penalty interest, which shall be equivalent (or higher) to the prevailing bank borrowing rate to ensure that the WUA is not penalised by late payment and potential defaulters have an incentive to pay when the ISFs are due.

Another effective means of enforcement in case of payment default is the cessation of water supply. The question of stopping supply for non-payment is commonly practised by suppliers of other services in the public sector, notably electricity and telephones, as well as nearly all private sector suppliers of goods and services. Therefore, the WUA shall have the authority to cease the supply of irrigation water in case of non-payment of ISFs.

With regard to the collection of due ISFs and other fees and the application of any sanctions against defaulters, it is recommended that the following principles shall be strictly applied by the WUA:

- No exemptions or ISF reductions will be made for any individual member or group of members;
- Due ISFs and any other service charges shall be tabulated and displayed;
- Collection of ISFs and any other service charges shall be undertaken through payments into the WUA bank account with a designated bank;
- Instalments shall be payable within certain period of time of the invoice being sent;
- Penalty interests at rates equivalent to or higher than prevailing bank borrowing rate;
- Outstanding ISFs and any other service charges shall not be forgiven or written off and will continue to be added to all outstanding amounts;
- List of all defaulters and the amount owed will be displayed at the WUA office(s);
- If legally possible, supply of irrigation water shall be ceased to all defaulters after certain period of time; and
- Defaulters shall be prosecuted through legal process for all outstanding ISFs and any other service fees after certain period of time.

13.3.3 Composition of ISFs

Farmers are more willing to pay their due ISFs and other service charges if they have a good understanding of how much money they pay for which particular services. It is, therefore, required that the composition of the ISF and any other service charge shall be specified, so that each farmer knows which portion of the ISF and any other service charge is allocated for:

- Maintenance of the headworks, distribution system as well as associated structures, such as service road along main canal, bridges and cross-drainage structures;
- Operation costs, including establishment costs, such as salaries and management of WUA office(s);
- Procurement, O&M and replacement of vehicles, machinery and equipment; and
- Surcharges to mobilise financial resources for the development of working capital reserve, required for emergency repair, rehabilitation of existing irrigation structures, development of new irrigation systems.

13.4 Provision of Institutional Training and Support

As specified in the Works and Support Agreement, the PIM Support Team in collaboration with Subject Matter Specialists and PIM Extensionists will be responsible for the provision of training and support to the WUAs and SWUF(s) to ensure that it will have the necessary capacities for the effective management of the WUAs and SWUF(s).

13.4.1 Training and Support in Administrative Management


Training and support for members of the WUA Management Board and WUA staff as well as SWUF Management Board in administrative management shall be aimed at:

- planning and presiding meetings;
- communication and conflict resolution;
- preparation of minutes of meetings;
- maintenance of non-financial records;
- office management;
- personnel management; and
- stock management.

13.4.2 Training and Support in Financial Management

Training and support of WUA staff and WUA Management Board in financial management shall be focused on:

- budgeting and preparation of financing plan;
- establishment of appropriate financial management system;
- development of appropriate ISF policy for the WUA, including a transparent and equitable system for assessment and collection of ISFs;
- resource mobilisation and ISF assessment and collection;
- maintenance of financial records;
- accounting and preparation of financial statements; and
- auditing.

 The development and implementation of most training programmes for the Management Board and staff of WUAs as well as SWUF(s) in administrative and financial management would be the responsibility of subject matter specialists in the field of human resources development (HRD) and financial management, including assessment and collection of ISFs.

TECHNICAL STRENGTHENING OF WATER USERS' ASSOCIATIONS AND WATER USERS' GROUPS

13.5 Provision of Technical Training

A comprehensive training and support programme shall be developed and implemented for the WUGs and WUAs to ensure that it will have the necessary technical skills for the effective O&M of the canal systems and associated facilities within their respective areas of jurisdiction.

13.5.1 Training of WUA Management Committees

The training for the WUA Management Committee would be mainly focused on:

- Importance of the preparation of Annual O&M Plans, including detailed budgets to ensure that the following costs would be covered:
 - costs for execution of all O&M activities specified in the Annual O&M Plans;
 - (overhead) costs for the management of the WUA, including salaries, office rent, stationary and transport;
 - investment costs, such as vehicles, office equipment, machinery;
- Employment of qualified staff for the O&M of the canal system and/or the establishment of service level agreements with irrigation service provider or private company for the provision of O&M services.

13.5.2 Training of WUA Staff

If the WUA would employ O&M staff, they shall receive training in the following subject:

Operation:

- Preparation of annual operation plan, including Primary Canal Water Management Plan;
- Water distribution and gate setting;
- Emergency procedures; and

- Communication and reporting.

Maintenance:

- Inspection and assessment of maintenance requirements;
- Preparation of maintenance inventory;
- Preparation of annual maintenance plan and budget;
- Preparation of work plans and coordination of the execution of works;
- Maintenance skills and quality control; and
- Communication and reporting.

13.5.3 Training of WUGs

WUGs shall receive training in the following subjects:

Operation:

- Preparation of operation plan; and
- Water distribution.

Maintenance:

- Inspection and assessment of maintenance requirements;
- Preparation of annual maintenance plan and budget; and
- Maintenance skills.



The development and implementation of most technical training programmes for the WUA Management Committees, WUA staff and WUGs would be the responsibility of subject matter specialists in the field of O&M, including preparation of irrigation schedules, maintenance plans and so on.

13.6 Provision of Technical Support

13.6.1 Technical Support for WUAs

Following the provision of training to the WUA Management Committee and WUA staff in different O&M skills, it is required that they receive support and advice during the implementation of the following activities:

- Preparation of O&M plan for the first irrigation season following completion and commissioning of the rehabilitated spate irrigation systems, including preparation of Primary Canal Water Management Plans;
- Preparation of annual budget based on the prepared O&M plan for first irrigation season; and
- Preparation of ISF policy, including method for assessment, billing and collection as well as collection schedule and sanctions for late and non-payment.

13.6.2 Technical Support for WUGs

WUGs shall receive support and advice during the preparation of an operation plan for the distribution of water within the respective tertiary unit(s) and a maintenance plan for the first irrigation year.

If the WUGs would also be responsible for the collection of ISFs and other service charges among all farmers within their respective tertiary unit(s), it shall receive support during the preparation of an appropriate collection method and schedule, including sanctions for late and non-payment.

13.7 Exchange Visit

During the institutional and technical strengthening of WUAs, it is recommended that Exchange Visits to WUA-managed primary canal systems shall be organised for the WUA Management Board and WUA staff. During the Exchange Visits, they would have the opportunity to observe and exchange information about the following relevant issues:

- set-up and management of financial and administrative management system;
- methods for assessment and collection of ISFs, including sanctions for late and non-payment;
- employment of staff;
- preparation and implementation of annual O&M plans;
- preparation of annual budget and financial statements and maintenance of financial records;
- day-to-day operation of the primary and secondary canal systems, in particular the distribution of water; and
- organisation and execution of (annual) maintenance works.



Details about the organising and implementing an Exchange Visit can be found in section of PIM Step 2 of this Procedure Manual.

STEP 14 PARTICIPATORY PLANNING AND EXECUTION OF AGRICULTURE EXTENSION PROGRAMME

Target Group: WUG Leaders and WUG members, WUA Management Board.

Field Staff Involved: Contracted Service Provider, PIU Agronomist and PIM Extensionist.

Timing: Within one month after signing of Works and Support Agreement (PIM Step 9).

Duration: 20 to 25 months.

Main Purposes:

- **Identification of main constraints and problems with regard to cultivation of (irrigated) crops and assessment of possible solutions in consultation with male and female farmers.**
- **Preparation of action plans for implementation of one or more identified solutions in consultation with male and female farmers.**
- Implementation of any agricultural extension activities as agreed with male and female farmers.

Documents:

- Works and Support Agreement.
- Agro-Economic Screening Survey.
- Agricultural Census, Agricultural Statistics and Revenue Department Records.
- Research Papers.

Visual Aids:

- Flip Chart(s).

INFORMATION AND GUIDELINES

14.1 Preparation of Agricultural Extension Programme


Prior to the development of a scheme-specific agricultural extension programme in collaboration with the WUGs and WUA, the Contracted Service Provider with the support of the PIU Agronomist and PIM Extensionist shall commence with the following activities WUG level:

- **assessment of the existing cropping practices;**
- **irrigation practices using spate and ground water;**
- **identification of the main constraints and problems with regard to cultivation of (irrigated) crops as encountered by male and female farmers; and**
- **assessment of possible solutions for the identified constraints and problems in consultation with the farmers and women.**

14.1.1 Collection of Information from Secondary Sources


Before starting the collection of data at WUG level, secondary sources shall be consulted by the Contracted Service Provider with support from PIU Agronomist in order to collect detailed information about the existing cropping patterns and yields in and around the scheme village(s). Important secondary sources could be:

- Agricultural Census; and
- Agricultural Statistics prepared by the MAI annually;
- Research reports; and
- Records maintained by the Revenue Department.

 During the Agro-Economic Studies (PIM Step 3), data and information about existing agricultural and irrigation practices as well as livestock have been collected by the PIU Agronomist and PIM Extensionist.

14.1.2 Group and Individual Interviews

In order to collect more detailed information about the existing cropping and irrigation practices, the Contracted Service Provider with the assistance of the PIU Agronomist and PIM Extensionist shall conduct a series of group and individual interviews.

 To ensure that all relevant information is gathered during these interviews with male and female farmers, it is recommended that survey forms and/or checklists are utilised.

During interviews with farmer groups and individual farmers, detailed information can be collected on:

- source(s) of irrigation water;
- land preparation;
- crops;
- seed varieties and sowing techniques;
- weeding;
- frequency and method of irrigation;
- pests and diseases;
- utilisation of fertilisers, insecticides and herbicides;
- yields;
- storage and marketing;
- access to agricultural extension services; and
- role and responsibility of women in various agricultural activities.



Group and individual interviews with female farmers shall be conducted to collect information that will allow the Contracted Service Provider and the PIU Agronomist to assess if there are significant differences in the data provided by men and women.

In addition to the collection of data and information on agriculture, it is also very important that data and information are collected about the role and importance of livestock for farming households, who are cultivating land within the command areas of the spate irrigation systems, including:

- type and number of livestock;
- source(s) of fodder;
- diseases;
- access to veterinary services;
- processing and marketing of livestock products (i.e. dairy products and/or meat);
- annual income from sale of livestock products; and
- role and responsibility of women in livestock activities.

14.1.3 Transect Walk

In addition to the group and individual interviews, the Contracted Service Provider together with the PIU Agronomist and PIM Extensionist shall also conduct one or more Transect Walks through the fields together with a group of farmers. During these joint walks, they will have the opportunity to:

- Cross-check information collected from secondary sources and interviews with farmers;
- Observe existing cropping and water management practices;
- Discuss certain cropping and water management practices with the attending farmers;
- Identify alternative cropping and/or water management practices developed and implemented by farmers; and
- Identify trials with new varieties and/or new crops undertaken by farmers.



One or more Transect Walks with female farmers shall be conducted as well.

14.1.4 Focus Group Meetings

Following the assessment of existing cropping and irrigation practices as well as role and importance of livestock during interviews and Transect Walk(s), the Contracted Service Provider with the support of the PIU Agronomist and PIM Extensionist shall conduct one or more focus group meetings to assess:

- the most important problems regarding (irrigated) agriculture and livestock as perceived by male and female farmers; and
- to identify possible solutions for the most important problems in collaboration with the same farmers.

For the successful implementation of these Focus Group Meetings, the following steps shall be followed:

- Presentation of the results of the interviews and transect walks to the farmers by the Contracted Service Provider;
- Self-assessment of all the problems concerning (irrigated) agriculture and livestock by the farmers themselves;
- Ranking of all identified problems according to their importance by the farmers themselves;
- Identification of the main causes of the most important problems by the farmers themselves;
- Identification of possible solutions to solve the most important problems by the farmers themselves;
- Selection of two or three activities to implement self-identified solutions for one or more of the most important problems by the farmers themselves; and
- Preparation of one or more action plans by the farmers and the Contracted Service Provider jointly, which will be implemented by the farmers themselves with the support of Contracted Service Provider together with the PIU Agronomist and PIM Extensionist and, if necessary, in collaboration with other relevant service suppliers, such as research institutes, NGOs and/or the private sector.

It is recommended to conduct these Focus Group Meetings with groups of 10 to 20 farmers in combination with walks through the fields to observe and check the problems mentioned by the farmers during the meetings.



One or more Focus Group Meetings shall be conducted with female farmers to assess their specific constraints and problems as well as possible solutions.

14.2 Implementation of Agricultural Extension Programme

Following the preparation of one or more actions plans at the end of the Focus Group Meeting(s), the Contracted Service Provider together with the PIU Agronomist shall identify and contact possible service suppliers, such as research institutes, NGOs and/or private sector.


Agricultural extension activities could be developed and implemented in the following fields:

- Land development, including precise land levelling;
- Introduction and demonstration of improved land preparation;
- Introduction and demonstration of new (high yield) varieties and new crops;
- Introduction and demonstration of improved crop husbandry techniques, including inter-cropping;
- Appropriate and safe utilisation of fertilisers and chemicals;
- Introduction and demonstration of Integrated Pest Management;
- Introduction and demonstration of organic farming;
- Introduction and demonstration of planting trees (i.e. Tamarix tree) to protect Wadi and/or canal banks and to produce fuelwood;
- Introduction and demonstration of efficient irrigation practices, including improved field layout and utilisation of water-saving technologies, such as gated pipes, sprinkler and drip systems, on ground water irrigated fields; and
- Introduction and demonstration of improved post-harvest technologies, such as processing, treatment and storage of harvested crops.



The basic principle is that what the farmers can do, shall be done by the farmers. The service suppliers shall

only be responsible for the provision of technical assistance and the supply of those inputs, such as new seed varieties and/or chemicals, which are not available in the market yet.

 Where required, the concerned service suppliers shall prepare printed information for distribution among the farmers.

14.2.1 Implementation of Women-Specific Activities

Due to existing division of labour between male and female household members in rural areas, women are involved in certain agricultural activities, such as weeding, harvesting, cleaning and storage of crops, as well as raising livestock and processing dairy products. It is very likely that women would have reported about any problems related to these activities, in which they are predominantly involved. One or more of the following problems could be reported by one or more women during the earlier meetings:

- Physical problems, such as backaches;
- Sickness due to utilisation of agro-chemicals, such as pesticides;
- Less opportunities for wage labour and/or lower wages due to mechanisation, increased utilisation of herbicides and/or increased labour migration from other areas; and/or
- No or limited access to agricultural extension and training services.


In addition to a number of reported positive impacts of irrigation development, such as improved food security, less migration and better education due to improved farm incomes, the development of irrigated agriculture could also have a number of negative impacts on farmers in general and women in particular, such as:


- Increased work load due to higher cropping intensity (more weeding and harvesting) and higher yields (more harvesting, cleaning and storage);
- Increased health problems due to more intensive utilisation of agro-chemicals; and
- Limited access to improved inputs as female-headed households lack sufficient funds.

It is, therefore, required that village women in close collaboration with the Contracted Service Provider develop and implement activities aimed at alleviating existing problems and avoiding future problems, such as health risks and (increasing) workload.

14.2.2 Exchange Visit

During Exchange Visit(s), the visiting male and female farmers will have the opportunity to observe and discuss different irrigated crops, improved crop varieties and husbandry techniques, storage and/or livestock activities.

 One or more Exchange Visits for village women to other schemes and/or women groups in order to observe and exchange information about initiatives that have successfully resolved certain women-specific problems in the field of (irrigated) agriculture.

 Details about the preparation and implementation of an Exchange Visit can be found in the section on PIM Step 2 of this Procedure Manual.

STEP 15 ESTABLISHMENT OF IRRIGATION COUNCIL (PRELIMINARY TEXT)

Target Group: WUA/SWUF Representatives, MAI (i.e. Irrigation Department/TDA), Governor's Office, Local Councils.

Field Staff Involved: PIM Support Team.

Timing: Following the formation of the SWUF (PIM Step 12).

Duration: Three months.

Main Purposes:

- Preparation of terms of reference for the Irrigation Council as well as internal rules and regulations.
- Constitutive meeting to review and adopt the terms of reference as well as the internal rules and regulations.
- Election of Chairperson, Deputy Chairperson and Secretary of the Irrigation Council.

Documents:

- Relevant legislation.
- Government resolutions.
- (Model) Statutes for the Irrigation Council (Annex 15.1).

Visual Aids: None.

INFORMATION AND GUIDELINES

In the past, the Government has taken initiatives to establish Irrigation Councils. In April 1996, the Governor of Lahej issued Resolution (No.14/1996) ratifying the irrigation regulation in the Governorate upon a proposal submitted by the Director RAO, which included the provision that an Irrigation Council (IC) shall be established for Wadi Tuban according to the Law on Local Administration following a resolution issued by the Governor upon proposal by the DG MAI. The IC is consultative in nature and is chaired by the DG and it advises the Irrigation Department (ID) of MAI. The IC has three main functions:

- discuss and approve irrigation plan;
- decide on how floods can best be used; and
- assist in the management and maintenance of the irrigation structures.

The Irrigation Council for Wadi Tuban comprises the District Commissioner as Chairman, the Director of Agriculture as Deputy Chairman, the Director of Irrigation as Secretary and 14 representative farmer members, who are permanently appointed. Every member of the Irrigation Council has an equal vote but decision-making is by consensus and disputes are rare. The Statutes for the Irrigation Council provide for sanctions against offenders that are enforced by the police, who may impose fines and imprisonment.

In 1988, the MAI issued Decree (No.361/1988), which has a provision for the establishment of an Irrigation Committee comprising seven members, of which only two "selected" farmers' representatives from the northern and southern banks of the Wadi respectively, whereas the other five members have an official capacity, including the Director Irrigation Branch or Regional Director (Irrigation) as Chairman, assistant head of O&M, representative of District, representative of Real Estate and Land Properties Office in the District. The number of members may even be reduced to five by excluding the farmers' representatives. The tasks of the Irrigation Committee are defined as:

- documentation of traditional water rights and customs as well as land having irrigation rights from flood and base flows;
- resolution of conflicts regarding water allocation;
- defining relationships with farmers and outlining their duties and responsibilities in protecting and implementing the water distribution system; and
- make proposals to define the role of farmers in O&M, advising optimal use of irrigation water and assisting in implementation of irrigation plans.

In 1990, TDA issued Decree 6/1990 in order to enable the formation of the Irrigation Committee for Wadi Zabid with 4 members from the Government, a representative of the *Waqf* office and two farmers' representatives. Any recommendation made by the Irrigation Committee needs the approval from the Governor following approval by the TDA Chairman. The Irrigation Committee in Wadi Zabid proved to be ineffective due to perceptions of insufficient representation of farmers in the Irrigation Committee.

15.1 Irrigation Council Preparation Meeting(s)

Before the Irrigation Council can be formally established during its Constitutive Meeting, the members of the Irrigation Council shall review the Statutes of the Irrigation Council and formulate an initial set of Internal Rules &

Regulations during one or more Irrigation Council Preparation Meetings.

15.1.1 Review of the Statutes for Irrigation Council

In order to establish an effective Irrigation Council with sufficient authority to enforce the implementation of adopted rules concerning the allocation and distribution of base and spate flows at Wadi level, it is required to review the Statutes for the Irrigation Council with the following provisions:

- Main functions of the Irrigation Council, including:
 - preparation and adoption of rules for the allocation of base and spate flows among all modernised and traditional spate irrigation systems along the entire Wadi;
 - preparation and approval of Wadi Water Management Plan for the equitable distribution of base and spate flows among all spate irrigation systems along the Wadi;
 - preparation and approval of annual irrigation plan;
 - implementation of annual maintenance inspections of all diversion weirs jointly with the agency responsible for the O&M of the diversion weirs;
 - review and approval of the Annual Maintenance Plan(s) for the diversion weirs as prepared by the agency responsible for the OO&M of the diversion weirs;
 - supervision of the operation of the diversion weirs by the concerned agency in order to assess if base and spate flows are distributed in accordance with the approved Wadi Water Management Plan and annual irrigation plan;
 - supervision of the maintenance of the diversion weirs by the concerned agency to assess if the infrastructure is maintained according to the O&M Manual and the approved Annual Maintenance Plan(s);
 - collection and publication of data on irrigated areas at (two-)weekly intervals;
 - investigations of any reported violations of the approved Wadi Water Management Plan and annual irrigation plan or wilful damage to any irrigation infrastructure situated in the Wadi;
 - enforcement of any sanctions or penalties against any person or institution for violation of any rules regarding the allocation and distribution of base and spate flows or wilful damage of any irrigation structure in the Wadi; and
 - resolution of any disputes with regard to allocation and distribution of base and spate flows between WUAs or between WUAs and any other water users.
- Composition of the Irrigation Council and its Management Board;
- Employment of staff, if required;
- Powers and authority of the Irrigation Council to set and collect service fees; and
- Powers and authority of the Irrigation Council to impose sanctions and penalties for violations of adopted rules regarding the allocation and distribution of base and spate flows at Wadi level.



The PIM Extensionist and PIM Support Team shall introduce explain all articles of the Statutes for the Irrigation Council to the members of the Irrigation Council.



Copies of the Statutes for the Irrigation Council shall be distributed among all members of the Irrigation Council at least one week before the planned meeting to review the Statutes for the Irrigation Council.



Copy of the (Model) Statutes for the Irrigation Council can be found in Annex 15.1.

15.1.2 Preparation of Internal Rules & Regulations

It is essential that the Irrigation Council develops its own Internal Rules & Regulations concerning the management of the Irrigation Council itself. The Internal Rules & Regulations of the Irrigation Council may at any time be amended by a simple majority of votes cast by the members of the Irrigation Council during a General Meeting unless otherwise specified in the Internal Rules & Regulations of the Irrigation Council.

The Internal Rules & Regulations of the Irrigation Council may include, though not necessarily be limited to, provisions relating to:

- terms of office as well as procedures for election and removal of Management Board members and Chairperson;

- procedures for calling meetings of the Irrigation Council and its Management Board;
- voting procedures and quorum for meetings of the Irrigation Council and its Management Board;
- duties and authorities of any Standing Committees constituted by the Irrigation Council or its Management Board;
- functions and powers of any staff employed by the Irrigation Council and procedures for appointment and dismissal of staff;
- procedures for preparation and approval of the Wadi Water Management Plan;
- procedures for preparation and approval of annual irrigation plan;
- procedures for supervision of the O&M of the diversion weirs;
- procedures for the assessment and collection of any service fees to be paid by WUAs;
- procedures to recover outstanding service fees and to impose sanctions on defaulting WUAs, including a schedule of fines and the power to cease the supply of water;
- procedures for enforcing sanctions against WUAs for any offences committed, including a schedule of fines;
- procedures for dispute resolution;
- inventory of assets owned by the Irrigation Council; and
- procedures for distribution of assets in the event of dissolution of the Irrigation Council following the completion of the liquidation process.

15.2 Irrigation Council Constitutive Meeting

Following the review of the Statutes for the Irrigation Council and the formulation of a number of Internal Rules & Regulations by the members of the Irrigation Council, the Constitutive Meeting of the Irrigation Council shall be conducted in order to establish the Irrigation Council formally by:

- adopting the Statutes of the Irrigation Council;
- approving the Internal Rules & Regulations; and
- electing the Management Board members, including the Chairperson.

15.2.1 Adoption of Statutes for Irrigation Council

The first step in the establishment of the Irrigation Council is the formal adoption of its Statutes by simple majority of votes cast by the members of the Irrigation Council unless otherwise specified in the draft Internal Rules & Regulations.

15.2.2 Approval of Internal Rules & Regulations

Following the adoption of the Statutes of the Irrigation Council, the members of the Irrigation Council shall approve the Internal Rules & Regulations as they have been formulated during the Irrigation Council Preparation Meeting(s).

15.2.3 Election of Management Board Members

With the adoption of the Statutes and approval of the Internal Rules & Regulations, the size and composition of the Management Board of the Irrigation Council will be known. Although the functions and powers of the Management Board have already been introduced during the Irrigation Council Preparation Meeting(s), it is recommended that the PIM Extensionist and PIM Support Team present them once more before the members of the Irrigation Council elect the members of the Management Board.

Prior to the election or nomination of any person for the position of Chairperson, Deputy Chairperson, Secretary and Treasurer of the Irrigation Council, the PIM Extensionist and PIM Support Team shall present the functions and powers of these office bearers to the members of the Irrigation Council.

- ☞ The election of the Management Board members is an internal affair of the newly established Irrigation Council. Therefore, the PIM Extensionist and PIM Support Team shall limit its role to monitor the election process and assess if the election of the Management Board members was carried out in accordance with the adopted Statutes and Internal Rules & Regulations of the Irrigation Council.
- ☞ The PIM Extensionist and PIM Support Team shall assess, in particular, if the composition of the Management Board is in accordance with the Statutes and Internal Rules & Regulations of the Irrigation Council. If not, the PIM Extensionist and PIM Support Team shall report it to the members of the Irrigation Council.

15.3 Opening of Bank Account in Name of Irrigation Council

As soon as the Irrigation Council has been established, the newly elected Chairperson and Treasurer of the Irrigation Council shall open a bank account in the name of the Irrigation Council.

STEP 16 FINAL INSPECTIONS OF CONTRACTOR AND WATER USERS' ASSOCIATION WORKS

Target Group: WUA Construction Committee and Contractor.

Field Staff Involved: PIU Resident/Construction Engineer, PIM Support Team and PIIM Extensionist.

Timing: Within one month after completion of Contractor Works Contract and WUA Works Contract.

Duration: One month.

Main Purposes:

- Final inspections of completed Contractor Works and WUA Works by joint team of WUA, Contractor and PIU staff.
- Preparation of Final Inspection Reports.
- Implementation of any outstanding works by the Contractor and/or WUA.
- Commissioning of Contractor Works and WUA Works.

Documents:

- Works and Support Agreement.
- Contractor Works Contract.
- WUA Works Contract.

Visual Aids:

- Map(s).
 - Drawings.
-

INFORMATION AND GUIDELINES

16.1 Final Inspection of Contractor Works and WUA Works

As soon as the WUA and/or the Contractor have issued a notice that all construction works have been completed, joint inspections of these completed works shall be planned within two weeks following the issue of the notice.

For the joint inspections, the team should consist of:

- WUA Construction Committee and the O&M Technician employed by the WUA, if any;
- Contractor and WUA Works Contractor(s), if any; and
- PIU Resident/Construction Engineer, PIM Extensionist and PIM Support Team.

During the joint inspection, the team shall check if all construction works have been carried out in accordance with the provisions in the signed Contractor Works Contract and WUA Works Contract respectively.

16.2 Preparation of Final Inspection Reports

At the end of the joint inspections of the Contractor Works and WUA Works, a Final Inspection Report for the Contractor Works and the WUA Works respectively shall be prepared by the members of the joint inspection teams, in which the main observation, conclusions and recommendations are described.

During a joint meeting, the members of the joint inspection teams shall review and approve the draft version of both Final Inspection Reports. However, if one or more parties cannot approve one or both Final Inspection Reports, further discussions should be held in order to find a resolution for the outstanding issue(s).

If these discussions do not result in an acceptable solution for all parties, the issue should be submitted for arbitration in accordance with the signed Works and Support Agreement.

16.3 Implementation of Outstanding Works

If the Final Inspections of the Contractor Works and WUA Works have revealed that some works have not been completed and/or carried out properly, the Final Inspection Reports shall specify these observations clearly and mention the main reason(s) for non-completion or unsatisfactory completion of these works.

In addition, the Final Inspection Reports shall also include a proposal for the execution of the outstanding works, including a tentative work plan, by the Contractor and/or the WUA.

If the Final Inspections have revealed that the WUA lacks the necessary technical skills to carry out certain construction works of the WUA Works Contract, the concerned joint inspection team shall recommend in their Final Inspection Report that these outstanding works should be executed by a contractor on behalf of and paid by the WUA.

16.3.1 Joint Inspections of Completed Outstanding Works

As soon as the Contractor and/or WUA have reported that all outstanding works have been completed, they should be jointly inspected by the WUA and/or Contractor as well as the concerned PIU staff.

The findings and conclusions of the joint inspection of the completed outstanding works should be presented in a second Inspection Report.

16.4 Commissioning of Contractor Works and WUA Works

If possible, the Contractor Works and WUA Works shall be commissioned the joint inspections have concluded that all construction works, including any outstanding works, have been satisfactorily completed. The commissioning of the rehabilitated spate irrigation system shall be conducted jointly by the Contractor, WUA and PIU Resident/Construction Engineer.

16.4.1 Execution of Remedial Works and Re-commissioning of Contractor Works and/or WUA Works

If the commissioning of the rehabilitated spate irrigation system has revealed that the system cannot be operated as designed, the PIU Resident/Construction Engineer shall investigate the cause(s) and identify any remedial measures, which have to be discussed with the Contractor and/or WUA Construction Committee.

If the malfunctioning of the rehabilitated spate irrigation system is the result of one or more construction faults, the Contractor and/or WUA shall carry out the necessary repair and/or reconstruction works at their own expense. However, if one or more design faults are the reason for the malfunctioning of the rehabilitated spate irrigation system, any remedial works should be executed by the Contractor and/or WUA at the expense of the IIP.

Following the completion of the remedial works by the contractor and/or WUA, the entire rehabilitated spate irrigation system shall be commissioned once more, if possible.

STEP 17 FORMULATION AND APPROVAL OF WADI WATER MANAGEMENT PLAN

Target Group: Irrigation Council.

Field Staff Involved: Water Management Specialist, PIM Support Team and PIM Extensionist

Timing: Following the establishment of the Irrigation Council (PIM Step 15).

Duration: Three to four months.

Main Purposes:

- Preparation of Wadi Water Management Plan by Irrigation Council.
- Review and approval of Wadi Water Management Plan by Irrigation Council.
- Review and approval of Wadi Water Management Plan by (qualified) majority of WUAs.
- Signing of Wadi Water Management Plan by all stakeholders.

Documents:

- Relevant legislation.

Visual Aids: None.

INFORMATION AND GUIDELINES

LEGAL FRAMEWORK FOR WATER RIGHTS AND WATER USE

The legal framework of spate irrigation management is mostly based on customs or unwritten laws, which stem from the Sharia'ah and can be defined as "the continued repetition of certain behaviours by a community in the conviction that such behaviours are legally binding". Customary rules are an instrument to implement the Sharia'ah and may vary from place to place depending on a number of local circumstances, including climate, water availability, socio-economic conditions and the prevailing Islamic schools.

Legal Status of Water

- Based on the Sharia'ah, Article 1366 of the Civil Code provides that water is originally nobody's property (*mubah* or *res nullius*). As such, it is the entitlement of the whole community and may not be privately owned, unless contained in a receptacle (i.e. reservoir, canal) that separates it from the source.
- However, Article 8 of the 1994 Constitution states that all natural resources, including surface and ground water, are owned by the State, which is responsible for ensuring their optimum exploitation in the public interest. The Constitution prevails over any other written law, including the Civil Code. Since water is owned by the State, only the State may regulate the manner in which water may be used. According to Article 18 of the Constitution, no concessions for the exploitation of natural resources may be granted, except on the basis of a law, which shall determine the cases in which the State's property may be transferred freely as well as the modalities and the procedures for such transfer.
- The new Water Law 2002 stipulates in Article 4 that water is a right that is accessible to all and does not become privately owned except by means of transport, acquisition or any other related methods.

Water Use Rights

- The fundamental rule governing the use of water for irrigation purposes grants upstream users a priority right to irrigate his land. However, the downstream users may not be denied the right to surplus water after the upstream user has exercised his right to a quantity of water sufficient to satisfy his needs. According to the Sharia'ah principles, water must be equitably allocated among the members of a water-using community and no changes in the distribution system may take place without the consent of all partners in the community.

- Within a community, the allocation of flood water in Yemen is based for the most part on a basic Islamic legal principle of watering the higher fields before the lower fields. Given the nature of flood flow, which flows continuously for a short period of time, the most efficient distribution is according to the natural sequence by gravity. It is easier for the irrigator to control and minimises water loss in transport.
- According to the ruling of the prophet Muhammad, the amount of flood flow that should be applied to a field of pal trees is the depth of two ankles or an amount sufficient to reach the tree trunk. According to the 11-century Islamic jurist al-Mawardi, the underlying principle of this ruling is that the amount of water applied shall be sufficient to water the crop and that it is easy to measure.
- The Civil Code contains a number of provisions regarding water use rights, such as:
 - Article 1367 stipulates that *res nullius* water is the entitlement of whoever reaches it first, even if the water is located in someone else's property, but the water taken may not exceed the appropriator's needs;
 - Article 1371 states that sufficiency is to be determined on the basis of water use when the land was first reclaimed or, if this use rate is unknown, on the basis of use when the land began to be irrigated. In spate irrigation, the quantitative measure of the right of the upstream user is customarily established at the height of man's ankle; and
 - Article 1370 specifies that the right to use water for irrigation is an appurtenance to the land, so that it is inheritable but it cannot be sold separately from the land, neither may it be rented or donated, except in accordance with a recognised custom.
- Reflecting the Sharia'ah and custom regarding equitable allocation of water, the Civil Code has the following provisions:
 - Article 1372 states that "a person is not allowed to draw water to irrigate land that has no water right if such appropriation harms those who have a water right";
 - Article 1368 specifies that "a partner in a common canal has no right to connect another channel to it unless he obtains the other partners' permission";
 - Article 18 states that "anyone using his right in a way that contravenes Sharia'ah and custom is liable for the damage caused to others as a result of his unjustified use".
- The new Water Law 2002 has the following provisions with regard to water use:
 - Article 6 states that all beneficiaries of any of the water resources shall enjoy the right to benefit from this resource in such a way as not to harm the interests of other beneficiaries and shall carry out all the duties required to him with respect to the conservation of these resources and safeguard them from depletion and pollution;
 - Article 27 specifies that the right of water use authorises the holder thereof to dispense the water in such a way as not conflict with public interests and the prevailing customs and traditions in each water Zone or Water Basin;
 - Article 28 states that traditional rights to use spate water for irrigation shall be exercised in accordance with regional traditions and customs.

17.1 Preparation of Draft Wadi Water Management Plan

One of the first tasks of the newly established Irrigation Council is the preparation of a Wadi Water Management Plan. Based on a consensus achieved among all stakeholders, who are involved in the use and management of (surface and ground) water resources within the total command area of the Wadi, the main purpose of the Wadi Water Management Plan is to ensure the equitable allocation and distribution of water along the Wadi to each (modernised and traditional) spate irrigation systems.

Based on a comprehensive review of the existing customary/traditional rules for the allocation and distribution of base and spate flow along the Wadi as well as current water distribution practices, the members of the Irrigation Council in collaboration with the IIP team comprising the Water Management Specialist, PIM Specialist and PIM Extensionist as well as any other relevant outside agency (i.e. Nwra) shall formulate a draft Wadi Water Management Plan, in which the following issues are specified:

- definition of the command areas of each modernised and traditional spate irrigation system along the Wadi that is entitled to receive base and/or spate flows;
- (amended) rules for the allocation of base and spate flows along the Wadi to each modernised and traditional spate irrigation system; and
- (amended) rules for the distribution of base and spate flows along the Wadi to each modernised and traditional spate irrigation system.

☞ It may be possible that entire Irrigation Council participates in the formulation of the draft Wadi Water Management Plan. The members of the Irrigation Council may also decide to form a special committee of 5 to 10 members for the preparation of the draft Wadi Water Management Plan.

17.2 Review and Approval of Wadi Water Management Plan by Irrigation Council

As soon as the formulation of the draft Wadi Water Management Plan is completed, it shall be submitted to the Irrigation Council for formal approval. If the draft Wadi Water Management Plan has been prepared by a special committee, the entire Irrigation Council shall first review it thoroughly before its members will vote.

☞ It may be specified in the Internal Rules & Regulations of the Irrigation Council that the approval of an important document, such as the Wadi Water Management Plan, requires a qualified majority of two-third or three-quarter of the votes cast.

17.2.1 Rejection of Draft Wadi Water Management Plan by Irrigation Council

If the draft Wadi Water Management Plan has been formulated by a special committee, it may be possible that the majority of Irrigation Council members would reject it for one or more valid reasons. In such a case, the special committee shall assess if the draft Wadi Water Management Plan could be amended, so that the concerns of the majority of the Irrigation Council members would be properly addressed.

During another General Meeting, the members of Irrigation Council shall review the second version of the draft Wadi Water Management Plan. If necessary, members of the special committee shall explain how the early version of the draft Wadi Water Management Plan has been modified in order to address their earlier concerns as much as possible. Ultimately, the Irrigation Council members shall cast their votes in order to approve or reject the second version of the Wadi Water Management Plan.

COMMENT: What are the consequences if the Wadi Water Management Plan will not be approved by the required majority of Irrigation Council members?

17.3 Review and Approval of Wadi Water Management Plan by WUAs

Following the approval of the Wadi Water Management Plan by the Irrigation Council, it shall be submitted to the General Assemblies of all WUAs along the Wadi for their review and approval. During a General Meeting of the General Assembly of each WUA, the Wadi Water Management Plan shall be presented and explained properly to the Representatives to the WUA General Assembly by their Delegate to the Irrigation Council and/or any other member of the Irrigation Council.

Following its presentation and review, the Representatives to the WUA General Assembly shall cast their votes in order to approve or reject the Wadi Water Management Plan.

☞ It may be specified in the Internal Rules & Regulations of the WUA that the approval of an important document, such as the Wadi Water Management Plan, requires a qualified majority of two-third or three-quarter of the votes cast.

17.3.1 Rejection of Wadi Water Management Plan by Majority of WUAs

The Statutes or the Internal Rules & Regulations of the Irrigation Council may specify that a simple majority (i.e. 51%) or a qualified majority (i.e. two-third or three-quarter) of WUAs shall approve the Wadi Water Management Plan before it becomes valid.

If the Wadi Water Management Plan is not approved by the required majority of WUAs, the Irrigation Council shall assess if the Wadi Water Management Plan could be amended, so that the concerns of the majority of WUAs would be properly addressed.

During another series of General Meeting, the Representatives to the WUA General Assemblies shall review the second version of the Wadi Water Management Plan. If necessary, their Delegate to the Irrigation Council or any other member of the Irrigation Council shall explain how the early version of the Wadi Water Management Plan has been modified in order to address their earlier concerns as much as possible. Ultimately, the Representatives to the WUA General Assemblies shall cast their votes in order to approve or reject the second version of the Wadi Water Management Plan.

COMMENT: What are the consequences if the Wadi Water Management Plan will not be approved by the required majority of WUAs?

17.4 Signing of Wadi Water Management Plan

Only after the Wadi Water Management Plan has been approved by the required majority of WUAs along the Wadi, all stakeholders represented in the Irrigation Council can proceed with signing the Wadi Water Management Plan.

STEP 18 FORMULATION AND APPROVAL OF PRIMARY CANAL WATER MANAGEMENT PLANS

Target Group: WUA Management Board, WUA Staff and WUA General Assembly.

Field Staff Involved: Water Management Specialist, PIM Support Team and PIM Extensionist.

Timing: Following the signing of the Works and Support Agreement (PIM Step 9) and before the preparation of the IMT Agreement (PIM Step 19).

Duration: Three to four months.

Main Purposes:

- Preparation of Primary Canal Water Management Plans.
- Review and approval of Primary Canal Water Management Plans by WUA General Assemblies.

Documents:

- Relevant legislation.
- Wadi Water Management Plan, if any.

Visual Aids: None.


INFORMATION AND GUIDELINES

18.1 Preparation of Draft Primary Canal Water Management Plan

The main purpose of the Primary Canal Water Management Plan is to ensure the equitable allocation and distribution of water along the primary canal of each (modernised and traditional) spate irrigation systems.

Based on a comprehensive review of the existing customary/traditional rules for the allocation and distribution of water along the primary canal system as well as current water distribution practices, each WUA in collaboration with the IIP team comprising the Water Management Specialist, PIM Specialist and PIM Extensionist as shall formulate a draft Primary Canal Water Management Plan, in which the following issues are specified:

- definition of the command area of the entire primary canal system that is entitled to receive base and/or spate flows;
- (amended) rules for the allocation of base and spate flows along the primary canal system; and
- (amended) rules for the distribution of base and spate flows along the primary canal system.

 It is recommended that the WUA General Assembly form a Standing Committee for the formulation of the draft Primary Canal Water Management Plan.

18.2 Review and Approval of Primary Canal Water Management Plans by WUA General Assembly

As soon as the formulation of the draft Primary Canal Water Management Plan is completed, it shall be submitted to the WUA General Assembly for review and approval.

 It may be specified in the Internal Rules & Regulations of the WUA that the approval of an important document, such as the Primary Canal Water Management Plan, requires a qualified majority of two-third or three-quarter of the votes cast.

18.2.1 Rejection of Draft Primary Canal Water Management Plan by WUA General Assembly

It may be possible that the WUA General Assembly would reject the draft Primary Canal Water management Plan for one or more valid reasons. In such a case, the Standing Committee shall assess if the draft Primary Canal Water Management Plan could be amended, so that the concerns of the majority of the Representatives to the WUA General Assembly would be properly addressed.

During another General Meeting, the WUA General Assembly shall review the second version of the draft Primary Canal Water Management Plan. If necessary, members of the Standing Committee shall explain how the early version of the draft Primary Canal Water Management Plan has been modified in order to address their earlier concerns as much as possible. Ultimately, the Representatives to the WUA General Assembly shall cast their votes in order to approve or reject the second version of the Primary Canal Water Management Plan.



Exit: If the WUA General Assembly decides to reject the Primary Canal Water Management Plan, a precondition for the signing of the Irrigation Management Transfer (IMT) Agreement (PIM Step 19) will not be fulfilled. Consequently, the PIU Director shall inform the concerned WUA in writing that the IMT Agreement will not be signed and that the O&M responsibility for the canal system will be not transferred to the WUA.

STEP 19 PREPARATION AND SIGNING OF IRRIGATION MANAGEMENT TRANSFER AGREEMENTS

Target Group: WUA Management Board.

Field Staff Involved: PIM Support Team and PIM Extensionist.

Timing: Within one month after the completion of the Final Inspections of Main and WUA Works (PIM Step 16) as well as the approval of the Primary Canal Water Management Plan (PIM Step 18) by the WUA General Assembly.

Duration: Two to three months.

Main Purposes:

- Preparation of IMT Agreements.
- Review and approval of IMT Agreements by WUA Management Boards.
- Review and approval of IMT Agreements by WUA General Assemblies.
- Signing of IMT Agreements by WUA Management Boards and PMU Director on behalf of MAI.

Documents:

- (Model) IMT Agreement (Annex 19.1).

Visual Aids: None.

INFORMATION AND GUIDELINES

19.1 Preparation of Irrigation Management Transfer Agreement

Before the WUA can take up responsibility for the O&M of the rehabilitated primary and secondary canal system, the WUA and the IIP shall prepare an IMT Agreement specifying the following matters:

- Detailed inventory of all irrigation and associated facilities, for which the WUA will become responsibility with regard to O&M;
- Duration of IMT Agreement;
- Accountancy standards;
- Payment of any services charges to the operator of the headworks;
- Functions and powers of the WUA with regard to the O&M of the canal and associated structures;
- Authorities of WUA to contract out O&M responsibility to third parties;
- Minimum maintenance standards;
- Procedures for modification and/or rehabilitation of irrigation and associated facilities;
- Responsibilities for any losses and damage resulting from non-compliance with any of the obligations in the IMT Agreement;
- Responsibilities of the IIP/MAI with respect to the provision of training and support to the WUA in order to enhance its technical and organisational skills required for effective O&M of the primary and secondary canal systems and the administrative and financial management of the WUA itself;
- Procedures for (annual) inspections of the irrigation and associated structures by the IIP/MAI;
- Monitoring of the performances of the WUA with respect to the management of the WUA itself and the effective O&M of the primary and secondary canal system by the IIP/MAI;
- Emergency arrangements to cover unforeseen events, such as accidents and major floods;
- Communication and reporting procedures;
- Right-of-way;
- Procedures to be followed in case of non-compliance by the WUA and/or IIP/MAI with any of the obligations described in the IMT Agreement;
- Procedures for changing or termination of the IMT Agreement; and

- Procedures for settlement of disputes.



A copy of a (Model) IMT Agreement can be found in Annex 19.1.

19.1.1 Inventory of Irrigation and Associated Facilities

The IMT Agreement should contain a detailed inventory of all irrigation and associated facilities, for which the WUA will take up the O&M responsibility, in order to avoid any confusion regarding the O&M of irrigation and associated structures by the WUA and the operator of the headworks. The inventory shall describe in detail all irrigation and associated structures within the area of jurisdiction of the WUA, including:

- Primary and secondary (minor) canals;
- Cross-drainage structures, such as siphons and aqueducts;
- All hydraulic structures, such as regulators, drop structures and flow division structures; and
- Ancillary structures, such as WUA office, service roads and culverts/bridges.

19.2 Review and Approval of Irrigation Management Agreement

19.2.1 Review and Approval of Irrigation Management Transfer Agreement by WUA Management Board

Before the IMT Agreement could be signed by the WUA and the IIP/MAI, the WUA Management Board shall formally approve this important document following a detailed review of its content.



To allow the members of the WUA Management Board to review and discuss the content of the IMT Agreement, the PIM Support Team and PIM Extensionist shall introduce and explain it to the members of the WUA Management Board.



To allow members of the WUA Management Board to read the IMT Agreement, the PIM Support Team and PIM Extensionist shall submit a number of copies of a translated version of the IMT Agreement to the WUA Management Committee at least one week before the planned meeting of the WUA Management Board.

19.2.2 Review and Approval of Irrigation Management Transfer Agreement by WUA General Assembly

After the WUA Management Board has formally approved the IMT Agreement, it shall be submitted to the WUA General Assembly for review and approval.



To allow the members of the WUA General Assembly to review and discuss the content of the IMT Agreement, the PIM Support Team and PIM Extensionist shall introduce and explain it to the members of the WUA General Assembly.



To allow members of the WUA General Assembly to read the IMT Agreement, the PIM Support Team and PIM Extensionist shall submit a number of copies of a translated version of the IMT Agreement to the WUA Management Committee at least one week before the planned (Extra-ordinary) General Meeting of the WUA General Assembly.

Following the introduction and review of the IMT Agreement, the WUA General Assembly shall vote on the approval of this Agreement in accordance with the provisions of the WUA Articles of Association and WUA Internal Rules & Regulations. It may be possible that the Internal Rules & Regulations as adopted by the WUA require the approval of such an Agreement by two-third of the WUA members attending the WUA General Assembly.



The SWT should monitor if the approval of the IM Agreement is undertaken in accordance with the provisions of the WUA Constitution and Internal Rules & Regulations.

19.2.3 Rejection of Irrigation Management Transfer Agreement by WUA General Assembly

If the WUA General Body would reject the IMT Agreement in a first instance because it cannot agree with one or more of its articles, the PIM Support Team and PIM Extensionist shall discuss the main reason(s) for their objection with the members of the WUA General Assembly. In an attempt to address their concerns, the PIM Support Team and PIM Extensionist shall try to modify the content of the concerned article(s) in such a way, that it will be acceptable for the WUA General Assembly. However, any proposed alterations in one or more articles of the IMT Agreement shall be approved by the IIP/MAI before the final version of the IMT Agreement with the agreed alterations could be prepared.

- ⊗ **Exit:** In the unlikely event that the WUA General Assembly would formally decide to reject the IMT Agreement, the IIP/MAI does not have another choice than to cancel the planned signing of the IMT Agreement. Consequently, the IIP/MAI shall formally inform the WUA Management Board that the O&M responsibility for the primary and secondary canal system will not be transferred to WUA.

19.3 Signing of Irrigation Management Transfer Agreement

As soon as the WUA General Assembly has formally approved the IMT Agreement, it can be signed by the WUA Chairperson on behalf of the WUA and the PMU Director on behalf of the IIP/MAI during a special ceremony.

**MILESTONE 4:
IRRIGATION MANAGEMENT TRANSFER AGREEMENT SIGNED BETWEEN WUA
AND IIP/MAI**

STEP 20 **MONITORING AND SUPPORTING OF OPERATION AND MAINTENANCE OF SPATE IRRIGATION SYSTEM AND MANAGEMENT OF WATER USERS' ASSOCIATIONS**

Target Group: WUA Management Board, WUA Staff and Headworks Operator.

Field Staff Involved: PIU Resident/Construction Engineer, Water Management Specialist, PIM Support Team and PIM Extensionist.

Timing: Immediately after the signing of the IMT Agreement (PIM Step 19)

Duration: At least two irrigation seasons (18 to 24 months).

Main Purposes:

- Monitoring of operation of the headworks by the Government Agency in accordance with Annual Operation Plan and Wadi Water Management Plan, including the provision of any support, if and when required.
- Monitoring of operation of the entire canal systems by the WUAs in accordance with Annual Operation Plan and Primary Canal Water Management Plan, including the provision of any support, if and when required.
- Monitoring of execution of routine maintenance works on the headworks by the Irrigation Agency in accordance with the Annual Maintenance Plan and provision of any support, if and when required.
- Monitoring of execution of routine maintenance works on the primary and secondary canal systems by the WUAs in accordance with the Annual Maintenance Plan and provision of any support, if and when required.
- Monitoring of administrative and financial management of the WUAs and provision of any support, if and when required.
- Monitoring of collection of ISFs and any other service charges by the WUA.
- Assessment and provision of additional training, if and when required.

Documents:

- IMT Agreement.
- Wadi Water Management Plan.
- Primary Canal Water Management Plan.
- Annual O&M Plans.
- O&M Manual.
- WUA Articles of Association and Internal Rules & Regulations.

Visual Aids: None.

INFORMATION AND GUIDELINES

During the first two irrigation seasons following the transfer of the O&M responsibility to the WUA, the main role of the IIP is to conduct regular visits to the WUA in order to monitor and discuss with WUA staff and WUA Management Committee the following issues:

- Implementation of Annual Operation Plan and Primary Canal Water Management Plan by WUA;
- Implementation of Annual Maintenance Plan by WUA;
- Administrative and financial management of the WUA; and
- Assessment, billing and collection of the due water charges and any other fees by the WUA among its members and non-members.

20.1 Monitoring of Operation and Maintenance of Primary and Secondary Canal System

20.1.1 Monitoring of Operation of Primary and Secondary Canal System by WUA

During regular (two-weekly) visits, the PIU Resident/Construction Engineer with support of the PIM Extensionist and PIM Support Team shall monitor the operation of the primary and secondary canal system in general and the distribution of irrigation water in particular by conducting (two-weekly) inspection visits along the canal system together with the WUA Management Board and/or WUA staff to assess if:

- the canal system is operated in accordance with the provisions in the Annual Operation Plan; and
- available spate water is distributed among all tertiary units in accordance with the provisions in the Primary Canal Water Management Plan.

During the inspection visits along the distribution system, the PIU Resident/Construction Engineer has the opportunity to:

- observe if water is freely flowing in the canals without overtopping due to obstacles in the distribution system and/or blocked control/division structures;
- discuss any problems during the operation of the primary and secondary canal system with the WUA; and
- provide any guidance to improve the operation of the primary and secondary canal system.

20.1.2 Monitoring of Maintenance of Primary and Secondary Canal System by WUA

To ensure that the primary and secondary canal system can deliver the available amount of spate water to the heads of each tertiary unit, the entire canal system shall be properly maintained.

Maintenance works can usually be categorised as:

- Routine Maintenance: minor maintenance and repairs (i.e. removing trash from siphons and division/control structures, greasing of gates) undertaken on a routine basis throughout the irrigation season in order to restore full performance standards at moderate cost before significant deterioration has occurred;
- Periodic Maintenance: major maintenance and repair works (i.e. repair and/or replacement of lined canal sections and control/division structures, desilting and weed control) carried out at regular intervals, in particular during the temporary closure of the distribution system; and
- Emergency Repair: unplanned but urgent repair works as result of accidents, severe climatic conditions (floods) or structural failure, which have to be undertaken immediately in order to restore the supply of irrigation water as quickly as possible.

During regular (monthly) inspections, the SWT should assess if the WUA has carried out (routine) maintenance and repair works. The findings of these regular maintenance inspections as well as recommendations for improvement shall be submitted to the WUA. Subsequently, the WUA shall take the necessary steps to improve the maintenance of the primary and secondary canal system.

If necessary, the WUA could request the PIU Resident/Construction Engineer for technical advice and support to enhance the maintenance performance, including the provision of additional training for WUA Management Board and WUA staff.

20.2 Monitoring of Financial and Administrative Management of Water Users' Association

Lack of transparency and accountability with regard to its administrative and financial management is one of the main reasons for the poor performance of WUAs as farmers will lose their trust and confidence in their WUA with the following consequences:

- Decision are not endorsed any more by majority of WUA members and they do not come regularly to meetings organised by their WUA;
- Members and non-members of the WUA are less willing to pay their ISFs as it is not clear for them if their paid fees are properly spent by their WUA;

- As members and non-members are less willing to pay their due ISFs, the WUA has insufficient funds to carry out all necessary maintenance works and/or to employ sufficient staff to ensure the effective operation of the canal system;
- As the WUA is less capable of providing a minimum level of services to the farmers, they even become less willing to pay their ISFs to the WUA due to insufficient supply of O&M services;
- Ultimately, the WUA is unable to operate and maintain the primary and secondary canal system due to lack of funds and the entire canal system will cease to function in a number of years.

Therefore, it is essential for the sustainability of the rehabilitated spate irrigation systems, that the administrative and financial management of the WUA is fully transparent and accountable for its members and non-members.

20.2.1 Monitoring of Financial Management of WUA

The successful O&M of the rehabilitated primary and secondary canal system by the WUA largely depends upon the WUA's capacity to raise sufficient financial resources through the assessment and collection of ISFs and any other service charges amongst its members and non-members.

Therefore, the performance of the WUA with regard to the management of its financial affairs shall be closely monitored during monthly visits by the PIM Support Team and PIM Extensionist to check if:

- The assessment of the ISFs and any other service charges is carried out correctly and timely by the WUA;
- The bills/invoices are submitted to the members and non-members correctly and timely by the WUA;
- The due ISFs and any other service charges are paid by the members and non-members fully and timely;
- The registration of paid ISFs and any other service charges is carried out correctly by the WUA;
- Penalties for late and non-payment are imposed correctly by the WUA;
- The statements of accounts are prepared correctly and timely by the WUA; and
- The financial records are maintained correctly and timely by the WUA.

During the monitoring visits, the need for additional training should also be assessed.

20.2.2 Monitoring of Functioning and Administrative Management of WUA

During the first two years following the signing of the IMT Agreement, the administrative management of the WUA shall also be closely monitored to ensure that it is carried out in accordance with the provisions of the WUA Articles of Association and Internal Rules & Regulations. The functioning of the WUA and its Management Board and General Assembly shall also be monitored.

During regular (monthly) monitoring visits, the PIM Support Team and PIM Extensionist shall assess if:

- The WUA Management Board and WUA General Assembly have regular meetings with the required quorum as specified in the WUA Articles of Association and Internal Rules & Regulations;
- Decisions are made in accordance with the provisions in the WUA Articles of Association and Internal Rules & Regulations;
- Elections are conducted as prescribed in the WUA Articles of Association and Internal Rules & Regulations;
- Staff are employed and dismissed in accordance with the conditions specified in the WUA Articles of Association and Internal Rules & Regulations;
- All (non-financial) records are maintained properly; and
- Any disputes between individual water users or between the WUA and water users are resolved in accordance with the provisions in the WUA Articles of Association and Internal Rules & Regulations.

Any non-compliance with the conditions of the WUA Articles of Association and Internal Rules & Regulations shall be reported to the WUA Management Board, which should take the necessary steps to improve the functioning and administrative management of the WUA. If required, support and additional training could be provided in order to enhance the skills of the WUA staff and/or the WUA Management Board and WUA General Assembly accordingly.

STEP 21 ANNUAL FINANCIAL, TECHNICAL AND INSTITUTIONAL AUDIT OF WATER USERS' ASSOCIATIONS AND OPERATOR OF HEADWORKS

Target Group: WUA Management Board, WUA Staff and SWUF Management Board.

Field Staff Involved: PIU Resident/Construction Engineer, PIM Support Team and PIM Extensionist.

Timing: After the signing of the IMT Agreement (PIM Step 19).

Duration: For duration of IMT Agreement.

Main Purposes:

- Execution of annual financial audit of WUAs to control the financial records of WUAs.
- Execution of annual technical audit of WUAs to assess if the O&M of the irrigation infrastructure is carried properly by the WUAs in accordance with the provisions in the IMT Agreement and the annual Water Management and Maintenance Plans.
- Execution of annual institutional audit of WUAs to assess if the WUAs are managed in accordance with the provisions of their Articles of Association and existing legislation.
- Execution of annual technical audit of operator of headworks to assess if the operator is managing the headworks in accordance with the O&M Manual and that spate water is distributed between the different spate irrigation systems along the Wadi in accordance with the Wadi Water Management Plan.

Documents:

- IMT Agreement.
- Wadi Water Management Plan.
- Primary Canal Water Management Plan.
- WUA Articles of Association and Internal Rules & Regulations.
- O&M Manual.

Visual Aids: None.

INFORMATION AND GUIDELINES

21.1 Audit of Water Users' Associations

At least once a year, each WUA shall be audited by the concerned authority (i.e. MAI) in order to ensure that:

- the WUA is administratively and financially managed in accordance with the provisions in the WUA Articles of Association and Internal Rules & Regulations; and
- the primary and secondary canal system is operated and maintained in accordance with the provisions specified in the IMT Agreement and the O&M Manual.

21.1.1 External Financial Audit of Water Users' Association

At least once a year, the WUA shall be financially audited in order to assess if:

- all its financial records are maintained by the WUA in accordance with the provisions specified in the WUA Articles of Association;
- the WUA has prepared and submitted its Annual Account and Income & Expenditure Statement within the prescribed period after the closure of the financial year;
- all WUA incomes are duly registered against receipts;
- all WUA expenditures are duly registered against invoices and bills for all payments made;
- all members and non-members of the WUA have paid their due ISFs and any other service charges;
- interest penalties and/or other sanctions have been imposed against any defaulter; and

- any major investment has been properly approved by the WUA General Assembly in accordance with provisions stipulated in the WUA Articles of Association and/or Internal Rules and Regulations.

In order to carry out the financial audit of the WUA, the auditor shall visit the WUA Office, where all financial records are kept.

21.1.2 Technical Audit and Inspection of Water Users' Association

To assess if the WUA is operating and maintaining the State-owned primary and secondary canals in accordance with the conditions specified in the IMT Agreement, the O&M Manual and the Primary Canal Water Management Plan, it is required that the concerned authority (i.e. MAI) conducts a number of inspection visits throughout the year.

Operation of Canal System

At least one visit shall be conducted during the irrigation season to assess the WUA performance regarding the operation of the canal system in general and the distribution of spate water in particular. During the inspection, it is required to assess if:

- the WUA operates the canal system in accordance with its Annual Operation Plan; and
- the WUA distributes spate water according to its Primary Canal Water Management Plan.

Maintenance of Canal System

At least one visit shall be carried out during or immediately after the execution of the maintenance works in order to assess if:

- the WUA carries out the maintenance of the primary and secondary canals according to its Annual Maintenance Plan and the O&M Manual; and
- the WUA has the necessary technical and organisational skills to undertake the required maintenance works effectively.

On the basis of the findings of the technical inspection of the primary and secondary canal system, the auditor may instruct the WUA to undertake specified works where this is necessary:

- to ensure the proper maintenance of the transferred infrastructure;
- to prevent damage to the transferred infrastructure;
- to prevent damage to state property or the property of third persons; and/or
- in the public interest.

21.1.3 Institutional Audit and Inspection of the Association

At least once a year, the administrative management of the WUA shall be audited in order to assess if:

- the WUA maintains its non-financial records (i.e. membership list, minutes of meetings) in accordance with the provisions in the WUA Articles of Association;
- the WUA Management Board and the WUA General Assembly have regular meetings with the required quorum as specified in the WUA Articles of Association and Internal Rules & Regulations;
- all members of the WUA Management Board and WUA General Assembly are properly informed about the date, time and venue of planned meetings according to conditions stipulated in the WUA Articles of Association and Internal Rules & Regulations;
- all decisions are made in accordance with the provisions in the WUA Articles of Association and Internal Rules & Regulations;
- all decisions made by the WUA Management Board and/or WUA General Assembly are published at the WUA Office and any other public places, so that all members and non-members of the WUA have access to that important information; and
- elections for members of the WUA Management Board are conducted in accordance with provisions in the WUA Articles of Association and Internal Rules & Regulations.

If the institutional inspection has revealed that the WUA is not managed and functioning in accordance with its Articles of Association and/or Internal Rules & Regulations, the auditor may instruct the Association to take necessary action in order to improve the functioning or administrative management of the WUA.

21.1.4 Preparation of Audit Report

Following every financial, technical and institutional audit of the WUA, the auditor shall prepare an Audit Report, in which the main findings are presented as well as recommendations to improve the performance of the WUA.

21.2 Technical Audit of Operator of Headworks

To assess if the operator is managing the State-owned headworks in accordance with the conditions specified in the IMT Agreement, the O&M Manual and the Wadi Water Management Plan, it is required that the concerned authority (i.e. MAI) conducts a number of inspection visits throughout the year.

21.2.1 Operation of Headworks

At least one visit shall be conducted during the irrigation season to assess the operator's performance regarding the operation of the headworks in general and the distribution of spate water along the Wadi in particular. During the inspection, it is required to assess if:

- the operator operates the headworks in accordance with its Annual Operation Plan and O&M Manual; and
- the operator distributes water among the spate irrigation systems along the Wadi according to the Wadi Water Management Plan and annual operation plan, that is approved by the Irrigation Council.

21.2.2 Maintenance of Headworks

At least one visit shall be carried out during or immediately after the execution of the maintenance works in order to assess if:

- the operator carries out the maintenance of the headworks according to its Annual Maintenance Plan and the O&M Manual; and
- the operator has the necessary technical and organisational skills to undertake the required maintenance works effectively.

On the basis of the findings of the technical inspection of the headworks, the auditor may instruct the operator of the headworks to undertake specified works where this is necessary:

- to ensure the proper maintenance of the headworks;
- to prevent damage to the headworks;
- to prevent damage to state property or the property of third persons; and/or
- in the public interest.

21.2.3 Preparation of Audit Report

Following every technical audit of the headworks operator, the auditor shall prepare an Audit Report, in which the main findings are presented as well as recommendations to improve the performance of the operator of the headworks.