

REPUBLIC OF YEMEN

MINISTRY OF AGRICULTURE AND IRRIGATION

IRRIGATION IMPROVEMENT PROJECT

Main Technical Assistance Team

PROCEDURE MANUAL

ON

PARTICIPATORY IRRIGATION MANAGEMENT

(DRAFT)

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IRRIGATION IMPROVEMENT PROJECT

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ABBREVIATIONS AND ACRONYMS

IIP	Irrigation Improvement Project
IMT	Irrigation Management Unit
ISF	Irrigation Service Fee
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>Maad</i>	0.36 hectare
<i>Ma'aqam/Ma'aqem</i>	(Temporary) Earthen Bund(s) (in primary canal)
<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/Diversions 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 to the Community Extensionists in particular. The PIM Procedure Manual provides information and guidelines about the PIM Programme and it should facilitate the Community 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 22 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 should be fulfilled before proceeding with the next steps of the PIM Programme. All 22 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 should 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 Extensionist, PIM Specialist, Training Expert, PIU Engineers, PIU Water (Use) Management Specialist, PIU Agronomist, contracted service provider for Agriculture Extension and Demonstration Programme, Tihama Development Authority (TDA), Lahej Regional Agriculture Office (RAO) as well as private sector (i.e. contractors, dealers/retailers, consulting engineers), are responsible to undertake specific activities during specific steps of the PIM Programme.

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

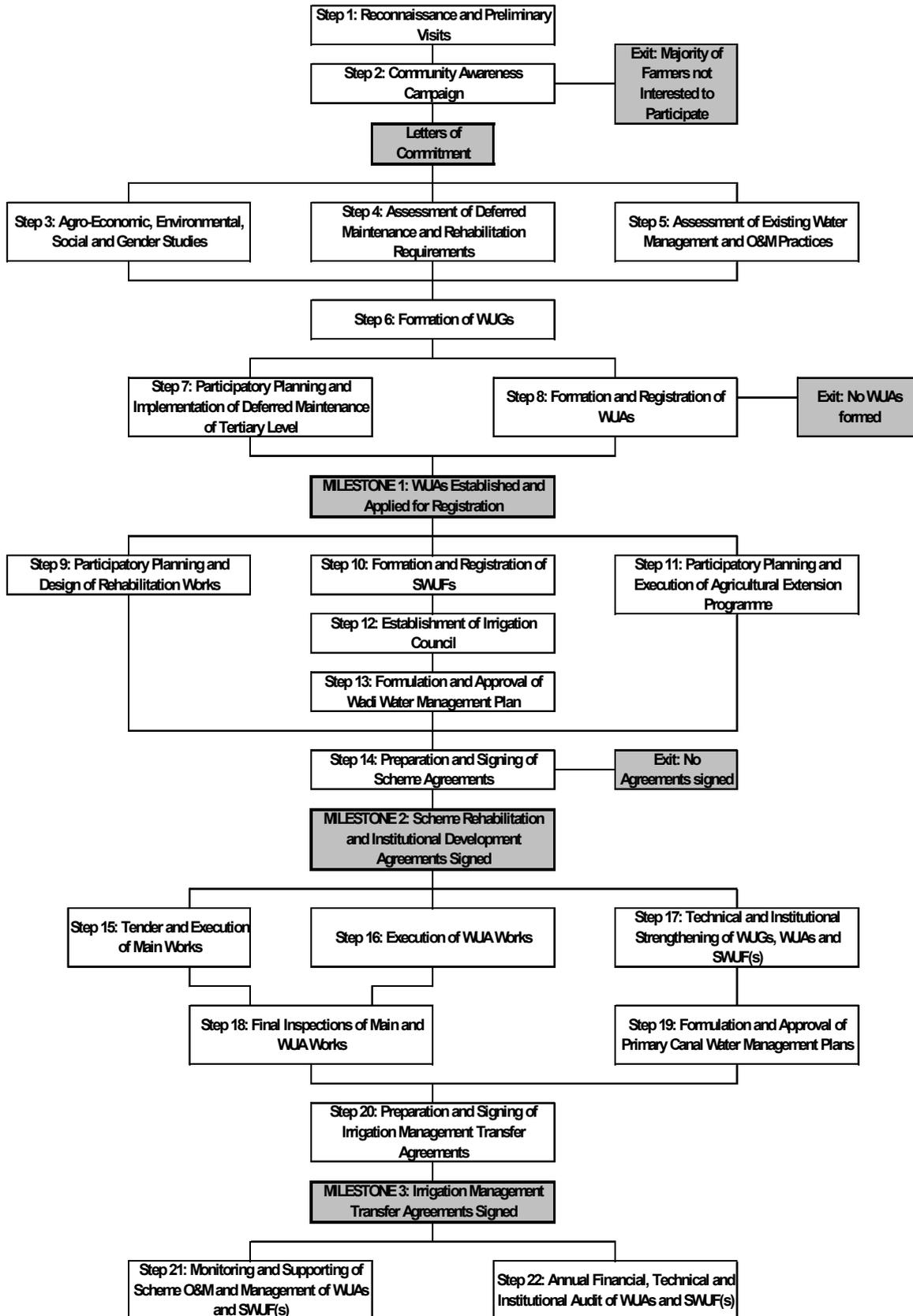
Duration: In how many weeks or months should this particular step be implemented.

Main purposes: What should 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 each document is given in the Annexes of this Manual.

Visual Aids: Which particular visual aids, such as flip charts (A1-size), maps, drawings and photographs should be used by the Screening Study Team during their activities of each step of the PIM Programme. 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 should 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 should be given to village women.

STEP 1 RECONNAISSANCE AND PRELIMINARY VISITS

Target Group: Village leaders¹.

Field Staff Involved: PIM Extensionist together with PIM Specialist and/or PIU Institutional Specialist.

Timing: One to two weeks before Community Awareness Campaign (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.

Techniques:

- Meeting.
- Presentation.
- Discussion.

Documents:

- IIP Brochure.

Visual Aids:

- Map(s) 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 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 should 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 shall contact the village leaders of the concerned villages to give a brief introduction of the objectives, approach and components of the IIP.

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*).

- ☞ It is important that the PIM Extensionist meets 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.

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 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 should 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 could propose the date for the next meeting, the contacted village leaders should fix the date and time for the next meeting, which is most convenient for them. The PIM Extensionist should 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 should **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 should 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 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 Institutional Specialist, PIM Specialist and Training Expert of PIU Institutional Development Section and any other PIU staff.

Timing: Within one to two weeks after the Preliminary Visit (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.

Techniques:

- Village meeting.
- Presentation.
- Plenary discussion.

Documents:

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

Visual Aids:

- Public notices and/or banner.
- Flip Chart.
- Map 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 is:

- 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 water charges 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 the TDA and Lahej 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 should 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 Irrigation Service Fees (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 should 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 should 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, should be avoided.
- The PIM Extensionist should 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 Facilitator should 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 should be conducted at least in each main village situated within the command area of the primary canal system.
- The PIM Extensionist should 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 should 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 should not be longer than 1½ hours. The presentation given by the PIM Extensionist should 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 should 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 should 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 should 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 should also be given to the village leaders, which they should 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 should start with an introduction, during which the PIM Extensionist should 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 should 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 should be told to the participants.

Presentation

The presentation should be given by the responsible PIM Extensionist. However, the total length of the presentation should not exceed 40 minutes in order to keep the attention of the audience. The presentation should 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 should be used.



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

Questions and Discussion

Following the presentation, the attending farmers and other villagers should 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 should ask the questions and participate in any discussions. If other persons than the farmers tend to dominate the discussions, the Facilitator should 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 Facilitator 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 Facilitator should 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 Facilitator should 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 should 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 should also be given to the village leaders, which they should 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 should 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.

2.4 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 Farmer Study Tour 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 ID Section 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 should 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 should 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 should be fixed.



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



The PIM Extensionist should 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 should 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 should 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 Farmer Study Tour.



If possible, at least one village women should 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 Study Tour, the PIM Extensionist shall organise transport.

Implementation of Exchange Visit

The main purpose of the Farmer Study Tour 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 Screening Study Team should 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, should 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 should be used to illustrate the presentation.

2.5 Preparation and Signing of Letter of Commitment

If the majority of the concerned farmers has expressed its interest to participate in the IIP, a Letter of Commitment should 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, PIM Specialist and PIU Agronomist.

Timing: Within a few weeks after the completion of the Community Awareness Campaign (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.

Techniques:

- Focus group discussion.
- Group interviews.
- Individual interviews.
- Transect Walk.
- Observation.
- Mapping.

Documents:

- Survey forms. (Annex 3.1)
- Map(s) of primary canal system.
- IIP Brochure.

Visual Aids:

- Map(s) 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 should 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 PIUU 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 should 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).

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

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.

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 should 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 should be arranged. During these group meetings, the participants should 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 should 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 should be followed by the Screening Study Team as much as possible:

Introduction Meeting

Soon after their arrival in the village, the Screening Study Team should 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 should 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 should be planned as required.

3.6 Types of Screening Studies

3.6.1 Agro-Economic Screening Studies

The Screening Study Team should conduct group and individual interviews (see 3.6.1), 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 scheme 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.

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 should 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 should also assess the need for necessary measures to mitigate existing environmental risks and any negative environmental impact as much as possible.

3.6.3 Socio-Economic Screening Studies

The Screening Study Team should 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 scheme village(s), including socio-cultural composition of the village population, in- and out-migration;
- presence of social amenities in scheme 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 scheme village(s), including existence of cooperative societies and any other village organisations;
- wealth indicators; and
- access to credit facilities.



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.
- the Screening Study Team could assess the existence of (traditional) forms of cooperation that could be mobilised for the execution of rehabilitation and improvement works through the WUA.
- the Screening Study Team would be able to identify any social disputes within and/or between the scheme villages that may affect the future O&M of the primary canal system through the WUA.
- the 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 all envisaged rehabilitation and improvement works and after 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 should 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 should 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 should 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 should 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 should 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) should 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 should be allowed to do so, because it could reveal important information. However, very long discussions should 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 should 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 should be strictly applied during the Screening Studies:

- In principle, only one group interview for each subject should be conducted in each (sample) village.

- For each group interview, knowledgeable persons should be invited. For instance, sharecroppers, tenants and landholders leasing land to sharecroppers should participate in the group interview on tenancy and sharecropping.
- At least 10 individual interviews on wealth indicators should be conducted in each (sample) village.
- To ensure that the individual interviews are representative, the individual households should be selected randomly in accordance with the a set of criteria:
 - Size of the landholdings should 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 should be selected; and
 - If land is cultivated by sharecroppers and/or tenants, at least one households that cultivates other persons' land should be selected.
- Three to five individual interviews on tenancy and sharecropping should be conducted in each scheme 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: Resident and Design Engineers

Timing: Within one month after the completion of the Community Awareness Campaign (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.

Techniques:

- Inspection.

Documents:

- As-built drawings, if any.
- Maps of entire spate irrigation systems.

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 changes made during the construction to canal alignments, structure types and locations shown in the design drawings.

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 Resident/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 Resident/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 should 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 (Step 9).

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 Resident/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 (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.

Techniques:

- Group meeting.
- Discussion.
- Interview.
- Observation.
- Inspection.

Documents:

- Maps 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:

- Maps 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 Articles of Association 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 Articles of Association 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 Articles of Association, 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 GAWR (NWRA) 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 and PIM Specialist 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 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 (Step 13) and Primary Canal Water Management Plans (Step 19) 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/branch (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 and PIM Specialist 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 and PIM Specialist 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/branch (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 and PIM Specialist 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/branch (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 (Step 17) 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.

Timing: Within one month after the Screening Studies (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.
- Introduction of all major aspects of WUG and WUA during Mobilisation Meetings.
- Assessment of farmers' interest to establish WUG.
- Preparation of WUG Membership List.
- Formulation and adoption of first set of internal Rules & Regulations.

Techniques:

- Group meeting.
- Presentation.
- Discussion.
- Exchange Visit, if required.

Documents:

- IIP Brochure.
- Map(s) and/or satellite images of entire primary canal system.
- WUG Membership List proforma. (Annex 6.1)
- WUG Non-Membership List proforma. (Annex 6.2)

Visual Aids:

- Flip Charts 6.1 and 6.2.

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 should 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 should 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 water charges 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/branch canal;
- the group of fields sharing the same *ma'aqam* in the primary/branch canal.

Before the PIM Extensionist 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;
- 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 maps 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 lists for each identified tertiary Unit, in which for each plot the following details are specified:

- size;
- name of owner; and
- name of sharecropper or tenant, if it is not cultivated by the owner him-/herself.

6.2 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 shall plan and conduct a series of 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 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 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.

6.2.1 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 should 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 should 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 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 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;
- 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 spate irrigation 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 6.1 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.

6.2.2 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 shall assess the interest among the attending farmers to establish a WUG for their tertiary unit and to become members.

 As 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 should 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 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 6.1.

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 6.2.

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 shall explain that a suitable candidate should 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 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 6.2 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, should 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 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 shall assist the WUG members or the committee by providing guidelines and examples.

6.3 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.

In order to safeguard the interests of the large number of (small) owner-operators, sharecroppers and tenants as the actual "water users", appropriate mechanisms should 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 specified in the Internal Rules & Regulations of the WUA (Step 8).

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

- ☞ 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.

In order to facilitate the election of representatives of the non-operating landholders, the PIM Extensionist shall organise one or more meetings in the main villages situated in the command area of the primary canal system, for which all non-operating landholders shall be invited.

- ☞ 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 Mobilisation and Formation Meetings.

The same information as given to the farmers at tertiary unit level during the 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 EXECUTION OF DEFERRED MAINTENANCE OF TERTIARY UNITS

Target Group: Members and non-members of WUGs.

Field Staff Involved: PIU Resident Engineer and PIM Extensionist.

Timing: Following the formation of the WUGs (Step 6) and before start of irrigation season.

Duration: One to two weeks per WUG.

Main Purposes:

- 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.

Techniques:

- Group meeting.
- Discussion.
- Inspection.

Documents: None.

Visual Aids: None.

INFORMATION AND GUIDELINES

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.

The first activity to be carried out by the PIM Extensionist is to assess if the WUG members are interested to undertake any deferred maintenance works within their respective tertiary unit. For this purpose, 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.

7.1 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 Resident Engineer with the support of the PIM Extensionist.

7.2 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 Resident Engineer with the support of the PIM Extensionist.

7.2.1 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 WUA 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.

7.3 Preparation and Execution of Deferred Maintenance Works with 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: WUA Formation Team comprising PIM Extensionist, Institutional Specialist and PIM Specialist.

Timing: Within one month after the completion of the WUG formation (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.

Techniques:

- Group meeting.
- Presentation.
- Discussion.
- Exchange Visit, if required.

Documents:

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

Visual Aids:

- Flip Chart 8.1.

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 should 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 should 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 should deal with farmers as clients and the word 'beneficiaries' should 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 should 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, should 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 should 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 should 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 water charges; 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 WUA Formation Team will conduct the following meetings:

- WUA Introduction Meeting;
- WUA Preparation Meeting(s); and
- Constitutive General Assembly Meeting.

8.1 WUA Introduction Meeting

The WUA Formation Team should 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; and
- rights and responsibilities of members and non-members of the WUA;
- 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 WUA Formation 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 operation 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 should be guided by the following principles:

- Non-discrimination: The WUA should 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 should operate on the principle of transparency and shall promote and support the participation of all of its members;
- Fairness in decision-making: The WUA should 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 should 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 should 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 annual 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 by a team formed up by the Supervisory Department and the WUA;
- 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 irrigation service fee;
- to assess and collect irrigation service fee 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 operation, maintenance 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 irrigation system development; 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 should 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 should 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 Representative of the Water Users' Group to the General Assembly in accordance with representative system of the WUA;
- to vote in the election of one or more Representatives to the General Assembly, 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 distribution and drainage system and/or repair of service roads;
- to pay any fees, 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 should 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 accounts and annual report 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 irrigation service fee 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;

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- 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 should 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 should fulfill at least the following qualifications:
 - ✓ literate;
 - ✓ acceptable for all irrigators 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 statement of income and expenditure 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 irrigation service fees 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 of WUAs 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 and accounts 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 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 WUA Formation Team uses Flip Chart 8.1 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 should 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, 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 WUA Formation Team should 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 should be distributed among all Representatives to the WUA General Assembly.

 It is recommended that the WUA Formation Team uses a Flip Chart summarising the main issues of the WUA Articles of Association.

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 should 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 as well as 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 operation and maintenance plans;
- policies of water rights and water distribution to members and non-members;
- procedures for executing operation and maintenance activities;
- procedures for the assessment and collection of irrigation service fees 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 ensure or recover due charges and fees and the sanctions to be imposed on 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;
- sanctions to be imposed on members and non-members for any offences committed, including a schedule of fines;
- inventory of assets owned by the Association; 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 should be clearly defined the water rights in its Internal Rules and Regulation in a form that is understandable to each farmer.

The WUA should 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 any other service charge, 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 should 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.

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 WUA Formation Team shall postpone the meeting. It is recommended that another Constitutive General Assembly Meetings should be planned within one month.

8.3.1 Adoption of WUA Articles of Association

The first step to 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 WUA Formation Team should 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 should 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 should 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 WUA Formation 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 WUA Formation 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 WUA Formation Team should 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 WUA Formation Team should 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 should be represented in the Management Board, the WUA Formation Team should check if the WUA members have adhered to that particular condition in the Internal Rules & Regulations. If not, the WUA Formation Team should report it to the WUA members.

8.3.5 Selection of Name for WUA

The WUA Formation Team should request the General Assembly to select an appropriate name for the newly established WUA.

☞ It should 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 water charges), acquire fixed assets and has to enter into agreements with the Government and other institutions, it should 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 should 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 should 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.

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