THE EUROPEAN UNION'S FOOD SECURITY PROGRAMME FOR THE REPUBLIC OF YEMEN

TECHNICAL ASSISTANCE TO THE TIHAMA DEVELOPMENT AUTHORITY

WATER USERS' ASSOCIATION COMPONENT

DRAFT

FINAL REPORT OF THE

SPATE IRRIGATION AND PARTICIPATORY IRRIGATION MANAGEMENT EXPERT

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INTRODUCTION

As part of the European Union's Food Security Programme for the Republic of Yemen, the mission to establish viable Water Users' Associations (WUAs) started in November, 2007 in 38 secondary canals in Wadi Mawr and 2 secondary canals in Wadi Rima. To lead such a mission, Abraham Mehari Haile, Spate Irrigation and Participatory Irrigation Management Expert was assigned as part of the European Commission Technical Assistance (TA) to the Tihama Development Authority (TDA).

The Spate Irrigation and Participatory Irrigation Management Expert invested a total of 87 days distributed over 4 missions in the periods November/December, 2007; April/May, July and October 2008 respectively. During the missions, the Expert worked closely with the Direct and staff of the TDA Agricultural Extension Department. He constantly briefed the Project Implementation Unit (PIU) on the progress made during each mission. He produced written reports at the end of each mission.

In this final report, first the objectives set by the TDA and TA for the WUAs establishment project are presented. Then the tasks accomplished in the period November 2007 and October 2008 are discussed. Finally the activities planned for the period till end of 2009 is detailed.

SPECIFIC OBJECTIVES

The Assignment given to the Spate Irrigation and Participatory Irrigation Management Expert had the following primary and secondary objectives

Primary objectives

- Develop a comprehensive WUA establishment strategy in close collaboration with TDA
- Strengthen TDA's capacity in the WUA and related field.

Secondary objectives

- Should time permit, contribute to the identification and development of a package of field level and command area improvement measures, appropriate to spate irrigation as it is practiced in the Tihama.

ACHIVEMENTS

The main achievements of the WUAs establishment project are:

- A comprehensive WUA establishment strategy was developed and implemented;
- Capacity of 33 TDA extension staff was improved in the field of WUA and related field;
- 164 lead farmers from 36 secondary canals were trained in different aspects of WUAs;
- 2,064 farmers or about 40% of total 6,000 farmers in the 34 secondary canals in Wadi Mawr and 2 secondary canals in Wadi Rima were directly trained in different features of WUAs;
- Seven secondary canals are ready (by 27/10/08) with their By-laws and their physical formation is foreseen in January 2009. The plan was December, 2008, but is pushed to January, 2009 due to Eid Holidays (December 15 to 25, 2008) and the need to explain the by-Laws properly to vast majority of farmers who can not read and write;

- Preliminary list of repair and maintenance works for 30 of the 38 secondary canals was prepared along with an outline of procedures for their implementation.

These achievements are explained in the following sections

WUA ESTABLISHMENT STRATEGY

The WUA establishment strategy that consists of different sets of activities, their purposes and implementing bodies are presented in Table 1. The time frame presented for the 'physical 'formation of WUA' only refers to 5 to 10 secondary canals, and this was the target set by the Spate Irrigation and Participatory Management Expert (was not a requirement as part of his assignment) together with the TDA Director of Extension.

The core principles of the WUA establishment strategy are:

- *Continuous engagement of the lead farmers and TDA extension staff*: the strategy is set in such a way that there will be activities to be performed by the lead farmers and TDA Extension staff throughout the WUA establishment process. Having a gap in between different set of tasks could slow momentum and lead to farmers eventually loosing interest in the process;
- *Creating a sense of ownership of the WUA establishment process among the farmers and TDA Extension*: During the series of trainings on rights, obligations and benefits; organizational structures, size and boundaries, membership criteria's of WUAs, the TDA extension staff were given the opportunity to conduct training for lead farmers who in turn also trained the farmers they represent;
- *Instilling awareness of the WUA activities within the vast majority of farmers:* Resources and technical support were made available to the lead farmers to organize and conduct discussion sessions with at least ten representatives from each tertiary canal. As stated earlier, 2064 farmers, about 40% of the total 6,000 farmers covered by the project have directly participated in the discussions;
- *One-to-one meetings with land lords:* In Wadi Mawr, land lords have for centuries ruled the irrigated land and to-date, without their support, even holding a meaningful farmer meetings is difficult let alone envisioning the formation of viable and successful WUAs. The one-to-one meeting with the land lords helped to closely gauge if and why the land lords think they will benefit from establishing WUAs and what their perceptions are with regard to providing leadership position to sharecroppers;
- *Linking the WUA strategy to investment programmes:* if investment programmes tailored at addressing current and pressing farmers' problems are not considered, it is hard to keep the farmers and their leaders engaged in the long and demanding WUA establishment process. Accordingly, preliminary command area level repair and maintenance works were compiled from 30 secondary canals and a procedure was drafted to fast-track the implementation of the identified works.

Table 1: Water Users' Association Establishment Strategy: Activities Set and Tasks Accomplished

Aactivity	Purpose	Performing Responsibility	Tentative Time Frame	Remarks
1. Informative farmer meetings	Inform farmers on some general purposes, benefits and obligations of WUAs; First assessment of farmers interest in establishing WUAs	TA Spate Irrigation/PIM specialist and TDA staff	Nov. to Dec. 2007	Completed
2. Follow-up farmers' meetings	Get feedback on the first meeting; further discuss the benefits and obligations of WUAs with farmers representatives from each secondary canal; preliminary explanation of the WUA process	TA Spate Irrigation/PIM specialist and TDA staff	Nov.to Dec. 2007	Completed
3. Selection of lead farmers	Farmers choose 3 to 7 lead farmers from their respective secondary canals	TA Spate Irrigation/PIM specialist: Preparation of TOR for lead farmer selection, which includes the criteria, processes and budget TDA staff: Selection of lead farmers	Jan. to April. 2008	Completed, 164 lead farmers selected
4. Training of lead farmers and extension staff	Module1: Acquaint lead farmers and extension with detailed purposes, tasks, responsibilities and benefits of WUAs Module 2: Familiarize lead farmers and extensions staff with difference organizational characteristics of WUAs WUA	TA Spate Irrigation/PIM specialist: Prepare training module, train 40 lead farmers, one from each of the secondary canals as well as 33 extension staff TDA extension staff: Train the remaining lead farmers	May to Aug. 2008	Completed: 164 lead farmers and 33 extension staff trained
5. Training of farmers	Modules 1 and 2	Lead farmer and TDA extension staff: train at least 10 farmers from each tertiary canal TA Spate Irrigation/PIM specialist: attend some of the training and give directions as necessary	Sep. to Nov. 15, 2008	2,064 farmers of the set target of 2770 farmers have been trained by October 25, 2008
6. Formation of 5 to 10 WUA organizations	Preparation of WUAs by-laws: organizational structure, internal farmers' laws, membership criteria, electing and de-electing leaders, water sharing, conflict resolution, operation and maintenance and related activities	Lead farmers prepare a draft document, TA Spate Irrigation and TDA Director of Extension and Staff give guidance on finalizing the document	Oct. to Nov, 2008	5 secondary canals ready by 23/10/08 with the 'document'
	Election of WUA leaders: depending on the organizational structure, different hierarchy leaders	75% agree on the by-laws; election to be done in the presence of at least 75% of the concerned farmers, representatives from PIU, TA, Social Affairs Department	Nov. to Dec., 2008	

The analyses of the major activities of the WUA establishment strategy are presented in the following sections

Informative and follow-up farmer meetings

The informative and follow-up meeting involved extensive farmer meeting with selected farmers from different upstream, midstream and downstream regions of Wadi Mawr, Rima and Zabid. The major objectives were:

- Assess the level of interest of the farmers and their capacities to organize themselves into WUAs;
- Learn from the experiences of already established WUAs in Wadi Zabi.

Among the major findings of the informative and follow-up meetings were:

- There seemed to be a general interest for the establishment of WUAs. The main reasons being:
    - Ensuring fair water distribution and better conflict mitigation;
    - Fulfilling the precondition of many international donor agencies - these agencies only allow access to their funds if farmers have some sort of functioning organization;
    - Better operation and maintenance services at a lower cost than a government agency, a contractor or an individual can do. The government and the TDA have not always managed to successfully engage in good maintenance work;
    - Provide effective services to farmers in seed selection, tillage practices, water distribution - these can be better done by a WUA, which is much close to the farmers than TDA;
    - Undertake income generating activities and strengthen the financial capacity of the farmers to accomplish some major maintenance work timely and with greater independence
- With the exception of some improvements in the water distribution and conflict minimization, the WUAs and Agim committees already existing in Wadi Zabid and Wadi Siham (Barquqa), and Wadi Rima (Amousify and Almousefya) have not made significant strides in the other above outlined activities: Among the causes were:
    - Lack of actual legal status to freely contact development and finical agencies as well as to undertake major water distribution and maintenance tasks. As a consequence, the farmers explained:
        - ·We could not demolish the very narrow 80 cm diameter culverts that are depriving our land of irrigation water (Almousify farmers);
        - We are seen by farmers as ineffective symbolic leaders (Berquqa).
    - Absence of organizational structure that allow representative farmers' meeting and effective collection of water fees:
        - There are not representatives at secondary canal level - meetings rarely occur among farmers, water fees are not regularly collected and thus the association has no any financial reserve (Almousify);

        - There is only one person responsible for each of the secondary canals - putting at least three persons in charge could give more weight to farmers' representative meeting, improve fairness of water distribution and enhance regular water fee collection (Wadi Zabid and Barquqa);
    - Most WUAs leaders are not properly acknowledged by farmers. Elections were organized too soon with the inclusion of too few farmers. Many farmers did not know the benefits and obligations of being a WUA member by the time some leaders have been elected (Wadi Zabid);
- Almost no trainings are given to the farmer's leaders on operation and maintenance, book keeping, financial accounting, conflict resolution, and other agriculture related fields. This has handicapped the WUA leaders from being useful service providers (Wadi Zabid and Almousify);
- No joint activities have taken place by the WUAs and the TDA staff on farmers' awareness creation with regard to the usefulness of a WUA - this could have had the added value of improving the image of the WUA leaders as important figures for enhancing the water supply and distribution and the improvement of crop production.

These findings were discussed in an interactive Workshop with 30 selected TDA staff and farmer representatives from all the above stated Wadis. The outcomes of the workshop contributed to outlining preliminary steps and core principles to be followed during the whole WUA establishment process.

Baseline survey and lead farmer selection activities

The baseline survey and lead farmer selection activities had two-fold objectives:

- Collecting pertinent data on the number of farmers, their landholding and their irrigation system network as well as the community characteristics in Wadi Mawr and Wadi Rima;
- Selecting 3 to 7 lead farmers (from each of the 38 secondary canals in Wadi Mawr and 2 secondary canals in Wadi Rima) who have the necessary basic knowledge and can grasp trainings on nature and type of WUAs and hence play a lead role throughout the WUAs formation process.

Without the knowledge of the irrigation system network and the nature of relationships among different types of farmers and their community structures, it is difficult to give pertinent and relevant examples of different aspects of WUA, such as organizational structure, decision making process, membership criteria and set-up of leadership positions.

The election of lead farmers was done in line with the core principle of engaging farmers early on and throughout the WUA establishment process. It is also in acknowledgement of the reality that getting through different messages related to WUA characteristics can be better accomplished by elected farmers who can speak in the 'language' of their respective fellow farmers. *As Nelson Mandela, Former President of South Africa stated: "If you speak to a person in a language he understands, your message goes to his head, if you speak to him in his language, your message goes to his heart"*

The steps followed in undertaking the baseline survey and lead farmer selection activity were:

- A ToR was prepared that set-out the objectives and methodologies for the survey as well as the criteria's for the selection of lead farmers (Annex 1 for details);
- The contents of the TOR was explained to the TDA Director of Agriculture and Extension, and 33 extension staff were selected for the task;

- Under the guidance of the Director, the TDA Extension staff surveyed 38 secondary canals in Wadi Mawr and 2 secondary canals in Wadi Rima. They organized farmer meetings and 3 to 7 lead farmers were elected per secondary canals in 34 of the 38 secondary canals in Wadi Mawr and the 2 secondary canals in Wadi Rima. Due to internal conflicts farmer leaders could not be elected in 4 secondary canals in Wadi Mawr;
- After compiling the survey data of the command area coverage, the results were shared with the lead farmers and necessary adjustments were made.

The analytical report on the baseline survey and lead farmer selection work is presented in Annex 2. The key achievements were:

- A data base of the number of farmers (land lords, sharecroppers, tenants) and their land holding for all the 38 secondary canals in Wadi Mawr and 2 Secondary canals in Wadi Rima. The TDA extension staff expressed pride of having such a data base which they contend is the first of its kind in the whole of TDA;
- 160 lead farmers were elected - 145 in Wadi Mawr and 15 in Wadi Rima. Complete list of the lead farmers for each secondary canal is presented in Annex 2. This was the first ever farmer leader election carried out in the region by the TDA Extension staff;
- For the first time in over 20 years, the TDA extension staff got the opportunity to work closely with and comprehend the problems and concerns of vast majority of farmers. The Extension staff also got the chance to better understand the setting of the Wadi Mawr and Wadi Rima irrigation systems.

Perhaps one of the shortcomings was the fact that despite all efforts by the Extension staff during the meetings, 80% of the 145 lead farmers elected in Wadi Mawr are land lords and only 20% are sharecroppers. In Wadi Mawr, where big land lords have for years been and are still ruling the irrigated agriculture, managing to hold elections that result in a 20% of the leadership position being occupied by sharecroppers is not a negligible achievement. But it certainly is not adequate representation particularly in the nine secondary canals where the sharecroppers are the majority in number and irrigated area coverage (Table 1, Figures 1 and 2 in Annex 2). In these canals, a reasonable target would have to be that by end of 2008 when WUA leaders are expected to be elected; at least a third of the leaders are sharecroppers. In an endeavour to achieve this target:

- A continuous awareness campaign among sharecroppers and landlords have been going on since the selection of lead farmers in April, 2008 in the form of organized training on processes and reasons and organizational characteristics of WUAs as well as informal meetings with land lords and sharecrops. These efforts have to a greater extent enabled instil understanding among the landlords that there are knowledgeable sharecroppers who can be valuable leaders in guiding and implementing operation and maintenance works as well as address water distribution and related issues.

Capacity building of extension staff and lead farmers

Strengthening the capacity of TDA Extension staff as well as the lead farmers was at the core of the WUA strategy and this was done by providing the extension staff and lead farmers two training modules as well as engaging them in actual training. The Spate Irrigation and Participatory Irrigation Management Expert with the assistance of the TDA Extension Director trained all the 33 extension staff and two lead farmers from each of the 34 secondary canals in Wadi Mawr and the 2 secondary canals in Wadi Rima. The extension staff with the supervison of the TDA Director of Extension and occasionally the Spate Irrigation and Participatory Irrigation Management Expert

trained the remaining lead farmers. In the same fashion, the lead farmers trained at least 10 selected farmer representatives from teriary canals.

The first training module familiarized the extension staff, lead farmers and farmers with the benefits, rights and obligations of WUAs whereas the second training module dealt with the organizational characteristics of WUA; specifically, the organizational structure, size and boundaries, membership criteria, decision making and internal water sharing rules. The trainings were illustrated with practical examples from experiences in various countries. The detailed content of the training are discussed in Annexes 3 and 4.

The major outputs of the trainings were:

- 33 extension staff were acquainted with various organizational characteristics as well as the extent of rights, obligations and scope of benefits of organizing farmers into WUAs. Based on the performance of the extension staff during their actual engagement in conducting training in the period April to October, 2008:
    - 5 extension staff have good grasp of the above noted aspects of WUAs and are good in getting their message through;
    - 6 extension staff were categorized as having amply sufficient understanding of the discussed WUA related issues and good communication skills;
    - 15 extension staff have average understanding of the discussed WUA features and average communication capabilities;
    - 7 extension staff judged as being below average in both substance and communication abilities as far as WUA related topics are concerned.
- 148 lead farmers (target was 160) were exposed to experiences from other countries with regard to obligations, rights and benefits and organizational characteristics of WUAs. As stated earlier lead farmers were not selected from 4 Wadi Mawr secondary canals due to internal conflicts among land lords and share croppers;
- By 25 October 2008, 2064 farmers from 227 tertiary canals were familiarized with the above mentioned WUA issues. The ultimate objective was to train at least 10 farmers from each of the total of 277 tertiary canals or 2770 farmers. This target is expected to be met by November 15, 2008 (see Table 1).

The list of the trained extension staff for each of the above explained different level of capacities is presented in Annex 5. The total number of tertiary canal farmers trained is portrayed in Annex 6.

Formation of WUAs

The physical formation of WUAs as indicated in Table 1 has three major steps:

1. Preparation of a WUA working document (By-laws) that explains clearly the purpose, benefits, rights, obligations and responsibilities as well as organizational characteristics, membership criteria, size and boundaries, decision-making processes with regard to election of leaders, conflict mitigation, water distribution and several other irrigation and agriculture related issues;
2. Approving the by-laws by two third of the concerned farmers; Election of WUA leaders in the presence of about two third of the respective farmers, representatives of the Department of Social Affairs, Hodeida, Yemen; TDA and the European Union's Food Security Programme for the republic of Yemen

12 of the 38 secondary canals covered by the project have prepared by-laws (Table 2). The Spate Irrigation and Participatory Irrigation Management Expert together with the Director and staff of the TDA Agricultural and Extension Department have discussed with the lead farmers and given

directions on finalizing the by-laws. Elections of WUA leaders for the 12 secondary canals are planned in January 2009.

Table 2: Data base of the secondary canals ready with their by-Laws

	Name of secondary Canals	Land lords		Sharecroppers		Tenants		Totals	
		Number	Area in ha	Number	Area in ha	Number	Area in ha	Number	Area in ha
1	Jooniah	19	85	65	233	25	105	109	423
2	Massliah	66	294	13	65	6	25	85	384
3	Badriah A	98	360	22	47	13	26	133	433
4	Badriah B	86	273	2	4	28	42	116	319
5	Badriah C	176	848	71	224	22	38	269	1110
6	Al Basheiriah	46	105	35	89	2	2	83	196
7	Hamodiah	96	235	41	103	16	42	153	380
8	Al Jarbaa	171	679	112	285	5	7	288	971
9	Al Wadeyeen	19	64	44	81	0	0	63	145
10	Al Khaliefa	50	152	35	103	3	8	88	263
11	Al Qaadiah	87	456	65	152	2	5	154	613
12	Jeezaan	30	151	4	11	0	0	34	162
13	Al Kudied	154	427	76	139	0	0	230	566

OUTLINE FOR IMPLEMENTATION OF COMMAND AREA DEVELOPMENT STRUCTURES

As part of European Union's Food Security Programme for the Tihama Region, a number of relatively small investments in improved water management at command area and field level are planned to be done on the basis of the priority repair and maintenance needs identified by the farmers.

In the Food Security Budget, Euro 150,000 is reserved for this. Currently, in total, the process of WUA development is in operation on 36 (Wadi Mawr) plus 2 (Wadi Rima) = 38 secondary canals. This means that per secondary canal a budget of Euro 5,000 is available approximately.

A standard list of the type of structural command area and field level improvement works required are being developed as a 'menu' (Paul Blinch, Irrigation Engineer) to allow fast implementation and avoid a lengthy design process. The design manual will provide an overview of these options. The options are identified by the farmers in the secondary channel, under guidance of the farmer leaders.

Proposed procedure

The following procedure is proposed:

- Lead farmers/WUA leaders identify a list of the repair and maintenance works required
- Lead farmers/WUA leaders together with the TDA Engineers and Extension staff verify the works requested and identify application to the menu through field visits and discussions,
- Standard design are prepared with work description and cost estimations
- Lead farmers/WUA leaders (with help of TDA Extension and Engineers) identify local registered contractor who can do the work;
- Contract awarded under small works arrangement (less than USD$ 10,000) to contractor on basis of standard design.
- Contractor completes the work and this is verified by lead farmers/WUA leaders and TDA Extension staff and Engineers;

- Contractor is paid according to the agreed fixed sum of the work with the remainder of the costs (if any) paid by farmers
- If there is a legally recognized WUA established in place, it can be directly awarded the contract should the association believe it can adequately handle the work

Implementation

Regardless of whether the above stated procedure with regard to contracting the work (steps 4 to 7) is followed or alternative route is finally adapted, the first three steps in the above procedure that lead to a preparation of a standard design will remain valid. Being ready with the standard design for farmer identified works will only have a positive impact on fast-tracking the contracting and construction work regardless of the ultimate procedure followed.

The first step in the above noted procedure has already been taken and the lead farmers have prepared a preliminary list of (re)construction and repair works in 30 of the 38 secondary canals (Annex 7). Of the whole list, four major activities that may qualify as being part of WUA identified work (see definition above) and that may merit a preparation of a standard design are selected (Table 3).

Table 3: List of identified works, their purposes and locations within the Wadi Mawr irrigation system

Type of identified works	Purpose of identified work	Preliminary work sites
In farm canal crossing bridges	transport of people, livestock and farm products	Secondary canals Aadam, Badrieah a, b and c, Al-Basheiriah, Hamoodiah Jooniah, Al-Bukhashiah, Al Bakkriah, Labbadah
Village flood protection embankments	Prevent or minimize damage to village properties and resources	Alzuhra town/village and Massaliah secondary canal
Canal widening and canal network reshaping	To irrigate some downstream land that is out of command due to siltation	Secondary canals: Alharaje, Alwadiyeen, and Alkhalefah
In farm road, roads connecting villages and farms	Transport of people, livestock and farm products	Secondary canals: Al-Maawasiah, Badrieah a,b,c, Masstora, Hamoodiah

The works identified in Table 1 are not exhaustive. Through further consultations with lead farmers and farmers, additional works will be identified. It has to be emphasised, however, that starting action on the requests made by the farmers is important as this will indicate to them that their needs are seriously considered.

It is also important that in order to serve as an incentive, any repair and maintenance work should start in the secondary canals where the lead farmers have made tremendous effort during WUAs establishment process and have reached a stage where they have already prepared their by-laws. These secondary canals are presented in Table 3.

FOLLOW-UP ACTIVITIES: November 2008 to December 2009

The major task in November and December 2008 will be the finalization of the remaining farmers' training on processes and reasons for establishment of WUAs (module 1) and organizational characteristics of WUAs (Module 2). There are a total of 910 farmers from 91 secondary canals to be trained. The details of the content of these modules are presented in Annexes 3 and 4.

In year 2009, the major task would have to be:

- Physically establishment WUAs;
- Strengthening the capacity of WUAs

Physical formation of WUAs

The steps for physical formation of WUAs are outlined in the above. Once the secondary canals are ready with their by-laws, they will be assisted by the TDA extension in disseminating the by-laws and ensuring that they are well understood by at least two third of the concerned farmers this will involve organizing and participating in:

- Small group meeting (about 20 farmers) when the by-laws are discussed in detail. The number of meeting will depend on the number of farmers in a secondary canals
- At least two general meeting - for initial discussion of the by-laws, their approval, and electing WUA leaders

Strengthening the capacity of WUAs

Once the WUAs are in place, two major training will be given to the respective leaders on:

1. Practical ways to effectively manage different tasks of the WUAs;
2. Processes to ensure the sustainability of WUAs.

These trainings could have a much better positive effect on the capacity of the WUA leaders, if some activities that draw on the theoretical issues discussed in the training are undertaken by the WUA leaders in close cooperation and coordination with experts from TDA and possibly the Technical Assistance of the European Union Project. Among such activities could be:

1. Organization and execution of repair and maintenance work;
2. Soil moisture conservation and field water management measures, which is as important if not more important that effective flood diversion for improving productivity under spate irrigated field. Experts could bring experiences form spate irrigated areas in other countries such as Pakistan, Ethiopia, Eritrea, Mozambigue and others.
3. Crop variety improvement and management practices that include in-situ trial of improved food crop and vegetable varieties – there is a wealth of experience on this from mainly from Pakistan;
4. Local knowledge sharing visits of the Tihama WUA leaders to the well established spate irrigated areas in Pakistan and Eritrea as well as to the fast spreading and dynamic spate systems in Ethiopia

In all the above activities, and particularly in items 2 and 4, the extension women workers from the Women Rural Development Department would have to be involved. Although the culture and tradition in Yemen is such that women have little say in decision making, they are a major workforce in different agricultural field water management activities, crop harvest and post harvest activities.

ANNEX 1

TERMS OF REFERENCE
FOR BASELINE SURVEY AND ELECTION OF LEAD FARMERS
IN WADI MAWR AND RIMA

Background to the assignment

As part of its endeavour to support the Yemeni Government effort to improve food security and alleviate poverty, the European Commission has allocated € 6,750,000 financial aid to the Government of Yemen (GOY). The fund is targeted at irrigation infrastructure improvement with the objective of enhancing household food security in the Tihama Region.

The Tihama Region is one of the most important agricultural areas in Yemen where spate irrigation is predominantly practiced as a major source of livelihood for the rural poor. Spate irrigation mainly relies on floods that are unpredictable in occurrence and often destructive in nature. Thus, carefully crafted infrastructural development for the control and management of the floods is a necessary undertaking if agricultural productivity is to be enhanced and noticeable strides to be made in bettering the lives of the rural poor Tihama communities.

The success of the infrastructural development project, however, largely relies on the active participation of the farmers. During the project implementation period, the farmers' involvement is important as they can share valuable indigenous spate irrigation design and management experiences. Their participation is also vital in the post project era if the infrastructure is to be properly operated and maintained. These contributions by the farmers as well as other related activities such as fair water sharing and conflict mitigation, agronomy and agro forestry practices may only be more effective if the farmers have viable Water Users Associations (WUAs).

With the irrigation infrastructure improvement project, the TDA (Tihama Development Authority) is responsible for planning, implementation and proper disbursement of project funds. To support the TDA in achieving effective, efficient and timely implementation of different envisaged components of the project, a Technical Assistance (TA) was set-up. The TDA and TA assigned a Spate Irrigation and Participatory Irrigation Management (PIM) Specialist to lead the WUA establishment approach. In his first mission, the Specialist has, in coordination with Jaafar Hassan Alawi Al-Jeffri, Direct of Agriculture and Extension Department of the TDA, outlined the approach for the establishment of WUAs that gives the farmers a predominant role (Table 1). This role by the farmers is to be executed through 'lead' farmers who must be properly selected and trained to be credible and capable actors throughout the WUA establishment process.

Objective of the assignment

The main objectives of this assignment, which will be undertaken in Wadi Mawr and Rima (Almousify and Almosafya), are two fold:

1. Preparation of pertinent data-base of the secondary (agim fereey) and tertiary canal (agim sanewy) systems, their command area and water users (farmers)
2. Selection of 3 to 5 lead farmers for each secondary canal

Major activities

1. Retrieve all available secondary data: maps, names and land holding of water users
2. Walk through survey (see form in Annex 1)
   - Register all secondary and tertiary canals (agim sanewy or mesaqi)
   - Refine and finalize farmer data base (names and landholdings) for each secondary and tertiary canal

3. For each secondary canal, select 3 to 5 lead farmers depending on the number of the canal users. As an initial guide, assign 3 lead farmers for less than 250 ha, 4 lead farmers for 250 to 500 ha, and 5 lead farmers for more than 500 ha.
   - Organize separate meetings with users of each secondary canal
   - Inform the farmers that the sole purpose of the meeting is to select 'lead' farmers
   - Explain the role of the 'lead' farmers: be very clear that the 'lead' farmers are not necessarily going to be among the leadership of the WUAs - they are mainly going to be responsible for the different activities till the formation of the WUAs (Table 1).
   - Explain the main criteria for selection of 'lead' farmers
     - Able to read and write properly
     - Farmed and lived in the area for at least 10 years
     - Respected as a good hard working farmer in the area
     - Farming is a major source of livelihood (contributes more than 50% of the household income)
     - Successful involvement in fair water distribution and conflict mitigation
     - Knowledge of basic characteristics of WUAs - boundaries, hierarchy of leadership, responsibility to distribute water, responsible for operation and maintenance work
     - Willingness to devote time for the establishment of the WUA
     - Positive motivation to establish a WUA.
   - Farmers nominate a short list of 10 'lead' farmers
   - Farmers rank the suitability of the 10 nominees from 1 (less suitable) to 5 (most suitable) for each of the above criteria.
   - The 3 to 5 nominees with the highest score get selected as 'lead' farmers

Implementing agency and team composition

This assignment is to be undertaken by the Agricultural Extension Department of the TDA. The Team is to be composed of 10 members:

1. Jaafar Hassan Alawi Al-Jeffri, Director of the Agricultural Extension Department
2. Heads of Agricultural Extension in Central, Southern and Northern regions (3 in total)
3. 6 Agricultural Field Extension staff (five in Wadi Mawr, one in Wadi Rima)

Expected outputs

The Direct of the Agricultural and Extension Department of TDA is responsible for delivering the following major outputs by ***10 March, 2008***:

1. Complete maps showing all irrigation zones as well as main, secondary and tertiary canal layout
2. Names and land holdings of farmers for each secondary and tertiary canals
3. A one page summary report (see guideline in Annex 2) on each of the farmer meeting conducted supplemented with digital photo (if possible video) documentation

Assignment duration and budget

The total number of 'man-days' required to successfully complete the above outlined activities are presented in Table 2. On the basis of Table 2, the rough budget breakdown is portrayed in Table 3

Table 2: The man-days and estimated duration of the assignment

Activities	Wadi Mawr (38 secondary canals)	Wadi Rima (14 secondary canals)	Total man days	Remark/Assumption
Secondary data compilation: maps, list of water users at secondary and tertiary canals	3	1	4	Travel to field offices is required
Walk through survey	190	70	260	5 man-days per secondary canal
Secondary canal meetings	80	28	108	One meeting per secondary canal. Each meeting is to be attended by two TDA staff
Supervision and coordination	20	7	27	One of every 2 meeting (to be combined with checking survey results) will be supervised
Data organization and reporting	8	3	11	One report writing day for every 5 meetings
Total man days	301	109	410	

Table 3: Rough budget Break down in Yemeni Rial

Activity	Performing responsibility	Total working days	Per-diem per day	Total perdiem	Fuel cost per day	Total fuel cost	Total budget
Secondary data compilation: maps, list of water users at secondary and tertiary canals	Director, TDA Agricultural Extension Department	4	2,500	10000	300	1200	11200
Walk-through survey	TDA field staff (technicians)	260	1,500	390000	480	124800	514800
Secondary canal meetings	TDA Section Heads/Engineers	108	2,500	270000	1,200	129600	399600
Supervison and coordination	Director ,TDA Agriculture Extension Department	27	2,500	67500	3,600	97200	164700
Sub-total							**1,090,300**
Additional facilities							
*2 Desk-top computers with printer (one for each Wadi Mawr and Rima)							400,000
A4 paper (1 box)							5,000
Exercise books, pen and pencils							2,000
Sub-total							***407,000***
***Total**							***1,497,300***

Financial disbursement and responsibility

The TA is to provide 548,650 Yemeni Rial, half of the total budget (excluding the cost of the computers) to Jaafar Hassan Al-Jeffri, Director of the TDA Agricultural Extension Department at the beginning of the assignment in January 3, 2008. Mr. Jaafar should properly settle this first advance payment with pertinent receipts as well as deliver a progress report that clearly spells out 50% of the assignment has been completed by 3 February, 2008 to be provided with the second and final payment of 548, 650 Yemeni Rial. This second and final payment should also be properly accounted for by Mr. Jaafar.

Assumptions for successful completion of the assignment:

1. The farmers will cooperate fully with the TDA survey staff as well as attend and proactively participate in all the 'lead' farmer selection sessions;
2. The TDA staff are capable of timely and diligently undertaking the activities of the assignment as per the specifications in the ToR;
3. The TA will timely and efficiently provide all the financial resources needed to the TDA Director of Agricultural and Extension Department who should in turn should settle all advances on time and with proper receipts.

Walk-through survey form

Name of secondary Canal: _____

Name of tertiary canal: _____

No.	Full name of farmer	Type of farmer			Land holding in ha
1		Land lord	Share cropper	Tenant	
2					
3					
4					

The form is filled by:

Name: _____

Signature: _____

Date: _____

The form is checked by:

Name: _____

Signature: _____

Date: _____

Content outline of the final Report for Lead farmer selection meetings

For each lead farmer selection meetings, there should be a report, which contains, but is not limited to the following:

1. Name of Wadi and total irrigated area
2. Name of secondary canal and total area under its command
3. Name of tertiary canals represented and the total area they collectively cover
4. Full names of farmers representing each tertiary canal
5. A summary on where and how the meetings were conducted
6. Contact details (Full name, mailing address, phone number) of selected lead farmers
7. Names of the tertiary canals to which the selected lead farmers belong
8. An outline of the major reasons (in the words of the farmers) for selecting the lead farmers
9. Ranking the selected lead farmers as per the table below

Selection criteria	**Ranking by the farmers**				
	1 (least suitable)	**2**	**3**	**4**	**5 (most suitable)**
1. Able to read and write properly					
2. Respected as a good and hard working farmer in the area					
3. Successful involvement in fair water distribution and conflict mitigation					
4. Knowledge of basic characteristics of WUAs - boundaries, hierarchy of leadership					
5. Farmed and continuously lived in the area for at least 10 years					
6. Farming is a major source of livelihood (contributes > 75% of household income)					
7. Willingness to devote time for establishment of the WUA					
8. Positive motivation to establish a WUA					

Name and signature of the Extension staff that led the farmer meetings:

1. _____

2. _____

Date: _____

Name and signature of supervisor: _____

Date: _____

ANNEX 2

ANALYTICAL REPORT OF BASELINE SURVEY AND LEAD FARMER SELECTION IN WADI MAWR AND RIMA

Introduction

The walk- through survey and leader farmer selection task was conducted to:

- Obtain data base of the number of land lords, sharecroppers and tenants and their land holding in all the 38 secondary canals in Wadi Mawr and 2 secondary canals in Wadi Rima;
- Select 3 to 7 lead farmers for each of the said secondary canals in Wadi Mawr and Wadi Rima.

The task was completed in the period January to April, 2008 by a selected team from the TDA Agriculture and Extension Department on the basis of the ToR presented in Annex 1.

This report presents and discusses:

- List of the TDA staff that undertook the baseline survey and lead farmer selection task;
- Main constraints encountered in the course of the task;
- Data base on the number of farmers and their land holding in each of the 38 secondary canals in Wadi Mawr and 2 secondary canals in Wadi Rima;
- lead farmers selected for each of the stated secondary canals;
- Budget summary.

Main constrains encountered

- The approved budget from TA-TDA was not enough to implement the baseline survey. Funding was not allocated to drivers, photographers, administrative assistance. Further, it was necessary to repeat some survey data in some canals to correct the data and also we had to repeat or delay farmer selecting meetings due to conflicts or misunderstanding between farmers in the same canal especially between land lords and sharecroppers. These required more time and more budget than was allocated;
- Lead farmer selection meeting could not be successfully conducted in four of the 38 secondary canals in Wadi Mawr, namely Asmara, Al-Nasery, Al-Barrwdah and Ghulifekah. This was mainly due to conflicts and misunderstanding among land lords and sharecroppers.

Data base of the number of farmers and their land holdings

Wadi Mawr irrigation system

The total surveyed irrigated area in Wadi Mawr was 20,832 ha. Of this, 14,046 ha has been cultivated by 3.164 Land Lords; 5, 887 ha by 1,814 sharecroppers and 899 ha by 266 tenants. These overall data as well as the number of land lords, sharecroppers and tenants and their respective land holding for each of the 38 secondary canals is presented in Table 1 and Figures 1 and 2.

From Table 1 and Figures 1 and 2, it can be inferred that:

- In 16 secondary canals, the land lords have an absolute majority and occupy more than 80% of the irrigated area; it is, however, important to note that the land holding per land lord (area he irrigates by himself) ranges from 3 to 20 ha and is on average 5 ha. This is not significantly bigger than the land holding per sharecropper, which ranges from 1.5 to 10 ha and is on average 3.7 ha;
- The sharecroppers are the majority in 9 secondary canals where they are also responsible for irrigating about 60% of the area;
- The number and landholdings of tenants is insignificant; it is only slightly higher than that of the sharecroppers in only two secondary canals.

Table 1: Number of farmers and their land holding for each of the secondary canals in Wadi Mawr

S.No.	Name of secondary Canals	Land lords		Sharecroppers		Tenants		Totals	
		Number	Area in ha	Number	Area in ha	Number	Area in ha	Number	Area in ha
1	Al-Daraaniah	547	1938	1	9	1	2	549	1949
2	Al-Madbaeyah	49	221	0	0	1	1	50	222
3	Al-Maawasiah	222	516	38	49	5	11	265	576
4	Annasery	10	56	57	123	0	0	67	179
5	Al-Hezmiah	76	293	46	165	0	0	122	458
6	Fath AlBary	4	23	36	118	0	0	40	141
7	Barrwdah	27	138	27	145	8	35	62	318
8	Ghulifekah	25	105	36	111	3	26	64	242
9	Attaheryah	55	403	40	117	5	42	100	562
10	Al-Bukiriah	60	179	61	153	3	9	124	341
11	Aadam	74	274	113	469	23	137	210	880
12	Labbadah	27	138	37	165	3	14	67	317
13	Al-Hashediah	43	174	100	295	21	102	164	571
14	Albakhashiah	35	306	46	329	0	0	81	635
15	Jooniah	19	85	65	233	25	105	109	423
16	Markoozah	27	88	0	0	10	37	37	125
17	Makkiah	3	61	11	113	0	0	14	174
18	Massliah	66	294	13	65	6	25	85	384
19	Badriah A	98	360	22	47	13	26	133	433
20	Badriah B	86	273	2	4	28	42	116	319
21	Badriah C	176	848	71	224	22	38	269	1110
22	Al Basheiriah	46	105	35	89	2	2	83	196
23	Hamodiah	96	235	41	103	16	42	153	380
24	Asmaraa	93	592	22	55	8	31	123	678
25	Assabakheiah	137	366	215	284	39	98	391	748
26	Al Bakkriah	15	48	49	119	6	13	70	180
27	Masturah	163	1611	153	640	2	29	318	2280
28	Al Qazliah	61	479	72	595	0	0	133	1074
29	Al Jarbaa	171	679	112	285	5	7	288	971
30	Al Wadeyeen	19	64	44	81	0	0	63	145
31	Al Khaliefa	50	152	35	103	3	8	88	263
32	Al Haraje	54	310	12	65	2	4	68	379
33	Mureia Beerah	157	1025	19	136	2	2	178	1163
34	Al Jadeidah	74	305	21	53	2	6	97	364
35	Al Qaadiah	87	456	65	152	2	5	154	613
36	Massood	28	268	17	43	0	0	45	311
37	Jeezaan	30	151	4	11	0	0	34	162
38	Al Kudied	154	427	76	139	0	0	230	566
Total		3164	14046	1814	5887	266	899	5244	20832

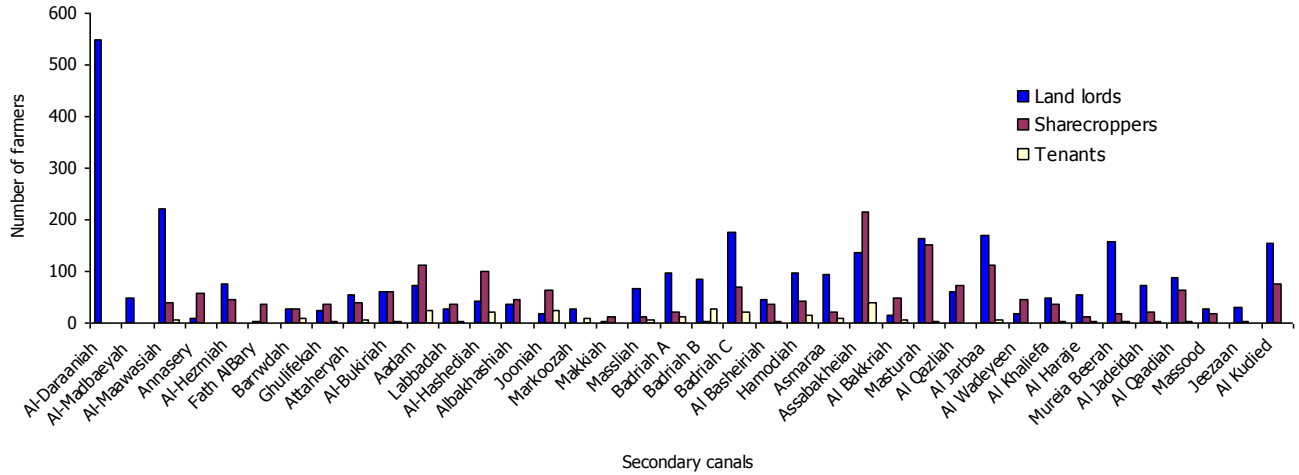


Figure 1: Number of Land lords, Sharecroppers and Tenants for each of the secondary canals in Wadi Mawr

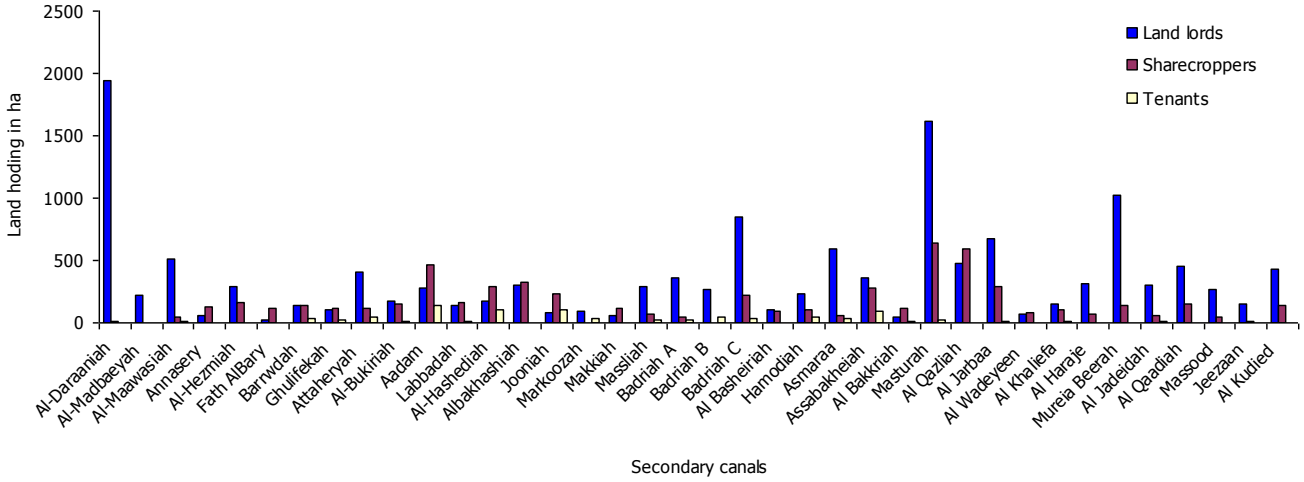


Figure 2: Land holding (ha) of Land lords, Sharecroppers and Tenants for each of the secondary canals in Wadi Mawr

Wadi Rima irrigation system

The number and landholding of land lords and sharecroppers in the AL-Moosfe and AL-Mosafiah secondary canals in Wadi Rima are presented in Table 2 and Figure 3 – there are no tenants. From Table 2 and Figure 3, it can be deducted that in the AL-Mosafia and AL-Moosfe secondary canals, the land lords account for 60 to 80% of the number of water users and almost 90% of the total irrigated area. *It is, however, remarkable to note that the land holding per sharecropper and per land lord is almost the same at 1.7 ha and 2 ha respectively.* In fact, the term "land lord" is not a fitting term in Wadi Rima as most of this so called "land lords" are poor with standard of living similar to that of the sharecroppers. This is in sharp contrast to the case in Wadi Mawr where the land lords are visibly rich

Table 2: Number and land holdings of land lords and sharecroppers in Wadi Rima

S.No.	Name of Secondary canals	Land lords		Sharecroppers		TOTAL	
		Number	Area in ha	Number	Area in ha	Number	Area in haa
1	AL-Moosfe	310	757	50	83	360	840
2	AL-Mosafiah	311	506	41	68	352	573
TOTAL		621	1263	91	150	712	1413

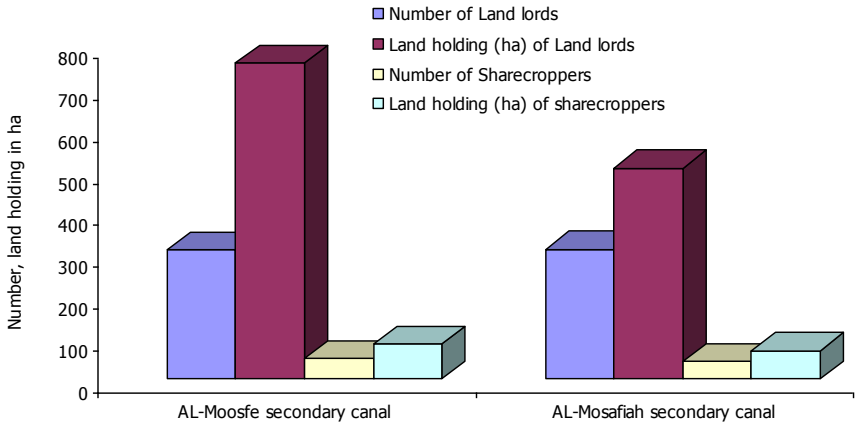


Figure 3: Number of land lords and sharecroppers in the AL-Moosfe and AL-Mosafiah secondary canals

Lead farmer selection for Wadi Mawr and Wadi Rima

The selection of lead farmers was done on the basis of clearly set criteria (Annex 1). 150 lead farmers were selected in 34 of the 38 secondary canals in Wadi Mawr and 15 in the two secondary canals in Wadi Rima. Though all necessary effort was done, it was not possible to hold meaningful meeting and elect lead farmers in four secondary canals in Wadi Mawr (Annasery, Al-barrawdah, Ghulifekah and Asmara) due to conflicts between land lords and sharecroppers.

The list of all elected lead farmers is presented in Tables 3 and 4. In Wadi Rima, 6 of the 15 lead farmers are sharecroppers and this is good representation. In Wadi Mawr, however, 80% of the leadership position is held by the land lords. Although given the decades long dominance of land lords, managing to have 20% of the Wadi Mawr lead farmer position be occupied by sharecroppers is not an insignificant achievement, it is definitively not adequate particularly in the secondary canals where the share croppers are the majority. As outlined in the main section of this report, effort will be made through, among other things, a one-to-one meeting with the land lords to ensure proportional

representation in all the secondary canals. This will lay the an enabling ground for the WUA leadership election planned for November/December, 2008.

Table 3: List of elected lead farmers for 34 secondary canals in Wadi Mawr

S.N.	NAME OF SECONDARY CANAL	NAME OF SELECTED LEADER	TYPE OF LEAD FARMERS	PHONE NUMBER	NAME OF TERTIARY CANAL
	Al-Daraaniah	Abdu AlGalil Mosa Ali Shami	Land Lord	711722232	A l-Falatiah
		Abdullah Ali Sagheer Shami	Land Lord	711566666	Al-Taan
		Shami Mohammed Abdo Khozimi	Land Lord	711199057	Al-Falatiah
		Ali Bin Ali Gaber Afndy	Land Lord	712399821	Al-Jarboe
		Hussein Ali Ghubeer Kharash	Land Lord	712245372	Al-Jarboe
2	Al-Madbaeyah	Ahmed Yehya Abdo Huggory	Land Lord	733663427	
		Ahmed Mohammed Ebraheem	Land Lord	711219798	
		Hussein Maqbool Gathem Madbaey	Land Lord	712562000	
3	Al-Maawasiah	Mohammed Yehya Ali Hassan Awas	Land Lord	713112609	Ahmed Zain
		Abdo Mohammed Ali Faqeih	Land Lord	711891873	
		Mohammed Ali Sagheer Hazza	Land Lord	711707719	Ali Sagher Hazza 4
		Mohammed Doom Galilah Awas	Land Lord	712102931	Bany Falailah
4	Annasery	Election was not possible due to conflicts between sharecroppers and landlords			
5	Al-Hezamiah	Mohammed Ali Hassan Faranti	Land Lord		
		Hadi Ali Baih	Land Lord		
		Ahmed Ali Sagheer	Land Lord		
		Abdo Hadi Herani	Land Lord		
		Ahmed Hussein Soa'an	Sharecropper		
6	Fatah AlBary	Abdelwasie Ahmed Hadi Hej	Land Lord		
		Abdela Ali Mehamed Ferenti	Land Lord		
		Ahmed Mehammed Ahmed Heij	Land Lord		
7	Al-Barrwdah	Election was not possible due to conflicts between sharecroppers and landlords			
8	Ghulifekah	Election was not possible due to conflicts between sharecroppers and landlords			
9	Attaheryah	Gabry Mohammed Sagheer Quppan	Land Lord		Bany Taher
		Hassan Hadi Mohammed Haig	Land Lord		Bany Taher
		Ali Ahmed Theeb	Land Lord		Al-Mantool
		Mohammed Ali Mahmmoud Awn	Sharecropper		Bany Taher- Assbakya
		Abdullah Hussein Hadi Mansaky	Sharecropper	712662877	
10	Al-Bukiriah	Garad Zain Qaban	Land Lord	712662877	Al-Nakeib
		Radwan Mohammed Ali Bukiri	Sharecropper	711813521	Al-Dhabarah
		Shuaeb Zain Yehya Ali	Land Lord	711445729	Mahnashiah
		Ebraheem Ahmed Ahmed Bukiri	Sharecropper	711090506	Al-Bukairiah
11	Adam	Abdo Yehya Kazzabah	Land Lord	711090506	Adam-Mekwamah
		Darwish Omar Hassan Qurshi	Sharecropper		Adam
		Hassan Ali Ragehy	Land Lord		Markoozah
		Ali Ahmed AlBaraq	Land Lord		Al-Hamoodiah
		Yusif Darwish Mohammed Wali	Land Lord	733495850	Al-Thalateen

12	Labbadah	Ahmed Yehya Kazzabah	Land lord	711744491	Saffith
		Ali Ahmed Ali Faqeih	Sharecropper	711182371	Labbadah
		Mohammed Ahmed Ali Zain	Land Lord	711182371	Saffith
13	Al-Hashediah	Mastoor Ali Hassan Alslamy	Land Lord	777402489	Al-Marawegh
		Mosa Mohammed Yehya Gably	Sharecropper	777402489	Al Makha-AlFaresiah
		Mohammed Quhree Hammoud Zain	Land Lord	711700615	Al-Daer-AlMakha
		Hadi Mohammed Abdullah Alhadi	Sharecropper	777402489	Al-Kalfudiah
		Ali Yehya Ahmed Garzooa	Sharecropper	777402489	Al-Haidariah
14	Al-bakhashiah	Abdo Hassan Bin Hammoud	Land lord	711719988	Al-bakhashiah
		Zeid Abdullah Bin Hammoud	Land lordr	711640627	Al-bakhashiah
		Faysal Ali Hassan Maketel	Sharecropper	777275021	Al-bakhashiah
		Mohammed Ali Hassan Alslamy	Land lord	777262043	Al-bakhashiah
		Akram Mosa Buttish Ga'afari	Sharecropper	712308192	Al-bakhashiah
		Hassan Ahmed Mohammed Abu	Land lord	777275021	Al-bakhashiah
15	Jooniah	Ahmed Mohammed Obad	Land lord	77730413	Jooniah
		Mohammed Ahmed Obad	Sharecropper		Jooniah
		Hassan Mohammed Hassan Mushara	Land lord		Jooniah
		Mohammed Ebraheem Bari	Land lord		Jooniah
16	Markoozah	Zeid Ali Abu Taleb	Land lord		Markoozah
		Ahmed Ebraheem Ayash	Sharecropper		Markoozah
		Khaled Mohammed Saleh Alhatheq	Land lord		Markoozah
17	Makkiah	Alhassan Ali Mohammed Taher	Land lord	711191705	Makkiah
		Gubran Ahmed Mohammed Gyraan	Sharecropper	711713466	Makkiah
		Akram Shuqqi Ebraheem Basha	Sharecropper	711184212	Makkiah
18	Massliah	Omar Aiz Aldeen Dahyqqy	Sharecropper	777381455	Massliah
		Mohammed Abdullah Dahyqqy	Land lord	77746761	Massliah
		Ali Abdullah Ameen	Land lord	712126585	Massliah
		Abdo Ahmed Aqeel Awaggy	Land lord	711346879	Massliah
19	Badriah A	Ahmed Hamdan Ali Shami	Land lord	712035142	Al-Kharaeg
		Ahmed Mohammed Ali Shamry	Land lord	711443184	Al-Kharaeg
		Hussein Ebraheem Haydar	Sharecropper	711090506	Adam-Mekwamah
		Ali Mohammed Nammes	Land Lord		
20	Badriah B	Ali Hamdan Ali Shami	Land lord	712866671	Al-Amlak
		Mohammed Hadi Bugakh Aqeely	Land lord	71121324	Al-Amlak
		Ahmed Mohammed Ali Odhaby	Land lord	712074063	Al-Amlak
		Nagy Ali Shuaai Ghwery	Land lord	711967502	Al-Amlak
		Abdullah Khadem Ali Marry	Land lord	711217101	Al-Amlak
21	Badriah C	Mohammed Hamdan Ali Shami	Land lord	712866671	Om Aldhabar
		Yehya Hadi Shamary	Sharecropper	711931616	Al Makha – Al Salatheen
		Shami Mohammed Makhtharry	Land lord	713070571	Al-Sabaeen
		Yehya Ali Abdullah Kameet	Land lord	711756756	Al-Sabaeen

		Hassan Mohammed Ali Odhaby	Land lord	711423452	Al-Sabaeen
22	Al-Basheiriah	Ali Gubran Mohammed Madkhaly	Sharecropper	712285585	Zabid
		Mohammed Mohammed Hashedy	Sharecropper	734355089	Al-Anad
		Ali Mohammed Esmael Abssy	Sharecropper	711061542	Al-Hudh
23	Hamodiah	Yasser Gubran Hamdan	Land lord	712103194	Al-Khager
		Ali Dokam Mohammed Hussein	Sharecropper	713248116	Al-Dulmah
		Ahmed Hassan Yehya Suffy	Sharecropper	713112938	Al-Dulmah
		Aessa Hassan Maqdam Shabeily	Land lord	712462088	Al-Dulmah
24	Asmaraa	Election was not possible due to conflicts between sharecroppers and landlords			
25	Assabakheiah	Ahmed Shuaay Hadi Mansaky	Sharecropper	711884116	
		Abdu alalah Hussein Hadi Mansaky	Land lord	711737849	Koddan
		Abdu alalah Mohammed Hasan	Land lord		Koddan-Aljarb
		Hasan Ahmed Ghaleb Sumole	Land lord		
		Mohammed Ali Zein	Land lord		Koddan
		Abdu Hassan zagher Alwaly	Land lord		
				711884116	Sharqiah Alhanash
26	Al-Bakkriah	Mosa Shuaay Hadi Mansaky	Land lord	711344545	Garban- Alhanash
		Ebraheem Hassan Hadi	Land lord	711132390	Garban
		Yusif Shuaay Hadi	Land lord		
				711428430	
27	Masturah	Hadi Ali Mohammed Almaqrany	Land lord		
		Ali Bin Ali Mohammed Almaqrany	Land lord		Al-Mahamedah-Hanfolah
		Abu Baker Mohammed Ali	Land lord	711988148	
		Mohammed Ali Qasim Yaqoppy	Land lord	712662881	Shua'ay Hadi
		Khaled Hussein Hadi Mansaky	Land lord		
		Mohammed Ebraheem Samaely	Land lord	711439231	
		Mohammed Motahar Ebraheem	Sharecropper	712866671	Al-Amlak
				71121324	Al-Amlak
28	Al-Qazliah	Mohammed Sagher Ali maqrany	Land lord	711974273	Alabzibia
		Ali Abda Ahmed	Land lord	711060502	Alabzibia
		Mohammed Abdela abker mohammed	Land lord	711974273	Alabzibia
		Ali Yami Hassesn Ara	Land lord		Mezud
		Ahmed Ebraheem Alhadi	Sharecropper	711875319	Alabzibia
29	Al-Jabraa	Ahmed Hadi Mansaky	Land lord	711010871	
		Ahmed Yehya Abdo Geillan Alnoammy	Land lord	712570169	Al-Hool
		Abdullah Hassan Alnoammy	Land lord	711826316	Abed Alhassan Alnoamy
		Ebraheem Hammoud Mansaky	Land lord	711063187	Al-Sharqiah
		Ali Abdo Gabaly	Land lord	712967324	
30	Al-Wadeyeen	Baddawy Hadi Mansaky	Land lord		Al-Wadeyeen
		Haj Hadi Mansaky	Land lord	711135953	Al-Wadeyeen
		Abdo Hadi Mansaky	Land lord	777882501	Al-Wadeyeen
31	Al-Khaliefa	Ali Mohammed Shua'ay Mansaky	Land lord	711753791	Al-Bahssaniah

		Armman Hadi Mansaky	Land lord	711267354	Al-Ssader
		Wael Mohammed Hassan Abdullah	Land lord	711680715	Al-Bahssaniah-AlBahar
32	Al-Haraje	Hamed Ahmed Aiz adeen	Land lord	712570162	Al-Haraje
		Ahmed Ahmed Mohammed Maddy	Land lord	711394174	Al-Haraje
		Mahmmoud Hadi Mansaky	Land lord	711010871	Al-Qabaliah
		Abdullah Ali Mohammed Haig	Land lord	712126541	Al-Haraje
33	Mureia Beerah	Mohammed Abdullah Maqbool	Land lord	771670635	Al-Bahssaniah- Beerah
		Abdo Abdullah Maqbool	Land lord	711352121	Qa'a Al-Nakeib-Alsetteen-Almathayen
		Yehya Abdullah Maqbool	Land lord	712779713	Al-Garabah-Lahy Alkalb- Alsetteen
		Mohammed Ali Abdullah Maqbool	Land lord	711352121	Alsetteen-Beerah
		Mohammed Said Zain Baagy	Land lord	713088660	Beerah
		Omar Ahmed Omar Aqeely *	Land lord	711719860	Abdualrab
		Hussein Aessa Maqrany (reservation)	Land lord	711067236	Maghniah
34	Al-Jadeidah	Ahmed Aiz adeen Gabaly	Land lord	712570162	Alsetteen
		Aessa Ahmed Maddy	Land lord	03835814	Qa'a Al-Nakeib
		Abdullah Abdo Ebraheem Maddy	Sharecropper	03835814	
		Ahmed Mohammed Gubran Gabaly	Sharecropper	711618081	
35	Al-Qaadiah	Hadi Abdo Haig	Land lord	03576010	Alharika
		Ali Hussein Hadi Mansaky	Land lord	711370515	Al-Qaadiah
		Ahmed Ahmed Hadi Gerna	Sharecropper	712562559	Kbat Katee Alsheger
		Mohammed Ibrahim Gedri	Land Lord	711628833	Al-Qaadiah
36	Massood	Mohammed Shuaay Khadher	Land lord	712698812	Al-Maseel – Alkhabeet
		Abdo Shuaay Hassan Bashah	Land lord	711628833	Al-Gobeel
		Ebraheem Maqbool Sood Gabal	Land lord	734396814	Al-Gobeel
		Ebraheem Ebraheem Maqbool Sood	Land lord	734396814	Al-Gobeel
37	Jeezaan	Ayman Shwqy Ebraheem Bashah	Land lord	711653613	Jeezaan
		Gubran Ahmed Mohammed Gubran	Sharecropper	711713466	Jeezaan
		Ammer Gubran Mohammed Gubran	Sharecropper	711912252	Jeezaan
38	Al-Kudied	Hattem Mohammed Ali Tamr	Land lord	711394930	Al-Kudied
		Taeseer Abdo Shuaay Bashah	Land lord	713073559	Al-Kudied
		Ahmed Mohammed Hamed	Land lord	712823687	Al-Kudied
		Mohammed Nageeb Shuaay Bashah	Land lord	712780432	Al-Kudied
		Ahmed Sha'aban Gabar Bahkally	Land lord	711713972	Al-Kudied
		Khaled Ahmed Musa Alzabeidy	Land lord	711067456	Al-Kudied
		Abdo Mohammed Ali Shaof	Land lord	712886732	Al-Kudied

Table 4: List of elected lead farmers for Two secondary canals in Wadi Rima

S.NO.	NAME OF SECONDARY CANAL	NAME OF SELECTED LEADER	TYPE OF LEAD FARMERS	PHONE NUMBER	NAME OF TERTIARY CANAL
1	AL-Moosfe	Mohamed Sagheir Hasan Jaafar	Land Lord	734606857	Al-Lawiah + Hasan Naser
		Saalem Bin Saalem Mohamed Hakami	Land Lord	734115596	Mabrook
		Hosein Mohamed Ahmed Hakami	Land Lord	-	AL-Mehlaj
		Yosef Saaleh Awad Aamer	Land Lord	734151406	Alhasani1
		Omhomad Saalem Mohamed Hakami	Sharecropper	733205209	Alhasani2
		Mohamed Saalem Qulaib Honduj	Land lord	-	Annaslah, Oobal
		Mohamed Musa Saalem Honduj	Sharecropper	733192865	AL-Haqameiah
		Dawood Abdul-Aleem Aamer	Sharecropper	734132245	Abdul-Aleem
2	Al-Mosafeia	Jamaal Mohamed Qulaib Hakami	Land Lord	733559886	AL-Kabeir, AL-Malajem
		Sadeik Ali Sadeik Hakami	Land Lord	-	AL-Waqef
		Ahmed Ibraheim Naser Matari	Sharecropper	734921883	AL-judlah
		Hameed Taher Mohamed Shujab	Land Lord	734656346	AL-Mednaq, AL-Shujab
		Hadi Omar Hadi AL-Ahdal	Sharecropper	734652912	Athalathah, AL-Mednaq, AL-Shujab
		Salem Salem Mansoob Honduj	Land lord	-	Saeed Aaesh, M. Aaesh
		Mohamed Ahmed Abbas Aamer	Sharecropper	-	Quraish, Assulaimaniah, AL-Msali

Budget Summary

The summary of the budget break down is presented in Table 5. The budget allocated by the TA was insufficient because more meetings and survey days were required than planned; additional money was needed to pay for drivers and photographers. The budget gap was filled from the Local TDA coffers.

Table 5: Budget break down for base-line survey and lead farmer selection

	DESCRIPTION	TA-TDA (MAN DAYS)	LOCAL-TDA (MAN DAYS)	TOTAL
1	Walk-through survey (Technicians)	260 * 1500 YR	68* 1500 YR	328* 1500 YR
2	S. Canals meetings (Engineers)	108 * 2500 YR	37* 2500 YR	145* 2500 YR
3	Supervision and Coordinator	27 * 2500 YR	51* 2500 YR	78* 2500 YR
4	Information Technicians	-	57* 1500 YR	57* 1500 YR
5	Administrative work	-	40* 1000 YR	40* 1000 YR
6	Drivers	-	48* 1500 YR	48* 1500 YR
7	Fuel	352800 YR	186840 YR	521640 YR
8	Stationery	7000 YR	150000 YR	157000 YR
9	Representation coast	-	156500 YR	156500 YR

ANNEX 3

TRAINING MODULE 1
PROCESSES AND REASONS FOR ESTABLISHMENT OF A WUA

Introduction
The Tihama Development Authority (TDA) and its Technical Assistance (TA) team have embarked on the establishment of Water User Associations (WUAs) in Wadi Mawr and Rima, the Republic Yemen. This is because, the TDA and TA believe that WUAs could play a considerable role in the sustainable improvement of crop and livestock production through better operation and maintenance of the irrigation systems, improved agronomic practices, pest and disease control measures and other agricultural activities.

For WUAs to be viable and sustainable, however, they have to be wholeheartedly supported by a majority of the farmers. For this to happen, the farmers, with the help of their elected representatives:

- Should play a lead role throughout the WUA establishment process;
- Should carefully evaluate the potential benefits of a WUA in relation to the tasks that they need to undertake. They should only decide to establish a WUA and take over responsibility for operation and maintenance of the systems and other agricultural activities, when they are confident that the economic gains will outweigh the extra tasks and obligations.

As a first step towards realizing the above two issues, during the first mission of the Participatory Irrigation Management and Spate Irrigation Specialist, a detailed TOR for selection of lead farmers (farmer representatives) was prepared. This was properly implemented by the TDA Extension and Agricultural Department and 3 to 7 lead farmers were selected for each of the 36 secondary canals in Wadi Mawr and the 2 secondary canals in Wadi Rima

To have a lead role in the WUA establishment, the lead farmers as well as the TDA extension staff need to be provided with a training that can enhance their understanding of the nature and type of WUAs. This training, which is the first of a series of training to be given, mainly focuses on the processes and reasons for the establishment of WUAs.

Objectives of the training
This training aims at enhancing the understanding of and getting feed back from the lead farmers and extension staff of the TDA on:

- The WUA establishment strategy;
- The expected roles of the lead farmers and extension staff during the whole process of WUA establishment;
- The purpose, tasks and responsibilities, rights and potential benefits of organizing farmers into WUAs;
- Simple approach for weighing benefits and costs with or without WUAs.

Training structure and approach
This training module has both informative and interactive components

Informative part
In the informative part, the flow of information will mainly come from the trainers, but there will be sufficient time for discussion. The trainers will highlight

- The main steps and processes to be followed for the establishment of WUAs;
- The key roles to be played by the lead farmers and the TDA extension staff during the WUA establishment period;
- Some of the general reasons given by farmers from elsewhere for why they think it is necessary to establish WUAs;
- The tasks and obligations of water users if they choose to establish WUAs;
- The potential benefits farmers can get by organizing themselves into WUAs
- Simple cost - benefit analyses approaches.

Interactive part

In the interactive part, the farmer leaders and extension staff will form groups of 5 to 7 persons each and will discuss:

- Why do they think they need to form WUAs?
- What kind of tasks are they willing and able to undertake and what responsibilities to shoulder?
- What are the potential benefits they want to attain by forming WUAs?
- Visualizing simple cost-balance sheet of their major irrigation and agricultural activities with and without a WUA.

Each group will present its thoughts on the above issues using flip charts or coloured papers or any other means they feel comfortable with.

In this interactive session, the trainers will have a supportive role – they will explain and clarify any questions each group of the lead farmers and extension staff might have. They will also field some questions during the presentations by the groups.

Core topics of the training

The core topics of the training, and these are very much in line with the above outlined issues, are:

- WUA establishment approach and activities and the role of lead farmers;
- Purpose of a WUA;
- Tasks and obligations;
- Rights and potential benefits;

WUA establishment approach and the role of lead farmers

The different steps for the establishment of WUAs, the activities within each step and the roles of the lead farmers are presented in the Table 1 of the main document. The Table also presents the roles of TDA staff and the TA Spate Irrigation/PIM specialist.

Purpose of a WUA

Some of the common reasons given by water users for why they want to form WUAs are:

- The canals and structures in my system are in a very poor state of maintenance;
- Have problems with pests and diseases and do not have the knowledge and resources to address it;
- There is no fairness in water distribution and sharing as there is no organization clearly responsible that is partial in doing the job;
- The government has no sufficient funds to repair and maintain our irrigation systems;
- The government has no sufficient resources to address my pest and diseases and water sharing problems;

- We think by organizing our selves into WUAs we can have better financial and material resources to undertake operation and maintenance, pest and disease control and other activities.

Tasks and responsibilities

In several countries and irrigation systems, farmers indicated that if form WUAs, they would be responsible to:

- Implement maintenance of secondary canals, structures and access roads in cooperation with government institutions;
- Implement fair distribution of water as agreed upon by the majority of farmers;
- Prepare and coordinate planting schedules in consultation with relevant government institutions;
- Coordinate and implement pest/disease control measures;
- Solve with fairness any water related and other conflicts that may arise among farmers.

Rights and potential benefits

Rights

- Complete authority on the operation and management of the secondary canals and structures;
- A joint authority of the operation and management of the secondary canals together with the relevant government organizations;
- A complete authority of the operation and management of the main canals and structures;
- Joint authority of the operation and management of the main canals together with the relevant government organizations;
- Complete control on the distribution of water at the secondary systems;
- Joint control of secondary canal water distribution with relevant government institutions;
- Collect water fees for operation and maintenance from the individual water users (farmers);
- Full responsibilities for setting the water fee amount and when and how to collect it;
- Fully retain and use the fees as we see it necessary for operation and maintenance of canals and structures and other agricultural practices;
- Own or hire machinery from the TDA and other institutions for repair and maintenance activities;
- Stop any maintenance or agricultural activity work when we think it is not being done properly;
- Have representatives in relevant government and non-government organizations;
- Freely and directly access financial donors and other organizations.

Potential benefits

The expected benefits of many water users who formed WUAs in several countries were:

- Better maintained and operated irrigation systems;
- Lower operation and maintenance costs (charges), because farmer organizations generally have less overhead costs than government organizations;
- Fair distribution of irrigation water;
- Less conflicts;
- More effective control of pests and diseases.
- More efficient use of machinery (if farmers coordinate and cooperate with each other);
- Larger opportunity for technical, financial and training support from government and non-government organizations such as the EU and World Bank;
- Higher crop and livestock production.

Implementing persons and institutions

The TA Spate Irrigation/PIM specialist will train 45 farm leaders, one from each of the secondary canals and 20 TDA extension staff in the period May 1 to May 9.

The TDA Extension and Agricultural Department will be responsible for training the remaining 180 lead farmers between May 18 and June 20.

Expected outputs

The TDA Extension and Agricultural Department will prepare a complete report of the training. This will mainly include the outputs of each training session, which should cover the following topics:

- Purpose of a WUA
- Tasks and obligations
- Rights and potential benefits
- Weighing the benefits against costs

Budget breakdown and responsibility

The budget breakdown is presented in Table 2. At the start of the training, Ms. Zakia, the TA procurement officer will provide about 2 million Yemeni Rial, a quarter of the total budget to Jaafar Hassan Alawi Al-Jeffri, Director of the TDA Agricultural Extension Department. Mr. Jaafar will prepare a quarterly training progress report and properly settle the first advance to receive the subsequent advance payments.

Assumptions for successful completion of the training

4. The lead farmers will cooperate fully with the TDA staff as well as attend and proactively participate throughout the training module;
5. The TDA staff are capable of timely and diligently undertaking the training activities;
6. The TA will timely and efficiently provide all the financial resources needed to the TDA Director of Agricultural and Extension Department who should in turn settle all advances on time and with proper receipts.

Table 2: Budget breakdown

Activity/Item	Performing responsibility/quantity	days /unit price	Perdiem per day in riyal	Total perdiem	Fuel cost per day in riyal	Total fuel cost in riyal	Total budget
Training 165 lead farmers and 35 extension staff	Director of TDA Agriculture Extension Department	20 days	2,500	50000	3,600	72000	122000
	TDA Extension Section Head	20 days	2,500	50000	1,200	24000	74000
	TDA Extension Engineer	20 days	2,500	50000	1,200	24000	74000
Video and digital photo documentation	Video expert, TDA	20 days	2,500	50000			50000
Attendance of 200 trainee		20 days	2,500	10000000			10000000
Sandwich, drinks and refreshments	200 menus	500 riyal		100000			100000
Stationery							
- Notebook, pen and pencils	200 pieces	150 riyal					30000
- Flipcharts	25 pieces	1200 riyal					30000
- A4 plain paper	3 boxes	5000 riyal					15000
- Coloured papers	4 boxes	5000 riyal					20000
- Markers	15 packs	600 riyal					9000
- Video cassettes	40 pieces	1000 riyal					40000
- Converting video to CD	40 pieces	1000 riyal					40000
Total budget in Riyal							***10,604,000***
Total budget in Euros							***36565.5172***

ANNEX 4

TRAINING MODULE 2
ORGANIZATIONAL CHARACTERISTICS OF A WUA

INTRODUCTION

The Tihama Development Authority (TDA) and its Technical Assistance (TA) team have embarked on the establishment of Water User Associations (WUAs) in Wadi Mawr and Rima, the Republic Yemen. This is because, the TDA and TA believe that WUAs could play a considerable role in the sustainable improvement of crop and livestock production through better operation and maintenance of the irrigation systems, improved agronomic practices, pest and disease control measures and other agricultural activities.

For WUAs to be viable and sustainable, however, they have to be wholeheartedly supported by a majority of the farmers. For this to happen, the farmers, with the help of their elected representatives:

- Should play a lead role through out the WUA establishment process;
- Should carefully evaluate the potential benefits of a WUA in relation to the tasks that they need to undertake. They should only decide to establish a WUA and take over responsibility for operation and maintenance of the systems and other agricultural activities, when they are confident that the economic gains will outweigh the extra tasks and obligations.

As a first step towards realizing the above two issues, during the first mission of the Participatory Irrigation Management and Spate Irrigation Specialist, a detailed TOR for selection of lead farmers (farmer representatives) was prepared. This was properly implemented by the TDA Extension and Agricultural Department and 3 to 7 lead farmers were selected for each of the 36 secondary canals in Wadi Mawr and the 2 secondary canals in Wadi Rima

To have a lead role in the WUA establishment, the lead farmers as well as the TDA extension staff need to be provided with a training that can enhance their understanding of the nature and type of WUAs. In the second mission, the Participatory Irrigation Management and Spate Irrigation Specialist prepared a training module on the reasons and processes for establishment of WUAs, which he conducted in collaboration with the Director of the TDA Agricultural Extension Department. This follow-up training module 2 focuses on the organizational characteristics of WUAs.

OBJECTIVES OF THE TRAINING

This training module intends to help the lead farmers and TDA Extension staff comprehend the following characteristics of WUAs:

- Key features of a WUA (ingredients of viable and sustainable WUAs)
- Constitution and by-laws
- Membership criteria
- Size and boundaries of the WUA
- Organization structure
- Decision-making
- Federation of WUAs into a larger organization
- Link with the TDA and other Government organizations
- Registration of the WUA as a legal entity

TRAINING STRUCTURE AND APPROACH

This training module has both informative and interactive components. In the informative part, the flow of information will mainly come from the trainers, but there will be sufficient time for discussion. The trainers will provide detailed information on the above issues. In the Interactive part, the farmer leaders and extension staff will form groups of 5 to 7 persons each and will discuss what should be the important elements within each of the above noted topics for their respective secondary canals.

DETAILS OF THE CORE TOPICS OF THE TRAINING

Key features of viable WUAs

- The responsibilities of the WUA must be clear
- The WUA must bring clear benefits to the water users
- The WUA is an autonomous organization (by farmers and for farmers)
- The leaders of the WUA are transparent in their decisions to the members (keep the members well informed)
- The leaders of the WUA are accountable to the members. This means that the leaders can justify their actions and are responsible to the members
- The WUA is capable to solve internal conflicts
- The WUA has a layered organization structure to better serve/reach its members

Question: *What makes the WUA a viable and long-lasting organization? (Let farmers make suggestions and write on the flipchart)*

Constitution and by-laws

The constitution is a legal document that defines the structure of the WUA. It contains the name, purpose, objectives, the organisation structure and the legal status

- Basic facts (name, purpose, objectives, structure)
- Legal status (registered under which law)
- Who can become member of the WUA
- Organisational structure

The by-laws are the rules and regulations that describe how the organisation must function, and to which all members agree to and adhere to when they become a member.

- Internal decision-making and voting arrangements
- Responsibilities of the leaders
- Rights and obligations of members
- Rules on how to solve conflicts
- Rules for the termination/liquidation of the WUA

When an organisation wants to legally register itself under one of the laws of the Republic of Yemen, then it is required to have a constitution and by-laws.

Question: *1. what are the constitution and by-laws relevant to your area? What is its function?*

Membership criteria

The membership definition should be specified in the constitution of the WUA. We suggest that:

- Every water user within the area managed by the WUA should have the right to become a member of the WUA, whether he is a land owner, tenant or sharecropper.
- The criterion for membership should be that whoever uses or benefits directly from the irrigation systems may become a member of the WUA.
- Husband and wife of cultivating households are members. This allows more flexibility for women to participate and is preferable to allowing only one member per household.
- Politicians can only become member of the WUA by virtue of being a farmer (water user).

***Question**:* *1. if a land owner (lease holder) sublets his land, who should become member of the WUA?*
2. Give reasons why (not).
3. What are the membership criteria you consider relevant to your area

Size, boundaries

The boundaries of the area managed by the WUA should be specified in the by-laws (constitution)

The WUA would cover a certain territory, generally consisting of the command area of a few irrigation canals. Its boundaries should be hydraulic boundaries. The smallest unit size would be the command area of one irrigation canal.

A WUA would normally cover several secondary units in order to achieve economy of scales. The optimal size will be determined by:

- the management capacity of the WUA
- social coherence among farmers, and
- economies of scale for collective activities

Larger groups may gain larger benefits due to economies of scale. When the overhead costs can be shared, the average cost per farmer for the O&M services will decrease with group size. But increases in group size also reduce observability and punishment capacity because community ties become weaker.

The size of a WUA must be decided by the farmers themselves, based on the above considerations. We suggest that a WUA should:

- not be smaller than 250 hectares
- not be larger than 800 hectares

The size of a WUA should be flexible in the sense that the WUA should be able to grow when farmers in a neighbouring secondary unit want to join the WUA, and the majority of the WUA members both agree with such expansion. On the other hand, if the members decide that the WUA is too large to be managed effectively, it may be split into smaller units with the approval of the majority of the members. Any change in the size of the working area of a WUA will require amendment of the constitution and bylaws.

Question: *What criteria would you use to determine size and boundaries?*
What secondary and tertiary canals would you group together in a WUA?
What would you do if you want to form a WUA that commands greater than 800 ha?

Organizational structure

The lead farmers will have to discuss with the respective farmers they represent what would be the best organizational structure. Only suggestions are given here:

We suggest that the following organizational structure:

- General membership/assembly — highest authority
- Management board or central committee — day-to-day management
- Audit committee — checking on the management board
- Canal committee — usually a tertiary canal

The General Membership, the highest authority in the WUA consists of all registered members. The General Membership would usually meet once a year or once per crop season

Responsibilities of the General Membership:

- elect the management board and audit committee
- remove/replace any member of the management board
- discuss and approve changes to the constitution and by-laws
- discuss and approve the annual 'work plan' and budget
- give instructions to the 'management board' and the 'audit committee'

The Management Board is elected by the General Membership, normally for a term of 1-3 years. The Board is authorized to run the day-to-day affairs of the WUA, subject to the control of the General Membership. The Board normally consists of:

- a president (or chairman)
- a vice president (or vice chairman)
- a secretary
- a treasurer

Responsibilities of the Management Board/Central committee:

- arranging for training and educating the members of the WUA on water management and the efficient use of water
- prepare the work plan and budget
- arrange maintenance works (organize farmers or contract it out), approval of work expenses
- arrange water distribution within the territory
- Resolve conflicts within the territory
- keeping systematic accounts and records of amounts collected and those spent on the operation and maintenance fund and membership fees
- periodically submitting accounts and audit reports for review to the Audit Committee appointed by the General Membership
- engage hired staff as necessary

Transparency and accountability of the Management Board to the members are crucial for the long-term sustainability of the WUA. To enhance transparency and assure accountability, it is recommended that the WUA should have

- an internal *Audit Committee*
- its accounts audited by an external auditor on an annual basis.

The Audit Committee usually consists of about three members and is appointed by the General Membership for a period of 1-3 years. Their task is to monitor the accounts and records of the *Management Board* on behalf of the members of the WUA. Therefore the *Audit Committee* must have the constitutional right to periodically (for example once per month) inspect the accounts, records and administration of the Management Board. The Audit Committee reports directly to the General Membership during its annual meeting.

The responsibilities of the Audit Committee can be summarized as follows:

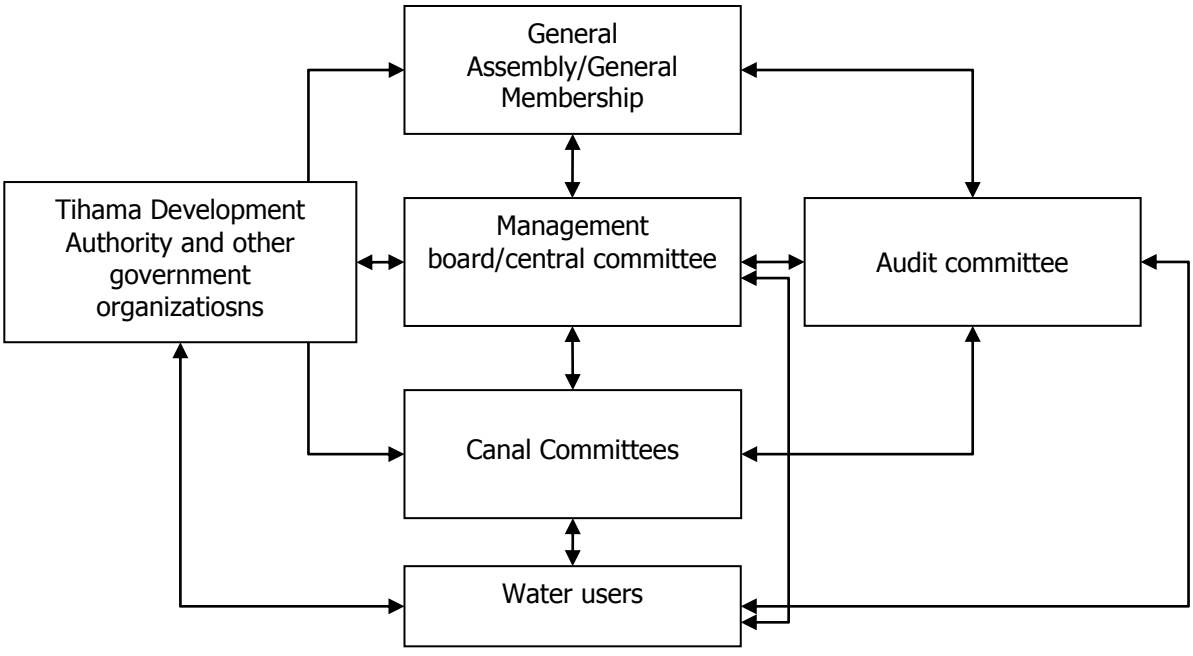
- check/monitor the accounts and records of the management board
- check the operation and maintenance work plan and budget prepared by the management board
- report findings directly to the General Membership meetings

Responsibilities of the tertiary canal representatives:

- assist the board in water distribution and conflict mitigation
- assist the board in supervision of contracted works

Question: *sketch the organizational characteristics of your WUA and identify at least three responsibilities for the different units of the organization*

A simple organization structure that composes the above outlined farmer authorities and indicates their linkage to government organizations such as the Tihama
development



authority is presented in Figure 1

Figure 1: example of simple organizational Structure of WUAs

Decision-making

It is up to the lead farmers to come-up with decision making procedure suitable to their respective territories. Here we provide some suggestions.

As indicated, the highest decision-making body of the WUA would be its General Membership, consisting of all WUA members. Membership meetings should be held preferably twice a year, before each crop season.

Standard provisions for decision-making should apply, i.e. decisions on (amendment of) the Constitution would need a 2/3 majority, while all other matters could be decided by majority vote. The constitution should specify the voting arrangements.

This could be either one vote per ha, one vote per member (irrespective of farm size, in order to promote equity or prevent takeover by big farmers or local elites), or a combination of the two, for example:

- 0.5 – 25 hectares: 1 vote
- 25 - 100 hectares: 2 votes
- > 100 hectares : 3 votes

Where husband and wife are both registered as a member, the constitution should specify that the voting right can be exercised by either the husband or wife, but only one vote can be cast per household.

The decision to form a WUA is taken during the first Membership meeting when the WUA and its organizational rules are not yet in place. It is suggested that the decision to form a WUA should be supported by 75% of all farmers within the boundaries of the (future) WUA.

The day-to-day management should be done by Management Board consisting of a chairman, secretary, treasurer and representative farmers from each canal. The management board would arrange operation and maintenance requirements, sign contracts, collect maintenance fees, membership fees, and arrange the General Membership meetings.

WUA charges

The charges raised by the WUA may include:

- operation and maintenance charges,
- membership fees.

The membership fee, as its name indicates, is imposed only on members. The operation and maintenance fees are imposed on both members and non-members, depending on the type of benefits these users receive from the spate irrigation services.

The WUA should open separate bank account for, the treasurer of the Management Board operates these accounts and keeps systematic records of amounts collected and those spent on operation and maintenance and WUA management.

It is important that the accounts and records of the WUA are audited annually. The Management Board has to submit its accounts and audit reports to the General Membership during the annual meeting for approval. During this meeting the Audit Committee will also report its findings on to the General Membership.

***Question**: Do you thing there should be any membership charges? If yes, how much?*

Federation

Federation provides an organized forum for expressing farmers' interests and adds to the effectiveness of WUAs in providing decision-making input from their membership. Through federation, even small base units of WUAs can take on a broader range of activities and take advantage of economies of scale. Federation allows coordination between WUAs at each level and permits them to undertake activities at a higher level of the system.

The proposed organization form of the WUA already includes a form of (internal) federation, as farmers at the lowest level would be organized per secondary irrigation canal. The farmers from each canal are represented in the 'Executive Board' of the WUA.

The WUAs should have the right to form higher level WUA federations covering a whole irrigation scheme, in order to facilitate two-way interaction between the water users and the D&I agency. Perhaps this will not occur at the early stages, but it could take place at a later stage. An example of federated WUAs is given in Figure 2.

Linkage with Tihama Development Authority

The WUAs need to have good communication linkages with the various departments of the Tihama Development Authority, mainly the Agricultural Extension Department and the Operation and Maintenance Departments. The TDA should officially recognize the WUA as a legal entity and a credible partner in water management and agricultural activities. The WUA should have representation in these departments through the Management Board members.

Representatives from the TDA (particularly the two Departments) and representatives from the WUA would have to meet periodically, at least once before, after and during the crop and flood seasons to discuss issues such as:

- Cropping patterns and calendars
- Irrigation scheduling
- Maintenance needs at main, secondary systems
- Pest and disease control and other related issues
- Maintenance programmes

***Question**:* *1 Do you hold meeting to coordinate the above and other issues*
2. How often do you coordinate now with the TDA?
3. What needs to be improved in this coordination?

Registration of the WUA

From a legal point of view, it is recommended that the WUAs become legal entities because they will have to perform the following duties:

- the WUA will be recognized as the authorized representative of water users in dealing with the TDA, other Government and non-government agencies;
- The WUA will mobilize resources from their members, non-member water users and from other sources. These resources are needed by the WUA to solve some operation and maintenance problems in cooperation with relevant government and non-government organizations;

- The WUA will operate bank accounts and to obtain collective credit (rather than as individual farmers). This allows the WUA to finance system improvements or other major expenditures.

Implementing persons and institutions

The TA Spate Irrigation/PIM specialist will train 80 lead farmers and 20 TDA extension staff in the period July 17 to 25. The TDA Extension and Agricultural Department will be responsible for training the remaining 170 lead farmers between August and September, 2008.

Expected outputs

- 220 lead farmers and 54 extension staff will be trained on organizational characteristics of WUAs
- The TDA Extension and Agricultural Department will prepare a complete report of the training
- The lead farmers will train at least 10 farmers from each of the tertiary canals within their secondary canal command area
- The lead farmers will provide a written feedback of the training sessions they have conducted

Budget breakdown and responsibility

The budget breakdown is presented in Table 4. Ms. Zakia, the TA procurement officer is responsible or the timely disbursement of the required budget to Jaafar Hassan Alawi Al-Jeffri, Director of the TDA Agricultural Extension Department. Mr. Jaafar will prepare a report on the training programme and properly settle the

Assumptions for successful completion of the training

7. The lead farmers will cooperate fully with the TDA staff as well as attend and proactively participate throughout the training module;
8. The TDA staff are capable of timely and diligently undertaking the training activities;
9. The TA will timely and efficiently provide all the financial resources needed to the TDA Director of Agricultural and Extension Department who should in turn settle all advances on time and with proper receipts.

BUDGET BREAK DOWN

FOR TRAINING of LEAD FARMERS ON ORGANIZATIONAL CHARATERISICS OF WUAs

Activity/Item	Performing responsibility/quantity	*days /unit price	Perdiem per day in riyal	Total perdiem	Fuel cost per day in riyal	Total fuel cost in riyal	Total budget
Training 220 lead farmers and 54 extension staff	Director of TDA Agriculture Extension Department	39 days	2,500	97500	3,600	140400	237900
	TDA Extension Section Head	39 days	2,500	97500			97500
	TDA Extension Engineer	39 days	2,500	97500			97500
	TDA Extension Technician	39 days	2,500	97500			97500
Transportation to and from the meeting area							
	TDA Extension Section Head	39 days			1,200	46800	46800
	TDA Extension Engineer	39 days			1,200	46800	46800
	TDA Extension Technician	39 days			600	23400	23400
Video and digital photo documentation	Video expert, TDA	39 days	2,500	97500			97500
Attendance of 274 trainee		2 days	2,500	1370000			1370000
Sandwich, drinks and refreshments	274 menus	500 riyal		137000			137000
Type writing all training output documents		10 days	2,500	25000			25000
Translating all training output documents		10 days	2,500	25000			25000
Stationery							
- Notebook, pen and pencils	274 pieces	150 riyal					41100
- Flipcharts	25 pieces	1200 riyal					30000
- A4 plain paper	3 boxes	5000 riyal					15000
- Coloured papers	5 boxes	5000 riyal					25000
- Markers	15 packs	600 riyal					9000
- Video cassettes	40 pieces	1000 riyal					40000
- Converting video to CD	40 pieces	1000 riyal					40000
Total budget in Riyal							***2,502,000***
Total budget in Euros							***8,340***

** 20 individuals are trained at each session. Each training session requires three days (one day for preparation and 2 days for actual training).Thus 39 days are required to train 274 persons*

ANNEX 5

LIST OF TRAINED TIHAMA DEVELOPMENT AUTHORITY (TDA) EXTENSION STAFF

A. Extension staff good in substance and communication of WUA related issues

1. Jaafar Hassan Allawi Al-Jeffri
2. Abdo-Albaqi Saif Al-Hdad
3. Abdo-Allah Hasan Aamooh
4. Qaashah Mohamed Ghaaleb
5. Hasan Hasan Mansoob

B. Extension staff with amply sufficient understanding of the discussed WUA related topics and how to communicating them

1. Abdo-Albaset Hasan Alshameeri
2. Najeeb Abdo-Alaalem Almaqtari
3. Abdo-Alrazaaq Alhamli
4. Abdo-Allah Hossein Mansaki
5. Haider Mohmed Eissa Feiss
6. Ahmed Abdo-Allah Alqadri

c. Extension staff with average comprehension of the discussed WUA issues and have average communication skills

1. Akram Mahmood Haeij
2. Abdo-Alhakeem Moqbel Sallam
3. Hasan Ahmed Wali qudsi
4. Ahmed Mohamed Ali Khader
5. Ghamdan Mohamed Gharbush
6. Ahmed Abkar Faqeih
7. Mohamed Abdo-AlWahaab Alneimi
8. Haamed Daaneie Haamed
9. Mohamed Abdo-Allah Maqbool
10. Ali Mohamed Ali Banannah
11. Ahmed Abdoh Maqrani
12. Abdoh Haadi Dahl
13. Hamood Haadi Mansaki
14. Mohamed Mohamed Joohaan
15. Hameed Faraj Haqeem

D. Extension staff with below average communication skills and below average understanding of the discussed WUAs related issues

1. Mohamed Hadi Heij
2. Najeeb Mohamed Ali
3. Ahmed Iessa Ibraheem
4. Mohamed Ahmed Jaazem
5. Ibraheem Jobraan Abo-Aldhahab
6. Mohamed Abdo-Allah Khameisi
7. Mohamed Ahmed Ali Maqrani

ANNEX 6

TERTIARY CANAL FARMERS TRAINED IN PROCESSES AND REASONS FOR ESTABLISHING WUAs (MODULE 1) AND ORGANIZATIONAL CHARACTERISTICS OF WUAS (MODULE 2)

S.No.	Name of Secondary Canal	Total number of farmers in secondary canal	Total are in ha	No. of tertiary canals	Total number of trainee assuming 10 trainee per tertiary canal	Actual number of trainee (module 1)	Actual number of trainee (module 2)	Total number of trainee
1	Al-Daraaniah	549	1949	13	130	165	165	330
2	Al-Madbaeyah	50	222	2	20	41	41	82
3	Al-Maawasiah	265	576	30	300	120	120	240
4	Annasery*	67	179	0	0	0	0	0
5	Al-Hezamiah	122	458	11	110	98	98	196
6	Fatah AlBary	40	141	1	10	0	0	0
7	Al-Barrwdah*	62	318	0	0	0	0	0
8	Ghulifekah*	64	242	0	0	0	0	0
9	Attaheryah	100	562	7	70	48	48	96
10	Al-Bukiriah	124	341	10	100	110	110	220
11	Adam	210	880	9	90	83	83	166
12	Labbadah	67	317	4	40	55	55	110
13	Al-Hashediah	164	571	11	110	43	43	86
14	Al-bakhashiah	81	635	1	10	47	47	94
15	Jooniah	109	423	1	10	55	55	110
16	Markoozah	37	125	1	10	38	38	76
17	Makkiah	14	174	1	10	14	14	28
18	Massliah	85	384	1	10	52	52	104
19	Badriah A	133	433	2	20	31	31	62
20	Badriah B	116	319	2	20	66	66	132
21	Badriah C	269	1110	11	110	96	96	192
22	Al-Basheiriah	83	196	7	70	55	55	110
23	Hamodiah	153	380	8	80	82	82	164
24	Asmaraa*	123	678	0	0	0	0	0
25	Assabakheiah/Hasaneyah	391	748	5	50	93	93	186
26	Al-Bakkriah	70	180	7	70	55	55	110
27	Masturah	318	2280	19	190	0	0	0
28	Al-Qazliah	133	1074	4	40	0	0	0
29	Al-Jarbaa	288	971	13	130	48	48	96
30	Al-Wadeyeen	63	145	3	30	40	40	80
31	Al-Khaliefa	88	263	7	70	0	0	0
32	Al-Haraje	68	379	7	70	0	0	0
33	Mureia Beerah	178	1163	11	110	0	0	0
34	Al-Jadeidah	97	364	6	60	0	0	0
35	Al-Qaadiah	154	613	9	90	98	98	196
36	Massood	45	311	4	40	71	71	142
37	Jeezaan	34	162	1	10	34	34	68
38	Al-Kudied	230	566	1	10	119	119	238
39	Al-Mosafeiah W.Rimaa	352	573	20	200	105	105	210
40	AL-Mosfe W. Rimaa	360	840	27	270	102	102	204
	Total	5956	22245	277	2770	2064	2064	4128

ANNEX 7

REPAIR AND MAINTENANCE WORKS IDENTIFIED BY WADI MAWR FARMERS

Al-Daraaniah S. Canal

1. Widening of tertiary canals.
2. Maintain roads (in farm roads and between farms)
3. Establishment a new canal bridges for easily moving of the peoples.

Al- Madbaeyah S. Canal

1. Widening of canal main gate.
2. Removal of sediments from secondary and tertiary canals.
3. The main gats in a poor state (maintain metal gates)

Al- hezamiah

1. Removal of wild trees and sediments.
2. Maintenance the lifting devices.
3. The secondary canals is not large enough to irrigate all the cultivated land belong the canal, it has to be wide and have to implement a new another gate.

Al-Maawasiah

1. Cleaning gate need maintenance
2. Removal of trees and sediments.
3. One gate is not enough; half of area is not irrigated.
4. There are no roads for easily moving within the farms.
5. The southern gates suitable for irrigation.
6. Removal of wild detriment trees.

Al Haraje

1. The differences of leveling agricultural lands and canal gate, (higher leveling of land than gate)
2. One gate is not enough to irrigate big area (some land of this canal has to irrigate from other secondary canals or opening a new gate.
3. The water is not reach the land from along time.
4. We get help from TDA fives hour machinery works. This help stopped since 5 years ago.

Al Qaadiah

1. Widening of gate.
2. Removal sediments from canal gate.
3. We have a big cultivated land. The canal gate not able to irrigate that area.

Aadam

1. Maintenance of canal gate.
2. Removal of sediments and wild detriment trees.
3. To establish cross Bridges up the large canals.

Al-Bukiriah

1. Widening of Bukiriah tertiary canal.
2. Removal of sediments.
3. There is a non- irrigated area in the south of secondary canals.
4. Establish of bridge in front of Al-Eeidah Village.

Al-Taaheriah

1. Widening of Bukiriah tertiary canal.
2. Removal of sediments.
3. There is a non- irrigated area in the south of secondary canals we have to solve these problems.
4. Maintenance of gates especially the lifting systems.

Al-Jadeidah

1. Widening of canal gate.
2. Maintain tertiary canals.

Badrieah a

1. Maintaining of gate and lifting system of gate.
2. To irrigate remaining agricultural lands.
3. Removal of sediments and other detriment trees.
4. Establishment of bridges in a suitable places (Juraama village for animal moving).

Badrieah b

1. Removal of sediments and detriment trees.
2. To implement cross bridges
3. To establish new tertiary can.
4. Maintain the farm roads to market our products.
5. Our S. C. gate is too small to irrigate all our area it needs widening.

Badrieah c

1. Maintenance of secondary canal.
2. Removal of sediments and detriment trees.
3. Maintenance of tertiary canals and removal of sediments
4. To establish cross bridge in the south of Bajelah village near extension center.
5. Removal of wild detriment trees from the agricultural area and all canals especially prosopus trees (Assool trees)*Acacia Juliflora .*

Al-Jarbaa

1. Removal of sediments and detriment (*Acacia Juliflora)* trees.
2. Solving the high level agricultural land which is not irrigated from canals.

Al-Wadiyeen

1. Removal of sediments and detriment (*Acacia Juliflora)* trees.
2. Solving the high level agricultural land which is not irrigated from canals.
3. The main gate of secondary canals is not enough for irrigation all agricultural lands while the water is still flowing from the Wadi.

Al-Khalefah

1. Removal of sediments and detriment (*Acacia Juliflora)* trees.
2. Solving the high level agricultural land which is not irrigated from canals.

Masstora

1. Maintenance of secondary canal.
2. Maintenance of tertiary canals.
3. Establish a new gate to irrigate non- irrigated area.
4. To asphalt the Zuhraa- Qanaawos Road for marketing of our products.
5. To solve the problems concerning of irrigation the lands whish has no rights.
6. To establish between farms roads.
7. Implement cross bridges for entering agricultural lands and villages.
8. Removal of detriment trees and sediments from secondary canals.
9. Opening of a new gate from main canal for sufficient irrigation the area of Masstora canal.

Massood

1. Maintain all agricultural lands and all tertiary and secondary canals.

Al-Basheiriah

1. Asphalt the internal roads.
2. To establish cross bridges to help people moving during the flood seasons.
3. Removal of all detriment trees and sediments which constrain the flowing of irrigation water.
4. Maintain the gates the lifting system of gates.

Hamoodiah

1. We need heavy machinery to wide the secondary canal.
2. Removal of detriment trees and sediments from secondary and tertiary canals.
3. Full maintenance of secondary and tertiary canals.
4. To establish cross bridges.
5. Maintaining of farms roads.

Al-Sabakheiah Al-Hasaneiah

1. Removal of sediments and detriment trees from the canal and canal gate.
2. Maintaining of tertiary canals (Al-Farhaneiah- Al-Jarb- Kuddan).
3. Solve problem of different levels of secondary canal(high level) and main canal level(low level) because of this problem the on third of this area are not irrigate.
4. To open another gate to irrigate remaining agricultural area.
5. To maintain the road from Aghm (Sabakheiah Secondary canals) to nearby village.

Mureia Beerah

1. two secondary canals Murieah Canal and Beerah canal are combined together since establishment of Wadi Mawr project, this matter lead to privation some of Beerah' lands from irrigation water.
2. We need to solve mentioned problems by establishment of another gate.

Al-Qazeleiah

1. Maintain of secondary and tertiary canals.
2. Establishment anew gate beside the old one because of un- sufficient of irrigating water.
3. Asphalt the al-Zuhra- Qanawos road for good product marketing to Hodiedah and other regions.

Jooniah

1. Widening of main secondary canal gate.
2. Maintenance of secondary and tertiary canals.
3. Removal of detriment trees and sediments.
4. Establishment crosses bridges to facilitate moving between villages and farms.

Massliah

1. Maintaining the secondary canal.
2. To Protect Al-Zuhrah Town from being flooded by the Wadi from Massliah Secondary canal (irrigated area of Masslieah is nearby Al-Zuhrah Town.
3. The level of poverty is very high in agricultural area of Massliah (Owners, Sharecroppers and Tenants).

Al-Hashediah

1. Maintenance of Siphon structures.
1. The main gate of secondary canals is not enough for irrigation all agricultural lands while the water is still flowing from the Wadi.
2. Establishment of additional gate for more water sufficient.
3. Rebuilding of old traditional secondary canals.
4. Buildup protections of nearby villages.

Al-Bukhashiah

1. The main gate of secondary canals is not enough for irrigation all agricultural lands while the water is still flowing from the Wadi.
2. Widening of main canal gate.
3. Building crosses bridges for moving in suitable places.

Al Bakkriah

1. Removal of sediments from canal gate and secondary and tertiary gate.
2. There is a carve in the front of the canal cause returning the water back to Wadi.
3. Widening of canal gate.
4. High level of secondary canal and big high of lands constrain the non- sufficient of irrigation water.

Labbadah

3. Removal of sediments and detriment (*Acacia Juliflora)* trees.
4. Widening of canal gate.
5. Establishment of additional gate for more water sufficient.
6. Establishment crosses bridges to facilitate moving between villages and farms.

Makkiah

1. Establishment of additional gate for more water sufficient.
2. Widening of secondary canal and build controlling water gate.