



**Establishment of Water Users Associations(WUAs)
in the main Spate Irrigation Area in Tihama Region of Yemen**

AUTHOR

Jaafar Hasan Alawi AL-Jeffri,

Director of Agriculture and Extension, Tihama Development Authority

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Introduction

The Republic of Yemen is located in the south-west corner of the Arabian Peninsula and covers a land area of 555,000km². Yemen has a coastal line along the Red Sea called Tihama Plain covers an area of about 22,000km², about 2 million hectares with sloping low land 30-60km wide and about 400 km long extending along the Red Sea to the west and up to the foot of the mountain in the east. The altitude ranges from sea level to 300 m at the foothills. The lowlands of the Tihama plain are crossed by eight Main Wades, namely from North to South Hyran, Mawr, Surdud, Siham, Rimaa, Zabied, Nakhla, Ressayan. These Wades collect run-off from east highlands making their way to deeply incised valleys to emerge on the coastal plain, where the water is used for spate irrigation and recharging alluvial aquifer, for domestic water supply and well irrigation. As I mentioned above, Area of Tihama of about 2 million hectares, while the area suitable for cultivation of up to 800 thousand hectares planted of which about 500 thousand hectares distributed according to the irrigation systems as follows:

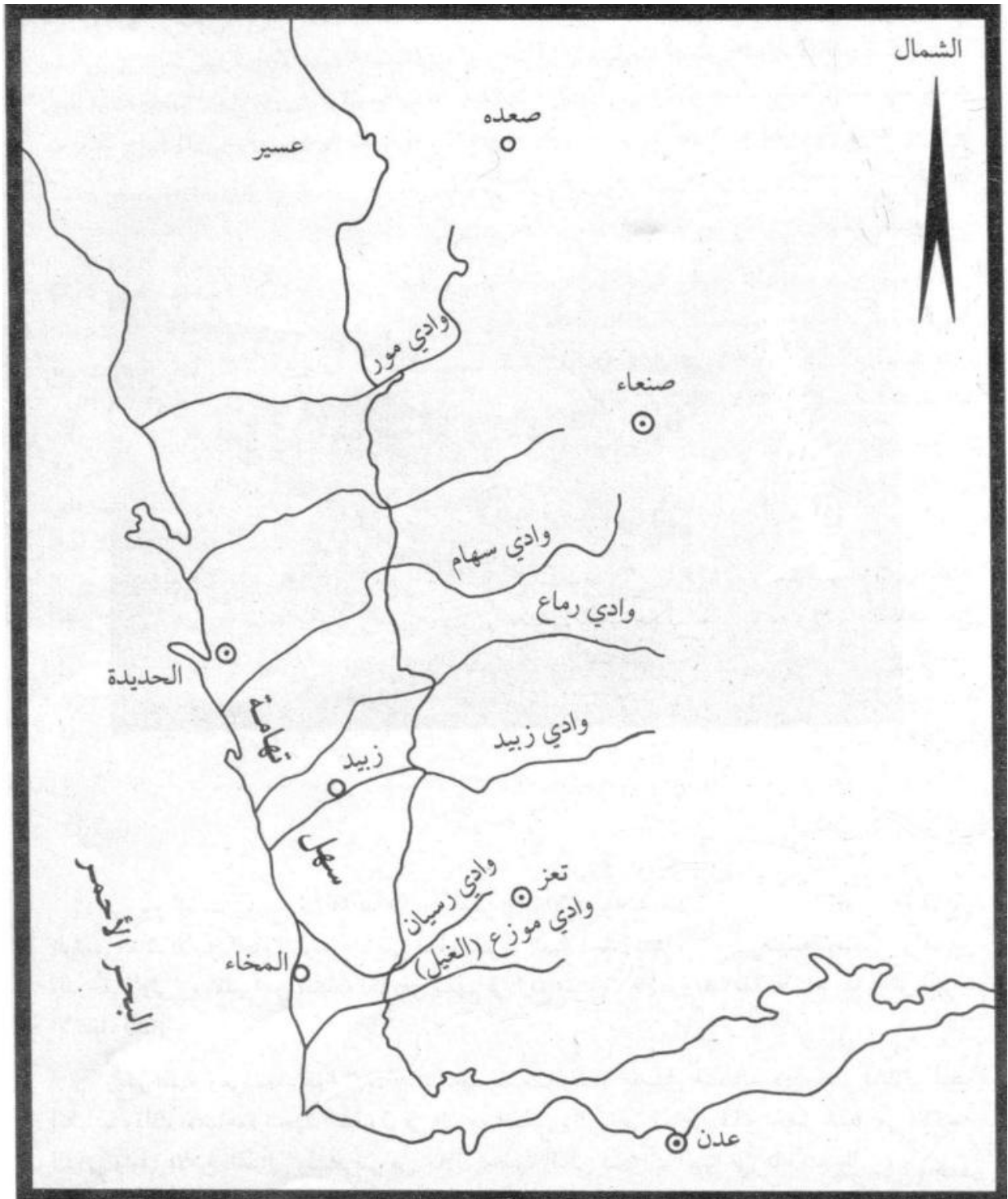
Rain fed cultivated area:	about 350 thousand hectares
Ground water irrigated area:	60-80 thousand hectares
Spate irrigated area:	50-70 thousand hectares

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).

Republic of Yemen Map shows The Main Wadis of Tihama



There are four converted dams in Tihama region with their infrastructures (Main Canals, Secondary Canals, Tertiary Canals and Siphons ...etc) located in Wade Mawr, Wade Sihaam, Wade Rima'a and Wade Zabeid.

Establishment of Water Users Associations concentrated in Secondary Canals of these Wades. The Converted Dams are controlling the distribution of water to the farms' lands.

The Tihama Development Authority(TDA) with support of The European Union Food Security Programs through Technical Assistance Project (TA) to the TDA in increasing water management and productivity in the Tihama Region, have embarked on the establishment of Water User Associations (WUAs) in Wadi Mawr, Wadi Sihaam and Wadi Rima. To implement this Task, the TDA and TA assigned a Spate Irrigation and Participatory Irrigation Management (PIM) Specialist (Abraham Mehari Haile) to lead the WUA establishment approach with cooperation of Director of TDA Agriculture and Extension Director, 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 in the Tihama Region by significantly contributing to:

- Timely and appropriate operation and maintenance of the spate irrigation system in the Tihama;
- Fair water sharing within and among the upstream, midstream and downstream farmers;
- Adoption of improved agronomic practices, pest and disease control measures and other relevant agricultural practices.

To be credible partners in the above noted activities, the WUAs, should, among other things, have:

- A wide support base among the farming community;
- A streamlined organizational structures that permits quick and correct decision making process;
- A well defined by-law that includes detailed water sharing arrangements within and among the command areas of the WUAs;
- A Management Board (MB) with a good understanding of its key activities and tasks and that possesses a good management and leadership qualities.

THE STEPS OF ESTABLISHMENT WATER USERS ASSOCIATION IN TIHAMA REGION OF YEMEN

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.

i. Informative and Follow up Farmers' Meetings

In these meetings we invite Canals' Sheiks (the man who is responsible of distribution of water in secondary Canal), representatives of Secondary and Tertiary Canals and local council leaders. The number of meetings ranging from 1 to 3 meetings as large size of the area of the Wades and the number of farmers. The number of attendees at the meeting range between 50 to 60 farms. We repeat the meeting for each group of the farmers Get feedback on the last meeting .

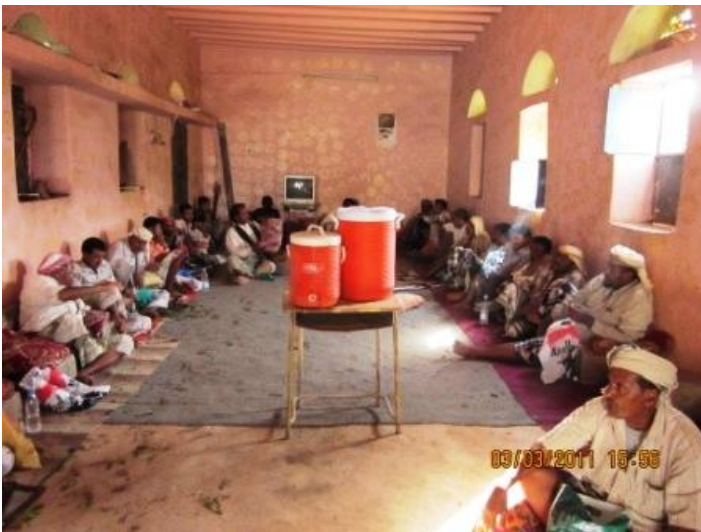
The proposes of these meetings are:

- Assessment of the farmers interest in establishing WUAs
- To Inform far obligations simple on some general purposes, benefits and Rights of WUAs
- Get feedback on the last meeting
- Further discuss the benefits and obligations of WUAs with farmers representatives from each secondary canal; preliminary explanation of the WUA process

In the following some pictures about Informative Meeting activities:



Informative Meetings in Wadi Mawr



Informative Meetings in Wadi Rima'a

ii. Data base Survey

The main objectives of data base are:

Preparation of related data-base of the secondary and tertiary canal systems, their command area and water users (farmers)

In this aspect we take care of following activities:

1. Retrieve all available secondary data: maps, names and land holding of water users
2. Walk through survey (see Annex1)
Register all secondary and tertiary canals Refine and finalize farmer data base (names and landholdings) for each secondary and tertiary canal.(See sample of ready Data Base of Wadi Mawr).

Walk through survey activity implement by Agricultural Extension Staff in TDA with support of Director of Agriculture & Extension. This work implemented in Three wades, where the rehabilitation work is being done by The European Union Food Security Programs through Technical Assistance Project (TA) to the TDA.

Annex 1: Walk-through survey form1

Name of Wadi: _____

Name of secondary Canal: _____

Name of tertiary canal: _____

No.	Full name of farmer	Area by Type of farmer (hectares)			Total Landholding area
		Owner	Share cropper	Tenant	ha
1					
2					
3					

The form is filled by:

Name: _____ Signature: _____ Date: _____

The form is checked by:

Name: _____ Signature: _____ Date: _____

Approved by: Director of Agriculture & Extension

Name: _____ Signature: _____ Date: _____

Sample of Data Base Survey in Wadi Mawr (Tihama Region of Yemen)

Number of Farmers and Land holding area of water users in Wade Mawr

S.N.	Name of secondary Canals	OWNER		SHARECROPPERS		TENANTS		TOTAL	
		No	area/ha	No	area/ha	No	area/ha	No	area/ha
1	Al-Daraaniah	547	1935	1	8.7	1	2	549	1945.9
2	Al-Madbaeyah	51	224	0	0	1	1.3	52	225.3
3	Al-Maawasiah	220	510.9	37	47	7	12	264	569.9
4	Annasery	10	56.1	57	122.6	0	0	67	178.7
5	Al-Hezmeiah	76	291.3	46	162.2	0	0	122	453.5
6	Fath AlBary	4	23.5	36	141.7	0	0	40	165.2
7	Barrwdah	27	154.8	27	145.2	8	18.3	62	318.3
8	Ghulifekah	25	105.2	36	110.5	3	25.3	64	241
9	Attaheryah	55	396.5	40	116.2	5	43	100	555.7
10	Al-Bukeiriah	60	179.3	61	153.5	3	7.8	124	340.6
11	Aadam	74	273.8	113	468.7	23	135.6	210	878.1
12	Labbadah	27	138.2	37	164.3	3	14.8	67	317.3
13	Al-Hashediah	43	177.3	90	292.2	21	100.5	154	570
14	Albakhashiah	35	316.5	46	324.3	0	0	81	640.8
15	Jooniah	19	89.1	65	230.4	25	110.4	109	429.9
16	Markoozah	27	88.5	0	0	10	36.7	37	125.2
17	Makkiah	3	60.9	11	113	0	0	14	173.9
18	Massliah	65	280.1	12	64.8	6	24.8	83	369.7
19	Badriah A	96	337.8	22	47.4	13	25.6	131	410.8
20	Badriah B	86	247.9	2	3.9	28	41.7	116	293.5
21	Badriah C	178	848	71	220.5	22	39.7	271	1153.7
22	Al Basheiriah	27	59.4	35	130.7	3	5.2	65	195.3
23	Hamodiah	96	244.1	41	104	16	42	153	390.1
24	Asmaraa	97	607.4	24	60.1	8	31.3	129	698.8
25	Sabakheiah/Hasaneiah	122	345.5	133	190.1	26	81.3	281	616.9
26	Al Bakkriah	15	46.5	48	124.9	6	10.9	69	182.3
27	Masturah	163	1612	154	641	2	30.7	319	2283.7
28	Al Qazliah	61	373.4	82	596.1	0	0	143	969.5
29	Al Jarbaa	171	679.1	112	282.4	5	7.4	288	968.9
30	Al Wadeyeen	19	63.5	44	79.8	0	0	63	143.3
31	Al Khaliefa	50	151.2	35	103.1	3	8.3	88	262.6
32	Al Haraje	54	313.4	12	64	2	3.9	68	381.3
33	Mureia Beerah	157	982.2	19	135.7	2	2.6	178	1120.5
34	Al Jadeidah	74	306.2	21	110.9	2	5.7	97	364.4
35	Al Qadiah	87	475	65	169	2	5	154	649
36	Massood	28	267.1	17	43.4	0	0	45	310.5
37	Jeezaan	40	187.8	4	11.3	0	0	44	199.1
38	Al Kudied	154	425	76	138.3	0	0	230	563.3
Total		3143	13873.5	1732	5921.9	256	873.8	5131	20656.5

In the following some pictures about Walk-Trough Survey activities:



Training of Extension Staff in Walk Trough Survey Subject



iii. **Selection of Lead Farmers**

The main objective of Selection of Lead Farmers is the appointment of 3 to 5 Lead farmers in all Secondary Canals of Wades. Leaders are choosing by farmers in each secondary canals. they are mainly going to be responsible for the different activities till the formation of the WUAs. Especially those Leaders considered as the preparatory committee for formation of the WUAs.

Major activities

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 in each Wades.
- 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.
- 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 and they considered as the preparatory committee for formation of the WUAs.
 - 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

This Task is undertaken by the Agricultural Extension Department of the TDA through its extension staff in the Wades.

Annex 2: Content outline of the final Report for Lead farmer selection meetings

For each lead farmer selection meeting, 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 (Annex 2)

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: _____

In the following some pictures about Selection of Lead farmers activities:



Meetings of selecting Lead Farmers



Some of selected Lead Farmers

iv. **Pre-established WUAs Training for Leader Farmers and Extension staff**

Pre-established WUAs Training contains two modules of training:

- **TRAINING MODULE 1**
PROCESSES AND REASONS FOR ESTABLISHMENT OF A WUA

Objectives of the training

This training aims at enhancing the understanding of and getting feedback 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;

- **TRAINING MODULE 2**
ORGANIZATIONAL CHARACTERISTICS OF A WUA

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

These training modules have 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

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.*
- ❖ *What makes the WUA a viable and long-lasting organization?*
- ❖ *what are the constitution and by-laws relevant to your area? What is its function?*
- ❖ *What are the membership criteria that you consider relevant to your area*
- ❖ *What criteria would you use to determine size and boundaries?*
- ❖ *What secondary and tertiary canals would you group together in a WUA?*
- ❖ *Sketch the organizational characteristics of your WUA and identify at least three responsibilities for the different units of the organization*
- ❖ *Do you think there should be any membership charges? If yes, how much?*
- ❖ *How often do you coordinate now with the TDA?*
- ❖ *What do you need to be improved in this coordination?*

Each group will present its thoughts on the above issues using flip charts or colored 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

v. .Training of farmers by the lead farmers

The WUA establishment process started in December 2007 with the following core principle:

- *WUAs are to be established only when the majority of the concerned farmers, after having understood and carefully weighed the potential benefits and rights on one hand and the obligations and responsibilities on the other, show a genuine desire to organize themselves into WUAs. They have to demonstrate this desire by enthusiastically participating at all stages of the WUA establishment process.*

The Training of Farmers in Tertiary canal by Lead Farmers in above Modules of training gives a good knowledge to majority of farmers about:

- Rights, obligations, benefits and responsibilities of being a member of a WUA
- Size and boundaries
- Membership criteria
- Appropriate organizational structure

In the following some pictures about Training of Lead Farmers and Tertiary Canals' Farmers



Training of Lead Farmers



Group Discussion of Lead Farmers



Training of Farmers by Lead Farmers

vi. Formation of Water Users Associations (WUAs)

After the implementation of the previous training of leaders, have become well versed in writing bylaws for their association, however the farmers need some support of extension staff.

The physical formation of WUAs has five 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. Discussions, auditing, adding and correcting the By-Laws prepared by each secondary canals with TDA extension staff and comparing it with the typical government By-Laws for Water users associations, received from Department of Social Affairs, Hodeida,.
3. Rewrite and type the corrected By-laws and discuss the contains with the farmers, especially the methods Of water distribution in each secondary canal.
4. Approval of the By-Laws by more than two third of the concerned farmers by 1-2 meetings in the secondary canals, with representatives of extension staff of TDA and and representatives from Social Affairs Department.
5. Election of WUA leaders in the presence of about two third of the respective farmers (foundation members), with representatives of the Department of Social Affairs, Hodieda, Yemen; TDA Extension Staff and TDA-TA of European Union's Food Security Programmed for the republic of Yemen.

In the following some pictures about Formation of WUAs in Tihama, Yemen.



**Discussions
and approved
of WUA bylaws**





**Formation & Registration
Of
Water Users Associations**



vii. Strategy for strengthening WUAs in Tihama Region

At the core of the strategy for strengthening and ensuring the long term viability of WUAs is:

Having a Management Board that is aware of its core tasks and activities and that possess the necessary technical, managerial and financial capability to effectively carryout these task sand activities

In line with this core principle, the strategy entails the following elements:

1. Training WUA Management Board members on “Managing WUAs”;
2. Training WUA Management Board members on “sustainability of WUAs”;
3. On-site practical training of WUA Management Board on technical features of the Wadi spate irrigation system;
4. Placing the WUAs at the centre of the agricultural extension activities and these include training WUA management board on best agronomic, field water management and soil moisture conservation practices by drawing experiences from several spate irrigation systems in various Middle East, African and Asian countries;
5. Providing small works contract to WUAs - this has three fold advantages:
 - Enables the WUAs to practice the training they received on how to prepare, implement and evaluate operation and maintenance works;
 - Get practical experience on how to prepare and implement joint work programs with national and international organizations such as TDA and GOPA;
 - Contributes to strengthening the financial autonomy of the WUAs.
6. Provide extra incentive to outstanding WUA Management Board members that take concrete initiatives that bring about benefits to the WUA such as making contacts with development agencies, organizing and implementing small repair and maintenance works. This extra incentives may include providing the active Management Board members the opportunity for exchange of experience visit to countries where viable spate irrigation WUAs exist – for instance, Pakistan, Ethiopia and Eritrea.

References

- **MISSION REPORT SPATE IRRIGATION DESIGN AND PARTICIPATORY IRRIGATION MANAGEMENT EXPERT**
Abraham Mehari Haile Spate Irrigation and Participatory Irrigation Management Expert
jaafar Hasan Alawi AL-Jeffri, Director of Agriculture and Extension, Tihama Development Authority
- **IMPLEMENTAION REPORTS IN ESTABLISHMENT OF WATER USERS ASSOCIATIONS IN TIHAMA REGION OF YEMEN (TDA)**
jaafar Hasan Alawi AL-Jeffri, Director of Agriculture and Extension, Tihama Development Authority