BASELINE SURVEY

WATER FOR PEACE IN YEMEN

Surveying women farmers in Tarim district, Hadramout, Feb 2020

M&E UNIT, FAO YEMEN
MARCH 2020
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<th>Full Form</th>
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<tbody>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<tr>
<td>HHs</td>
<td>Households</td>
</tr>
<tr>
<td>IDPs</td>
<td>Internally Displaced Persons</td>
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<td>IOM</td>
<td>International Organization for Migration</td>
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<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
</tr>
<tr>
<td>NGOs</td>
<td>Non-Governmental Organizations</td>
</tr>
<tr>
<td>PUNO</td>
<td>Participating United Nations Organization</td>
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<tr>
<td>SFD</td>
<td>Social Fund for Development</td>
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<tr>
<td>TBC</td>
<td>To be Confirmed</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>WUA</td>
<td>Water User Association</td>
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<td>WWUGs</td>
<td>Women’s Water Users Groups</td>
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</table>
Acknowledgement

This survey could not have been conducted in such a timely fashion without the combined efforts of all the project and field staff. We would like to express our appreciation for the dedication and skill in which they performed their tasks.

Also, we would like to express our appreciation to all households who responded to the survey, without their participation this survey would have been impossible.

M&E Staff, FAO Yemen
Executive summary

The project titled Water for peace in Yemen: Strengthening the role of women in water conflict resolution and climate change mitigation aims to create community-led efforts engaging various stakeholders in peaceful conflict-resolution of water-based disputes and to change attitudes and practices towards equitable access to natural resources.

Overall strategic objective of the project: This project will contribute to the mitigation of water-based conflicts that have affected agriculture in Wadi Hadramout in Hadramout governorate.

Project Outcomes: Crisis affected communities are better able to manage local risks and shocks for increased resilience and self-reliance.

Outcome 1: Reduced incidents of water-based conflicts/disputes within targeted communities due to the intervention.

Outcome 2: Enhanced Women’s Water Users Groups (WWUGs) and community-participation in the resolution of water-based conflicts.

Outcome 3: Enhanced capacity of women and youth and engagement in community-led resolutions.

In order to measure the project outcome indicators listed in the project’s logical framework, the baseline survey has been planned and conducted in the project area (Tarim district in Hadramaut governorate).

Objectives of the survey

The main objective of the baseline survey was to form a current baseline data at the project inception phase which will assist in evaluating and understanding the conflict reduction rates, social cohesion building process, water situation changes and its impact on building peace within the targeted communities.

The specific objectives of the baseline survey were to assess two objectives: 1) reduce conflicts over water allocation between upstream and downstream water users; and 2) Introduce climate change mitigation measures among farmers to reduce water usage.

Methodology and survey implementation

In order to conduct the baseline survey on the key parameters, the following methodologies were utilized:

- Conducting interviews with a sample of potential beneficiaries/farmers selected randomly;
- Baseline questionnaire developed by FAO and IOM based on the outcomes indicators;
- The enumerators trained for a day and the data collection started in the next day, they were considered to equalize gender balance (ten males and ten females);
- The project team will complete the hiring process and payments in close coordination with HR and administration; and
- The total days of the field data collection will be five days long including the traveling and training days.

Tools used

Baseline questionnaire applied both quantitative and qualitative data collection methods developed by FAO’s Monitoring and Evaluation Department includes the following key parts:

- Household demographic characteristics;
- Food consumption;
- Livelihood-based coping strategies;
- Impact of war on the community;
- Water-based disputes; and
- Accountability, suggestions and follow up.
Enumerators (selection and training)
FAO’s project team hired 20 enumerators who were trained by FAO’s M&E Officer on delivering questionnaires and selecting a random sample in the field.

Data collection
The data collected by the enumerators during the field visits through individual interviews with the targeted people. The total period of the data collection was four days.

Sampling
Around 30 households were targeted from each village (cluster) for a total sample was 373 households. There are two methods to select the households from each cluster; the households list method (if available) and the random walk method. According to the baseline survey design, a random walk procedure was used. The team supervisor conducted the household selection from each cluster through adopting the following steps:

- The supervisor started at the market area of the cluster. If there is no market, start at any landmark such as the mosque, health facility, etc.
- A pen or pencil will be thrown in the air and let it fall on the ground. The supervisor will walk in the direction indicated by its point.
- The supervisor will count the number of households between the starting point and the boundary of the cluster (village).
- A random amount of the numbered households will be selected. To select the random amount, the numbers will be written on pieces of paper, mixed together and then one will be pulled out of the pile.
- The random walk began at the household that matched the selected random number, which is the first household interviewed.
- The supervisor walks to the next closest household for the next interview.
- Whenever it seems that two households are the same distance away, a coin will be flipped to decide between the two.
- The process continues until the required number of households has been visited (30 households per village).

Data entry
FAO hired and trained two data entry clerks (2 females) to enter data through the KOBO FAO server. Under supervision the M&E team, they entered 373 questionnaires during the six days at FAO Sana’a office.

Data Analysis and Reporting
FAO Yemen’s M&E department counted the household demographic characteristics, food consumption score, water-dispute, conflicts and chocks. Besides those, the M&E department estimated the crop budget for the key crops in the project area. The crop budget was used for measuring changes in the crops productivity before and after the project. An FAO Yemen national M&E specialist wrote the draft report and then submitted it to the international M&E specialist for review and approval. All the primary findings will be discussed with the project staff through the short presentation.

Questionnaire
The M&E teams at FAO and IOM developed the questionnaire by which the enumerators collected data from the field. The English version of the questionnaire is shown in annex 1 of this report.

Characteristics of Households
- Females headed only 3 percent of households, while males headed 97 percent of households.
- The average household size was approximately 7.4 persons per household. No significant differences were highlighted concerning the household size between the households headed by males and others headed by females (7.5 and 6.9 respectively).
Eighty-three percent of households have access to groundwater as a first source of water for household and farming activities. Only 17 percent of households have access to a second source of water and only 1 percent have access to a third water source.

The average cultivated area was approximately 1.5 hectares. Most households were farmers or agriculture labourers (68 percent) who cultivated wheat and vegetables for selling and as a source of income. The rest (32%) of the respondents stated that they make their living from various activities, such as casual day labor, driving a motorcycle or taxi, etc.

Eighty-three percent of households were residents, 12 percent were IDPs and 4 percent were households not from the same area but they work in agriculture by renting lands.

**Food security and coping strategies**

- 57 Percent of households had an acceptable food consumption score, 28 percent had a borderline score (28.5-42) while 14 percent of households were considered poor (0-28).
- The sources of the food groups reported by the households included: local market/shop (75 percent), central market (19 percent), borrowing/credit (3 percent), own crop/garden (1 percent), food aid (2 percent), and gifts from neighbours/relatives (1 percent) and work for food (1 percent).
- Many kinds of crops that grow to produce the food in the survey area are vegetables. Some farmers have solar energy for pumping. The forage crops are also grown for the animals (goats/sheep and camels). Most of crops are grown for selling and consumption by family members. Most agriculture labourers were women, especially for crop harvesting, and the average of daily rental fee for land is very low (only YER 800). According to the crop budget form, the agriculture labourers also received a portion of crops they harvest, either forage or vegetables.
- 28 percent of households spent their savings coping with their shortage in getting their food, 24 percent sold more animals (non-productive) than usual, 20 percent borrowed food or relied on help from friends or relatives, 19 percent sold household assets (radio, furniture, television, jewellery, etc.), 18 percent reduced health (including medication) and education expenditures.

**Water-based conflict**

- Ten percent of households reported that there have been disputes about water resources in their areas. The total number reported by households was 42 conflicts. Most of the conflicts in the project area were due to the erosion of soil by spate (70 percent), high rate of salinity (15 percent), conflicts around the well and water network (15 percent). While the target number of water-based conflicts to be resolved are 7 conflicts which represent similar to what the responded reported 15% of 42 conflicts.
- Eight percent of the households reported that agriculture and livelihoods have been affected by the water conflict through not growing and maintaining the land, drying the planted crops, food production shortage and absence of work opportunities.
- The baseline survey confirmed that there is not a clear role for women and youth in solving the water conflicts. Even though the role of women and youth is available, participation is lacking, mainly due to cultural norms.

**Accountability, suggestions and follow up**

- The suggested solutions for resolving water-dispute were summarised as: 1) rehabilitation of water canals and implementation of wadi bank protection (47 percent); 2) providing safe drinking water (19 percent); 3) drilling new wells (13 percent); and 4) providing power solar (6 percent); 5) WUA (3%); 6) Modern irrigation system (3%); 7) Improve the security conditions (3%); 8) Non-adjudication of land issues by the administration (3%); 9) Install and operate Wadi monitoring station.
- Only 4 percent of respondents reported that they know how people were chosen for inclusion in the project, compared to 96 percent who did not know. All respondents (100 percent) stated that they have not been told exactly what they are entitled to receive. Eighty-four (84) percent of respondents reported that they did not know how to ask a question or how to make a complaint.
Only 16 respondents (4 percent) of respondents reported that organizations have intervened in resolving conflicts over water resources. Some agencies were mentioned by respondents, including Social Fund for Development (SFD), National Association and other institutions. Some respondents described the kinds of interventions from organisations were only surveys and data collections, except SFD, that intervened in resolving conflicts over water resources.

### Summary of baseline indicators

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Indicators</th>
<th>baseline</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome 1: Reduced incidents of water-based conflicts/disputes within targeted communities due to the intervention</td>
<td>% of the decrease in incidents of water-based disputes as a result of WWUG’s mediation</td>
<td>0%</td>
<td>There were 6 WWUGs but no one active.</td>
</tr>
<tr>
<td></td>
<td>% of documented water-based disputes that have been resolved through the WWUG’s Mediation</td>
<td>0%</td>
<td>There were 5 water-based dispute have been resolved by the local community. All of them related to drinking water.</td>
</tr>
<tr>
<td></td>
<td>% of community members reporting communal peacebuilding acknowledging the role of WWUG’s</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Outcome 2: Enhanced WWUG’s and community-participation in the resolution of water-based conflicts</td>
<td>% increase of awareness level among women, youth and farmers on risks of land and water conflict</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td># WWUGs that have been reactivated/created and have an active role in guiding their members through a process of change.</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td># of Conflict resolution WWUG’s led committees created and equipped with skills on how to resolve conflicts</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% of community members who perceive the project’s Conflict Resolution Mechanism as effective</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% of community members who perceive the role of women and youth in conflict resolution as effective</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% of trained individuals (Women &amp; Youth) who have utilized acquired knowledge and skills in resolving disputes</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>food security</td>
<td>% of targeted households with food consumption score of &gt;42</td>
<td>57%</td>
<td></td>
</tr>
</tbody>
</table>
1. Introduction

Water for Peace in Yemen – Hadramout

Description of the project
The overall objectives of the project are to empower women, youth and marginalized community members to resolve recurring conflicts over water resources, reducing overall conflicts over water resources.

Overall strategic objective of the project: Reduce conflicts over water allocation between upstream and downstream water users and Introduce climate change mitigation measures among farmers to reduce water usage.

Project outcome: Peacebuilding fund project has four specific outcomes described as:

Outcome 1: Reduced incidents of water-based conflicts/disputes within targeted communities due to the intervention.

**Indicators:**
- % of the decrease in incidents of water-based disputes as a result of WWUG’s mediation
- % of documented water-based disputes that have been resolved through the WWUG’s Mediation
- % of community members reporting communal peacebuilding acknowledging the role of WWUG’s

Outcome 2: Enhanced WWUG’s and community-participation in the resolution of water-based conflicts

**Indicators:**
- % increase of awareness level among women, youth and farmers on risks of land and water conflict.
- # of WWUGs that have been reactivated/created and have an active role in guiding their members through a process of change.
- # of conflict resolution WWUG’s led committees created and equipped with skills on how to resolve conflicts
- % of community members who perceive the project’s conflict resolution mechanism as effective
- % of community members who perceive the role of women and youth in conflict resolution as effective
- % of trained individuals (women and youth) who have utilized acquired knowledge and skills in resolving disputes

Outcome 3: Enhanced capacity of women and youth in engagement in community-led resolutions.

**Indicators:**
- % of women and youth are represented in the Board of Directors of the WUAs /community organizations

Outcome 4: Increased economic and livelihood opportunities contribute to strengthened social cohesion and peace.

**Indicators:**
- # of hectares of land that have been rehabilitated for agricultural purposes
- # of HH’s benefiting from the intervention

1.2 Objectives of baseline survey
The overall objective for this assessment is to form current baseline data at the project’s inception phase around community members’ attitudes toward women’s leadership, local tensions around water access and use, and to whom they would turn to help resolve such conflicts. The collected data will assist in evaluating and understanding conflict reduction rates, the social cohesion building process, water situation changes and its impact on building peace within the communities, using both qualitative and quantitative data.
The baseline survey will follow a comprehensive methodology to ensure collecting quantitative and qualitative data related to the project outcomes for measuring the mentioned indicators.

**Purposes of baseline survey**

To identify the following aspects:
- Household demographic characteristics.
- Food security indicators
- Water Conflicts resolutions.

### 1.3 Methodology and survey implementation

#### 1.3.1 Sample design and selection

The sample was designed in a two stage cluster systematic sample with a target sample of 373 households. The sample design suggested by FAO as the standard procedure for baseline survey was adopted. The total numbers of female-headed households was 12 HHs (3 percent) while the numbers of male-headed households were 361 HHs (97 percent).

#### 1.3.2 Questionnaire development

The survey included the questionnaire which was developed by FAO Yemen in English and translated into Arabic to be used in the baseline survey. The survey team used the Arabic version. The questionnaire included following topics:

- **Demographics:** including household size, age, family size, family members, marital status, and category to which the household belongs.
- **Food consumption:** including collecting data on food consumption score, food crisis and what kinds of coping strategies were employed by households.
- **Livelihood-based coping strategies:** focusing on ten coping strategies if the household didn’t have enough food or money to during the past 30 days. One neutral strategy, four stress strategies, three crisis strategies, and three emergency strategies were asked based on the severity of the strategies.
- **Impact of war on the community:** including changes in the community due to the ongoing crisis, noticeable challenges to community life, weaknesses and strengths of community connections/understanding.
- **Water-based disputes:** including water sources, kinds of conflicts, parties to the conflicts, who participates in resolution, how women and youth help in resolution of water conflicts, reasons behind water conflict and suggestions for resolution.

#### 1.3.3 Training of enumerators

A one-day training of interviewers/ enumerators for the baseline survey was held on 28 February 2020. A total of 20 interviewers were recruited to participate in the training program. This training program, which was held in Tarim district in Hadramout governorate, included the following sessions:

- How to fill out the household questionnaire, using visual aids;
- Role playing; and
- Random samples.

At the end of the training program, four teams were assigned for data collection. Each team consisted of one supervisor and four interviewers/ enumerators.

#### 1.3.4 Data collection

**Fieldwork.** Fieldwork for the baseline survey began on 20 January 2020 and was completed in 4 days. As mentioned earlier, each data collection team consisted of one supervisor and four interviewers/ enumerators.
Four fieldwork supervisors conducted regular daily visits to the teams in the field and resolved any problems the teams faced.

During data collection a set of quality control measurements were adopted by the fieldwork supervisor. Those quality control measurements included:

1. Going to the field everyday with their team to observe interviews for each interviewer, giving the interviewers feedback on the spot; and
2. Reviewing all questionnaires in the field and reconciling any problems or inconsistencies found in any questionnaire.

1.3.5 Data entry and analysis

The data were entered from the questionnaires into the KOBO system by two data entry clerks (2 females). The data cleaning and analysis was conducted by the M&E team at FAO Yemen. Microsoft Excel was used for data analysis.

1.3.6 Report organization

The report covers five sections. After this introductory section, the baseline survey results will be presented in section 2. Section 3 will summarize the conclusion and finally section 4 includes appendices.
2. BASELINE RESULTS

Results of the survey are analysed by gender of household head. Moreover, the findings are to be analysed by other categorical variables whenever appropriate to cross/combine some results of the baseline analysis.

The following gives the findings starting with demographic analysis, followed by descriptive statistics of key variables under the baseline sections.

2.1 Household demographic characteristics

The baseline survey includes questions related to different household characteristics such as household size, gender of household head, residence types of households. Results of this section are shown in the following.

2.1.1 Household size

As the baseline survey, the average of household size was approximately 7.4 per capita. No significant differences were highlighted concerning the household size between the households headed by male and others headed by females (7.5 and 6.9 respectively). The households’ members with different age groups are shown in figure 1. The average head of household age is about 45-years-old. Majority of household members were in the age group of 18 to 59-years-old (45 percent). Further, 32 percent of family members were 6 to 17-years-old.

2.1.2 Gender-headed households

Majority of households were headed by males compared to only 3 percent headed by females.

2.1.3 Residence types

The vast majority of the households were residents (83 percent). Only 12 percent were IDPs compared to only one household was a returnee. It was noticed that 4 percent of households were not from the same area but they are working in agriculture by renting the land. Most of them had families but in their original areas located either from outside the district or other areas in the same district.

Figure 1: Family members and age groups

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>60+ years Female</td>
<td>6%</td>
</tr>
<tr>
<td>18-59 years old</td>
<td>45%</td>
</tr>
<tr>
<td>6-17 years old</td>
<td>32%</td>
</tr>
<tr>
<td>0-5 years old</td>
<td>16%</td>
</tr>
</tbody>
</table>

Figure 2. Categories that households belong to.

- IDP
- Other
- Resident
- Returnee

83%
2.1.4 Marital status

As the Figure 3 below, the vast majority of household heads are married, 10 percent are single, 2 percent are widowed and only 1 percent is divorced.

*Figure 3. Marital status*

2.1.5 Major activities

The majority of households (68 percent) surveyed stated that they are mostly engaged in farming activities. The rest (32) of the respondents stated that they make their living from various activities, such as casual day labour, driving a motorcycle or taxi, etc.
2.2 Food consumption

2.2.1 Household consumption score

The respondents have been asked how many days in the past week they or their households’ members had eaten food items grouped into 10 specific food groups: cereals, white tubers and roots, leaved vegetables, fruits, meat–eggs–fish, legumes, milk and dairy, oil and fats, sugar and honey, and spices and condiments.

The value obtained for each food group has been multiplied by its weight, using food group weights in the table below.

Table 1. Standard food groups and current standard weights

<table>
<thead>
<tr>
<th>#</th>
<th>Food Items (examples)</th>
<th>Food Groups (definitive)</th>
<th>Weight (definitive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maize, maize porridge, rice, sorghum, millet pasta, bread and other cereals, Cassava, potatoes and sweet potatoes, other tubers, plantains</td>
<td>Main staples</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Beans, peas, groundnuts and cashew nuts</td>
<td>Pulses</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Vegetables, leaves</td>
<td>Vegetables</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Fruits</td>
<td>Fruit</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Beef, goat, poultry, pork, eggs and fish</td>
<td>Meat and fish</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Milk, yoghurt and other dairy</td>
<td>Milk</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Sugar and sugar products, honey</td>
<td>Sugar</td>
<td>0.5</td>
</tr>
<tr>
<td>8</td>
<td>Oils, fats and butter</td>
<td>Oil</td>
<td>0.5</td>
</tr>
<tr>
<td>9</td>
<td>Spices, tea, coffee, salt, fish power, small amounts of milk for tea</td>
<td>Condiments</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: World Food Programme, Vulnerability Analysis and Mapping Branch (ODAV)

Thus, food consumption score has been created by summing the weighed food group scores. Further, the following thresholds was applied: 0-28 Poor, 28-42 Borderline, and >42 Acceptable.

Figure 4. Food consumption score

Overall, 57 households or 15 percent have been found in critical condition. Another 104 households, which makes up 28 percent are found within the borderline threshold. In average, those with a food consumption score of above 42 made up 57 percent for all surveyed villages.
2.3 Livelihood-based coping strategies

Households were asked if anyone in their households had to engage in any of the ten coping strategies because there was not enough food, or money to buy food, during the past 30 days. One neutral strategy, four stress strategies, three crisis strategies and three emergency strategies were asked, based on the severity of the strategies. The higher the coping strategies index (CSI) value, the higher the degree of food insecurity. As shown in figure 5, the four most common livelihood-based coping strategies when faced with a shortage of food are to: 1) spend savings (28 percent of planned beneficiaries); 2) Sell more animals (non-productive) than usual (24 percent); 3) Borrow food or rely on help from friends or relatives (20 percent); and 4) Sell household assets (19 percent).

![Figure 5. Share of households using each coping strategies](image)

2.4 Impact of conflict on the community

2.4.1 Changes to community life

Households were asked if they noticed changes in the community due to the ongoing crisis. The majority of respondents stated that they noticed changes in community life due to the current crisis (62 percent). The noticeable changes to community life are shown in figure 6 below. The key changes that mentioned by the respondents included unusually high prices (39 percent), low incomes for people (12 percent), low cohesion of local communities (7 percent), inability to buy food by people (6 percent), absence of job opportunities (5 percent), low public services such as health, education, transport etc. (5 percent), repeated gas and fuel crises (3 percent), existing the IDPs in the area (2 percent), water crises (2 percent), infrastructure destroyed (one percent), and weak security situation (one percent) as shown in figure 6 below.

![Figure 6. Changes to community life](image)
2.4.2 **Strengthens and weaknesses in community connections**

As shown in figure 7, majority of respondents (303 out of 373 HHs) stated that five things strengthen community connections: values and interests (71 percent), institutions (57 percent), people’s attitudes and actions (51 percent), people (44 percent) and events (31 percent). Conversely, the things stated that weaken community connections were events (69 percent), people (56 percent), people’s attitudes and actions (49 percent), institutions (43 percent) and values and interests (29 percent).

![Figure 7. Strengthens and weaknesses community connections/understanding](image)

2.5 **Water-based conflicts**

2.5.1 **Main water sources**

Most respondent households said their main water source were wells (63 percent), followed by the water supply network (26 percent), water trucks (7 percent) and spate irrigation and rain water harvesting (4 percent).

![Figure 8. Main sources of water](image)
Only 70 households (18 percent) have a second source for water; wells (11 percent), water trucks (5 percent), spate and rain (2 percent) and water supply scheme (1 percent). Only four households (1 percent) have three water sources. Third water sources included spate and rain (3 households) and wells (one household).

2.5.2 Disputes over water resources
The households were asked if there had been any disputes over water resources in their area. Only 37 households (10 percent) stated that there were disputes over water resources in their areas. The rest said there had no any disputes over water resources in their area.

Per figure 10, most conflicts were due to soil erosion created by spate (70 percent), available water having a high rate of salinity (15 percent), conflicts over well and water infrastructures (15 percent).

2.5.3 Mechanisms of resolving water conflicts in the survey area.
The mechanisms of resolving water conflicts mentioned by the respondents were either through the local Sheikh (religious leader) or general reconciliation.

2.5.4 Agriculture and livelihoods affected by water disputes
Almost all households who stated that there had been disputes over water resources in their areas (28 out of 37 HHs) reported that agriculture and livelihoods had been impacted as a result. These people represented only 8 percent of interviewed households (28 out of 373 HHs). Due to the water dispute the farmers could
not cultivate the land, drying the planted crops, shortage in production of food, and absence of work opportunities.

**Figure 11. Agriculture affected by water disputes**

2.5.5 Solutions for resolving water disputes

Households were asked what solutions were used for sustainable and long term resolution to water disputes from their point of view. Thirty one households out of 373 replied the four most common suggested solutions for resolving water disputes were: 1) rehabilitation of water canals and wadis bank protection (47 percent); 2) providing safe drinking water (19 percent); 3) drilling new wells (13 percent); and 4) providing solar pumps (6 percent).

**Figure 12 Solutions suggested for resolving water-dispute**

2.5.6 Women/youth role in finding solutions to water disputes

The baseline survey confirmed that there is not a clear role for women and youth in solving water conflicts. Though women and youth are available to play a role, it is not part of the existing cultural norms in Yemen. Looking at the training of women and youth to play an active role in finding solutions to water disputes, 76 percent of respondents stated that women and youth can be trained and qualified to play an active role in finding solutions to water disputes in their areas.

2.5.7 Water Users Association/ Women Water Users Groups
2.5.7.1 Water users associations
The baseline survey stated that only one WUA is active in the survey areas. The number of women and youth in the WUA is not known. Only 4 percent of respondents reported that the WUA has received training in water disputes compared to the majority of respondents reported that they had not.

2.5.7.2 Women Water Users Groups
Per the baseline survey, only 4 percent of respondent in six villages (Al Amhar Fort, Al Ez Fort, Al Qetar, Jay, Thaby and Wadi Al Dahab) reported that there are WWUGs in their areas. They reported that the average number of members in the WWUGs is 4 women. The existing WWUGs have not attended any training session on water disputes.

2.6 Accountability, suggestions and follow up
2.6.1 Knowledge about kinds of interventions and feedback mechanism
Only 4 percent of respondents reported that they know how people were chosen compared to 97 percent they do not know. All respondents (100 percent) stated that they have not been told exactly what they are entitled to receive.
Also, 84 percent of respondents reported that they do not know how to ask a question or to make a complaint.

2.6.2 Organization intervened in resolving conflicts over water resources
The baseline survey asked “has any organization intervened in resolving conflicts over water resources” and only 16 respondents (4 percent) reported that organizations intervened in resolving conflicts over water resources. Some agencies were mentioned by the respondents, such as Social Fund for Development (SFD), National Association and other institutions. According to some of the respondents, only surveys and data collection were carried out by other organizations, except for SFD, who previously intervened in resolving conflicts over water resources in some survey areas.
3. CONCLUSION

As a result of the baseline study, the key conclusion drawn from its resulting data is that none of the identified six WWUGs is active. Therefore, all the indicators measured with zero exception the indicators were not directly related to the WWUGs “% of community members who perceive the role of women and youth in conflict resolution as effective” that measured by 76% at the baseline survey, and the proxy indicators for food security and livelihood coping strategy.

One WUA in baseline survey is mentioned by some of interviewed households in four villages; Thaby, Al Mahmiah, Al Jaeliburuh, Wadi Al Dahab. In the others villages no one mentioned the WUA. The existing WUA is active in Wadi Al Dhahab village. In Wadi Al Dahab where the WUA is active, the water sources are managed by the local committee. This means either the role of the existing WUA is absent or the WUA is inactive.

Where the respondents said there are WWUGs (15 households from 6 villages), all respondents reported that there hasn’t been a dispute on water resources in their area. The source of water was groundwater for 15 respondents, all families headed by males, 2 out of 15 said the women and youth in the area were willing to be engaged in water dispute management and they can play an active role in finding solutions to water dispute in their areas.

There were 37 households (10% of sample size) who reported disputes over water resources in their areas. Almost half of them (or 17 households) rely on the spate and rain as the water source in their areas. This means the project will target this group of people. While the second group of people replied that ground water (wells or water schemes as a source for water) has been the disputed water resources in their areas, but the types of conflicts were different as most of them were disputes over water for irrigation (18 out of 37 households). Five of the water conflicts have been solved by local committees or a Sheikh, all of them related to drinking water. Other conflicts over water source stayed unresolved. This means that the project interventions should assist resolving conflicts that have not yet been resolved. The percentage of water conflicts without resolving is approximately 32 conflicts out of 37 conflicts (or 86 percent).

Some proxy indicators related to food security and livelihoods have been measured by the baseline survey. The percentage of targeted households with a food consumption score of >42 measured by 57 percent in the baseline survey. The livelihood coping strategy was also measured through the baseline survey. One neutral strategy, four stress strategies, three crisis strategies and three emergency strategies were considered, based on the severity of the crisis. The higher the CSI value, the higher the degree of food insecurity. The four most common livelihood-based coping strategies when faced with a shortage of food are to: 1) spend savings (28 percent of planned beneficiaries); 2) Sell more animals (non-productive) than usual (24 percent); 3) Borrow food or rely on help from friends or relatives (20 percent); and 4) Sell household assets (19 percent).

There have organizations intervened in resolving conflicts over water resources as this survey. Some agencies have been mentioned by the respondents included Social Fund for Development (SFD), National Association, and Institutions. Some of respondents described the kinds of interventions from organisations were only surveys and data collection exception SFD that has intervened in resolving conflicts over water resources.
4. ANNEX

Questionnaire