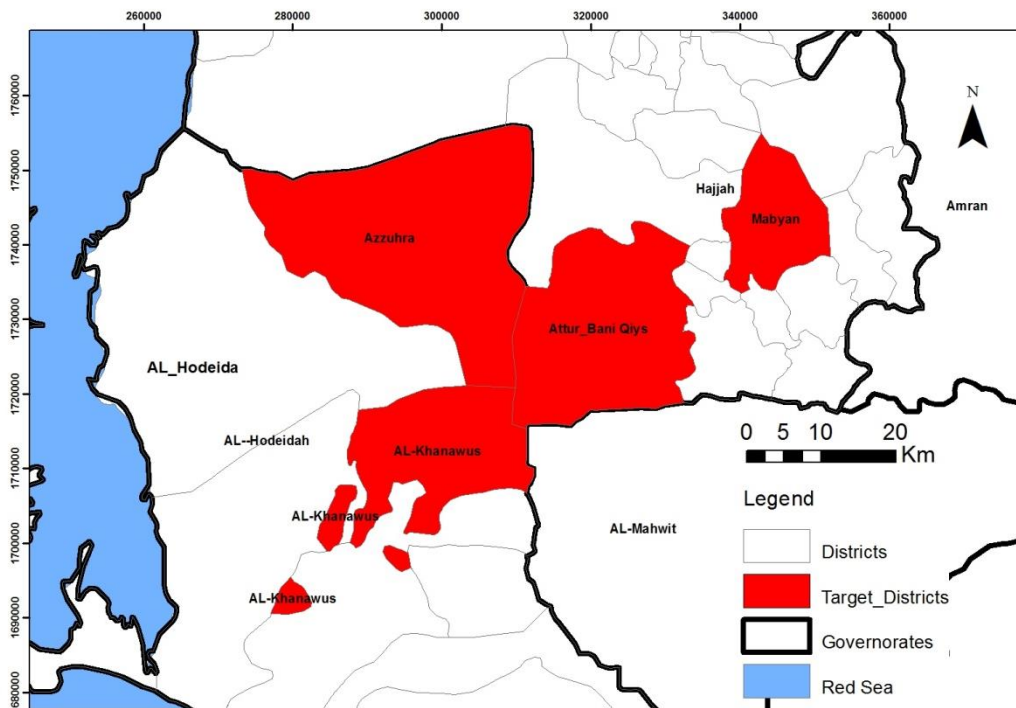




Increasing Food Security in the Hodeidah and Hajjah Governorates of the Republic of Yemen

Feasibility Study



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Acronyms

| | |
|--------|---|
| BMZ | Federal Ministry for Economic Cooperation and Development |
| CBA | Cost Benefit Analysis |
| CPI | Consumer Price Index |
| CSO | Central Statistical Organization |
| CSSW | Charitable Society for Social Welfare |
| DRC | Danish Refugee Council |
| EFSNA | Emergency Food Security and Nutrition Assessment |
| FAO | Food and Agriculture Organization |
| FCS | Household Consumption Score |
| FMD | Foot and Mouth Disease |
| FSAC | Food Security and Agriculture Cluster |
| HDDS | Household Dietary Diversity Score |
| HHS | Household Hunger Scale |
| HHs | Households |
| IDPs | Internally displaced persons |
| IFPRI | International Food Policy Research Institute |
| IPC | Integrated (Food Survey) Phase Classification |
| IRY | Islamic relief Yemen |
| IWRM | Integrated Water Resource Management |
| MAI | Ministry of Agriculture and Irrigation |
| NGO | Non Governmental Organization |
| NRC | Norwegian Refugee Council |
| PPR | Peste des petits ruminants (sheep and goat plague) |
| SFD | Social Fund For Development |
| TDA | Tehama Development Authority |
| VHI | Vision Hope International |
| Unicef | United Nations Children's Fund (United Nations International Children's Emergency Fund) |
| WASH | Water, Sanitation and Hygiene |
| WFP | World Food Program |

1. BACKGROUND AND STUDIES OF RELATED REPORTS

Over the past three decades, Yemen's rural areas have undergone considerable structural changes. The current ongoing conflict has caused a deterioration in the food production and nutrition situation of the Yemeni people:

The Yemen Emergency Food Security and Nutrition Assessment, a joint survey conducted by the Food and Agriculture Organization of the United Nations (FAO), the United Nations Children's Fund (UNICEF) and the World Food Programme (WFP) in cooperation with the authorities in Yemen identified the following statistics¹

- The current estimate of food insecure population is more than 17 million persons. A lower number of severely food insecure people are receiving emergency food assistance that helps to stabilize the situation.
- Nationwide, 65% of Yemeni households (HHs) are estimated to be food insecure (nearly 30% severely), compared to 41% of HHs during the pre-crisis period (2014).
- About 7.3 million people require emergency food assistance (including the three governorates not covered by the EFSNA – Sa'ada, AlMahra and Soqatra).
- More than 80% of Yemenis are indebted, and more than 50% of HHs are buying food on credit.
- Over 60% of the HHs are employing consumption-related negative coping mechanisms.
- About 75% of the HHs reported as facing much worse economic situation now compared to pre-crisis.
- According to CSO's consumer price index (CPI) data, cost of living is now 40% higher than pre-crisis period, amid income level seriously deteriorated due to disruption of livelihoods and salaries of public employees not paid.
- Almost 40% of all agricultural HHs faced decreased production of cereals in 2016 compared to the pre-crisis period.
- Key constraints that affected agricultural production in 2016 were:
 - Almost 85% of HHs lack access to critical agricultural inputs (seeds, fertilizer and fuel for irrigation etc.) and need emergency agricultural inputs support.
 - Almost 64% of HHs lack access to animal feed (e.g. fodder, concentrate, mineral blocks etc.).
 - Over 54% of HHs have inadequate control of crop and livestock disease and require emergency protection and safeguarding of assets.

¹ Emergency Food Security and Nutrition Assessment (EFSNA) WFP, FAO and UNICEF, – 2016



- Over 52% of HHs engaged in livestock production have been forced to sell livestock to supply other household needs e.g. food, health etc.
- Over 45% of agricultural HHs have had a drastic reduction in livestock numbers in 2016 compared to the pre-crisis period due to:
 - Distress selling to cover household needs e.g. food, health and other family needs.
 - Death of animals due to disease.

These facts justify rapid intervention and implementation of rural projects focusing on the agriculture sector to help Yemeni people mitigate this change and to feed themselves in the current conflict situation. The most affected households need urgent support in re-stocking and diversification of livelihoods.

Food security in Yemen has deteriorated further in 2016 and 2017. According to the IPC² (Integrated Food Security Phase Classification) an estimated 17 million people, 60% of the Yemeni population, are food insecure and require urgent humanitarian assistance to save lives and protect livelihoods. Among those, approximately 10.2 million people are in IPC Phase 3 'crisis' and 6.8 million people are in IPC Phase 4 'emergency'. Nationwide the population classified as IPC Phases 3 and 4 has increased by 20% compared to the results of the June 2016 IPC.



2. BMZ INITIATIVES ONE WORLD – NO HUNGER

The German Federal Ministry for Economic Cooperation and Development (BMZ) has developed a special initiative called "ONE WORLD –NO HUNGER", with the ambitious aim of contributing to eradicating hunger worldwide. Working together with world communities and focusing especially on countries affected by civil war, drought, natural catastrophes etc., Yemen is one of the countries that has received special attention by BMZ.

The special initiatives will focus on two main goals:

- Eradicate hunger and malnutrition among people alive today.
- Lay the foundations for enabling future generations of the growing world population to feed themselves.

The larger initiative has defined the following six key areas to be addressed ³:

1. Food and nutrition security.
2. Famine prevention and resilience building.
3. Innovation in the agriculture and food sectors.
4. Structural transformation in rural society and environments.
5. Natural resource protection and soil rehabilitation.
6. Secure and fair access to resource and land.

The following principles of the BMZ special initiative can be addressed in the proposed project area of Yemen by:

- Placing smallholder family farms at the center.
- Fighting hunger and malnutrition.
- Making rural areas attractive and sustainable.
- Supporting more professional and more sustainable agriculture.
- Adapting agriculture to impact of climate change.
- Boosting innovation throughout the agriculture and food sector.
- Fostering fair and secure tenure rights and land use rights.
- Preventing famine.
- Realizing the human right to food.

In the field of rural development, Germany has two main development programs in Yemen namely⁴:

³ A world without hunger is possible. Contribution of the German development policy. Bmz.de. ASAT March 2015



1. Program on "Food and nutrition security, enhanced resilience".
2. Program to "Increase engagement of food and nutrition security through multi-lateral cooperation, nongovernmental development cooperation and transition development assistance".

The proposed project fits the overall objectives of the above-mentioned two programs.

⁴ A world without hunger is possible. Contribution of the German development policy. Bmz.de. ASAT March 2015, An illustration showing the focus countries of the One world – No Hunger initiatives. A section map showing South Eastern Africa and part of Asia including Yemen.

3. THE CURRENT STUDY

3.1. OBJECTIVES

This study entitled "Increasing Food Security in AlHodeidah and Hajjah Governorates in the Republic of Yemen" has the following objectives:

- Assessment of the status of the current food and nutrition situation;
- Examination of a number of measures to increase food security and enhance agriculture in four selected districts of the two governorates during the current conflict situation (current situation);
- Presentation of data from the four selected districts in a request for funding to the BMZ;
- Assessment of the opportunities to increase resilience of proposed beneficiaries through modernization of agricultural techniques and strengthening the capacity of the local implementing partners (including local NGOs and Governmental Agricultural Service Providers).

3.2. METHODOLOGY

Meetings were conducted with local authorities including deputy governors, managers of internally displaced persons (IDPs) and representatives of agricultural institutions to identify the target districts in Hajjah and AlHodeidah. The study selected four districts in two governorates, the districts of Mabyan and Bani Qais in Hajjah governorate and the districts of AlZuhrah and AlQanawis in AlHodeidah governorate. The selection of the districts based on the following criteria:

- agricultural fertile district;
- people grow of such food crops necessary for the nutrition (grain, vegetable, fruits) and therefore contribute to the food security;
- accessible and not far away from the daily or the weekly markets;
- less suffer from water scarcity.

To support the objectives, three simple questionnaire forms (annex 1) were developed to collect data that:

- assesses the resilience of the people under the current ongoing conflict;
- identifies possibilities for increasing agricultural production; and
- identifies possible partners for project implementation (as outlined in annex 2 and annex 3).

At least three sub-districts in every district were visited. In each of those sub-districts around 10 to 15 family households were interviewed randomly. A total of 147 HHs

have been interviewed. Table 1 tabulates the number of households interviewed in the four districts.

Table 1: Number of Households interviewed in the four districts

| Bani Qais Hajjah | Mabyan Hajjah | AlZuhrah Hodeidah | AlQanawis Hodeidah | Total |
|---------------------|------------------|----------------------|-----------------------|-------|
| 29 | 29 | 47 | 42 | 147 |

3.2.1. STATUS OF FOOD AND NUTRITION SITUATION IN THE PROJECT AREA

The current situation regarding the market and food assistance were investigated by asking:

- Are the markets in the districts functioning and do people have access to food?
- Are traders able to provide food commodities into the project districts?
- Can people afford the food brought in by local traders?
- Is enough food brought in by local traders?
- Have prices increased substantially in the village?
- If humanitarian assistance were provided to this district, would beneficiaries prefer to receive food or cash assistance?
- If food assistance was provided in the past, was the food basket sufficient for the needs of the household? Was the variety of food items given satisfactory?

3.2.2. DATA REQUIRED IN THE FOUR SELECTED DISTRICTS FOR A REQUEST FOR FUNDING

The data obtained by this study has justified the criteria for selection of the four districts.

In the Hajjah governorate the field visit confirmed the selected districts of Mabyan and Bani Qais for project implementation. The initially proposed districts in in Al Hodeidah governorate of AlDuraihimy and AlJarahi were replaced by two other districts, AlZuhrah and AlQanawis, due to war effects and their similarity to those selected in Hajjah governorate.

Data for the required funding have been collected using direct questionnaires and indirect questions. Indirect questions were chosen to obtain information which may be considered sensitive by the family households or that the head of the family households were unlikely to give the correct figure.

Limited time was available for field visits and the survey. After many days of delay due to waiting for official approval to go to the field , the study focused on obtaining data to evaluate three main nutrition indicators:

1. Food Consumption Score (FCS);
2. Household Dietary Diversity Score (HDDS);
3. Household Hunger Scale (HHS).

The first indicator, Food Consumption Score (FCS), was created in Southern Africa in 1996. It is defined as "the frequency weighted diet diversity score" and is calculated using the frequency in number of days of consumption of different food groups by a household during the 7 days before the survey⁵. The standard food groups and current standard food group weightings used in analyses are presented in Table 2.

Table 2: Food Groups and current standard weights used in analyses for Food Consumption Score

| Food items | Food groups (definitive) | Food Group Weight (definitive) |
|--|--------------------------|--------------------------------|
| Rice, sorghum, millet, bread and other cereals | Main staples | 2 |
| potatoes and sweet potatoes | | |
| Beans. Peas, groundnuts | Pulses | 3 |
| Vegetables, leaves | Vegetables | 1 |
| Fruits | Fruit | 1 |
| Meat, poultry, eggs and fish | Meat and fish | 4 |
| Milk yogurt and other diary | Milk | 4 |
| Sugar and sugar products, honey | Sugar | 0.5 |
| Oils, fats and butter | Oil | 0.5 |
| Spices, tea, coffee, salt, fish powder, small amounts of milk for tea. | Condiments | 0 |

The weighted food group scores calculated by days a food group is consumed multiplied by the food group weighting are summed to create a Food Consumption Score. The weighted score has a range of 0–112 with a higher score indicating better food consumption. Standard thresholds then categorize these scores into poor, borderline, and acceptable food consumption levels (see Table 3 for FCS profiles).

⁵http://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp197216.pdf

Table 3: Food Consumption Score profiles⁶

| FCS | Profile |
|-----------|------------|
| 0 - 28 | Poor |
| 28.5 - 42 | Borderline |
| > 42 | Acceptable |

The second indicator, the Household Dietary Diversity Score (HDDS), reflects in a snapshot form the economic ability of a household to access a variety of foods. HDDS is calculated by summing the number of food groups consumed in the household or by the individual respondent over the 24-hour recall period.⁷ A total of 12 food groups as standard food groupings have been proposed for HDDS as listed below:

- | | |
|--------------------|---------------------------|
| A. Cereals | G. Fish and seafood |
| B. Root and tubers | H. Pulses/legumes/nuts |
| C. Vegetables | I. Milk and milk products |
| D. Fruits | J. Oil/fats |
| E. Meat, poultry, | K. Sugar/honey |
| F. Eggs | L. Miscellaneous |

The HDDS variable is calculated for each household. The value of this variable will range from 0 to 12. The average HDDS indicator is then calculated for the sample population.

Table 4: Calculation of the Household Dietary Diversity Score (HDDS)

| | |
|---|--|
| HDDS (0-12) = | Sum (A + B + C + D + E + F + G + H + I + J + K + L) Total number of food groups consumed by members of the household. Values for A through L will be either "0" or "1" |
| Average HDDS = Sum (HDDS)/Total Number of Households | |

The International Food Policy Research Institute (IFPRI) proposes the following thresholds⁸:

Table 5: Household Dietary Diversity Score profile

| HDDS | Profile |
|-------|--------------------------|
| > 6 | good dietary diversity |
| 4.5-6 | medium dietary diversity |
| <4.5 | low dietary diversity |

⁶ Vulnerability and needs assessment, Lahj and Taiz, Report Save the children, published 31. January 2017

⁷ Guidelines for measuring household and individual dietary diversity, EC-FAO, 2013

⁸ Elliot Vhurumuku, Food Security Indicators, For the Integrating Nutrition and Food Security Programming for Emergency Response Workshop, Nairobi, 25 to 17 February 2014



Both FCS and HDDS can assist in identifying food access and consumption problems at the population level

The third indicator, the Household Hunger Scale is simple indicator to measure occurrence or experience of household hunger in food insecure areas. For the recall period of 4 weeks (30 days) it questions whether a household member has dropped one or more meals due to lack of food, or has had concerns regarding food availability.

3.2.3. OPPORTUNITIES FOR INCREASE THE RESILIENCE OF THE BENEFICIARIES THROUGH MODERNIZATION OF AGRICULTURAL TECHNIQUES

A baseline assessment was made of the skills and absorption capacity of the local implementing communities, NGO(s), farmer associations and other community based entities. It was also necessary to identify which pre-existing structures are still present and may be included in the project design. For this purpose, the following main points were examined:

- Situation of pre-war agricultural schemes at community and farm level and possibilities for rehabilitation and recovery.
- Availability of agricultural committees at village and district levels and potential measures to enhance their capacities.
- Opportunities for employment of youth in agriculture to provide life perspective and income.
- Possibilities for training in modern methods of agriculture and irrigation to increase agricultural productivity.
- Current situation and needed interventions among livestock holders to create income generating activities in home processing of milk for cheese, yoghurt and other dairy products in selected areas, particularly where access to other markets is difficult.
- Market research for farming resource availability and possible provision by asking farmers the following questions:
 - What kind of agricultural equipment is available in the market?
 - What kind of agricultural inputs are needed (seed, fertilizer, pesticides)?
 - What kind of inputs are necessary for livestock producers (fodder, animal assets, vaccines and regular veterinary drugs?)
- What kind of labor intensive work could increase the resilience of the community, for example:
 - Terrace rehabilitation for rain fed agriculture.
 - Rehabilitation or construction of traditional irrigation networks, cisterns, water reservoirs and hand dug wells.



- Rehabilitation of local roads to secure access for farmers and animals to fields and water sources.
- Other labor-intensive works in relation to agricultural production identified during the district and community visits, e.g. cash for work, food for work, material for work or casual labor through engagement of contractors obligated to hire local staff.
- Possibilities for enhancement or introduction of home gardening to support female headed households through training on the set up of home gardens and financing the initial set-up costs.
- Current state of Sorghum and Millet storage facilities at the village level.
- Possibilities for provision of safe drinking water (e.g. water filters, hygiene promotion, etc.).
- Other measures to increase the diversification of agricultural production.
- Necessary Emergency Food and Nutrition Security interventions not covered by other stakeholders.

4. FINDINGS

4.1. OVERALL FINDINGS

4.1.1. WATER MANAGEMENT AND AGRICULTURAL POLICIES IN ABSENCE OF FUNCTIONING GOVERNMENT STRUCTURES

The governmental structures are not completely absent. During the field visits and survey, the team met representatives and engineers of the governorate offices of the Ministry of Agriculture and Irrigation (MAI) in both governorates.

A lack of operational running costs and unpaid salaries of the governmental employees for several months have paralyzed all ministry agricultural activities. Therefore, farmers and the rural population have searched for alternative support mechanisms to face these emerging agriculture problems.

For example, in Wadi Moor the biggest agricultural spate irrigated area in Al Zuhrah district, the farmers have organized themselves and established different activities and action committees.

The main problems that led to the formation of these committees were the ongoing armed conflicts and recent flood catastrophes due to neglecting the maintenance and cleaning of the wadi beds. Shrubs like the introduced exotic plant *Prosopis juliflora* have grown rapidly in wadi beds, obstructing the diversion channels and invading irrigated cropland.

Prosopis juliflora, also called mesquite, was originally introduced by FAO and the Tihama Development Authority (TDA)⁹ in 1974 to combat desertification and for dune stabilization programs. However, the plant soon got out of hand. The aggressive spread of the mesquite into spate irrigation systems is largely the result of poor field and marginal land management arrangements, related to the absence of permanent land ownership in these systems.

The mesquite is however is not completely harmful. For some people it is prime source of income as the shrub is used to produce charcoal. Nevertheless, the overall spread of it in lands in the Tihama will not harm these needy groups.

⁹ So Al-kareem Harafaddin, A.A. Saleh and Abdo-Alkreem Ahmed Ameen : *Prosopis juliflora* in Yemen, Proceedings of the Regional Conference May 1 - May 2, 2014, Addis Ababa, Ethiopia, BMZ, GIZ publications



Figure 1: Mesquite Shrub *Prosopis juliflora* encroaches on canal beds – blocking them and causing drainage patterns to uncontrollably shift.

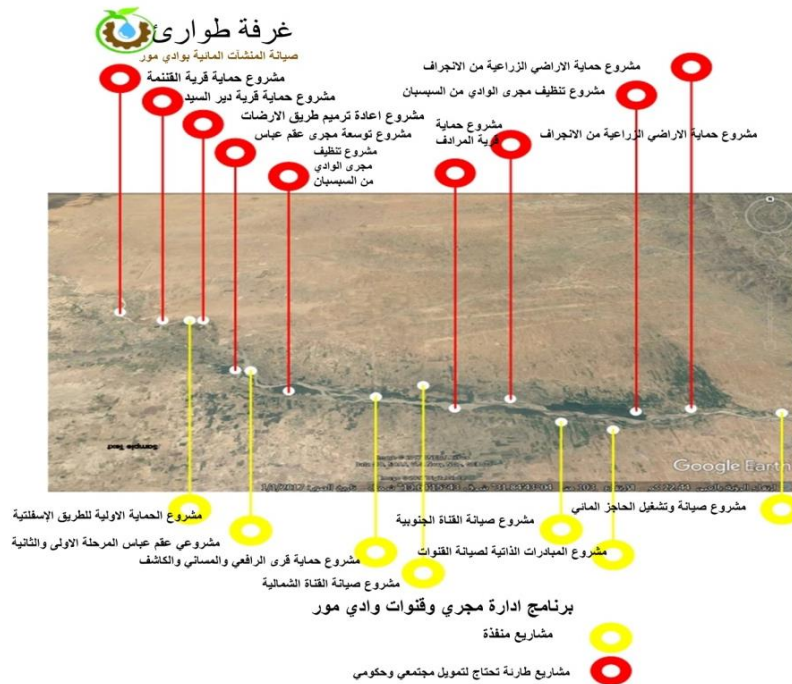


Figure 2: An Example of community based activities - cleaning of mesquite in the channels of Wadi Moor (Hodeidah governorate, AlZuhrah district). (Yellow = Projects are implemented by the communities and red = projects planned for implementation)¹⁰

Communities have started to search for solutions to manage or eradicate the mesquite trees growing in the bed channels of the wadi. Dense growths of the trees divert rainy-season flood waters away from the wadi beds into villages bringing natural catastrophes. Evidence of village destruction is visible in AlKashef village in AlZuhrah district. During flooding people required evacuation and became displaced into other locations.

¹⁰ Emergency room for maintenance of traditional irrigation network in Wadi Moor. 2017

The local communities have established the "Room for Maintenance of Traditional Irrigation network in Wadi Moor" as shown in **Figure 2**. They have started intensive labor activities to clean the wadis of the mesquites trees to both make better use of water and to prevent flood hazards.

4.1.2. DEFINITION OF THE PROJECT AREA

The proposed project area as shown in Figure 3 contains intensive agriculture, rain fed agriculture, rangeland, terraces and wadi agriculture.

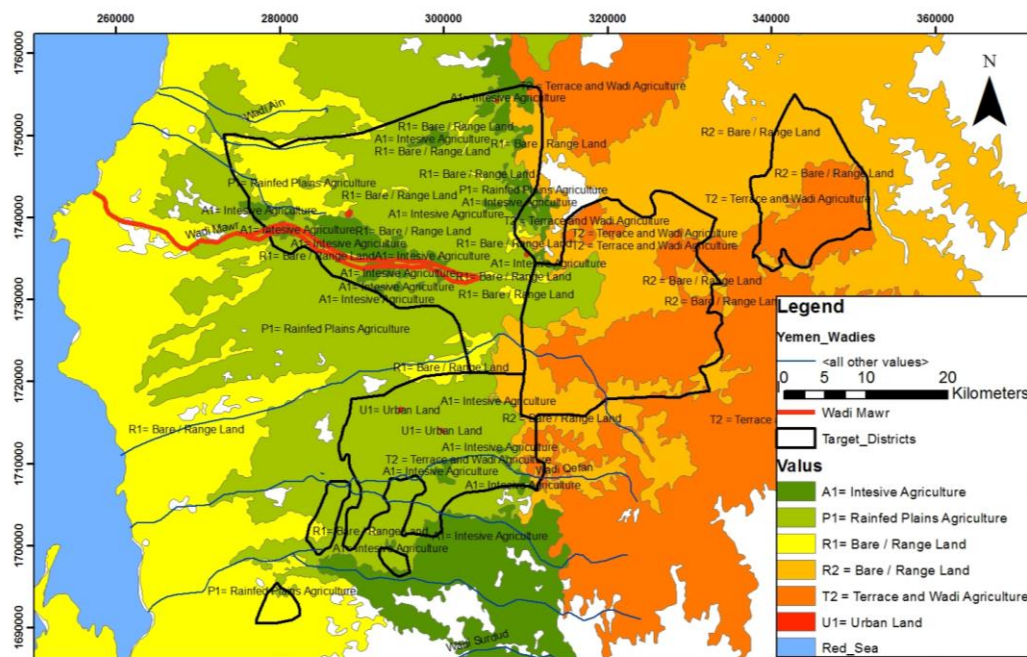


Figure 3: Land use in the four selected districts covering intensive agriculture, rain fed agriculture, rangeland, terraces and wadi agriculture

Mountainous area with terraced constructed fields are common in the Mabyan and Bani Qais districts while on lower land in the Tihama plain in the districts of Bani Qais, AlZuhara and AlQanawais regular farming land practices are present.

The borderlands of Bani Qais district overlap with AlQanawis and AlZuhara so that, similar conditions occur in relation to beneficiaries, agricultural situation and water availability. The largest wadi in western Yemen, Wadi Moor, crosses the districts of Bani Qais and AlZuhrah.

Two major land uses are rain fed characteristic in the project area.

The primary land use is the Tihama plains, a nationally important farming area. Three of the four selected districts; Bani Qais, AlZuhara and Al Qanawis are in the Tihama

plain. This rain-fed water management system of aquifers fed from the highland wadis allows intensive agricultural activity on this coastal plain along the Red Sea. Grain, fruit, forage and vegetables are cropped extensively while fruits are more limited in their areas.

The second land use is the highland zone with intensive and extensive mixed rain-fed cultivation on terraces and in the river-beds or wadis that have surface flow only during the rainy period.

Only Mabyan district is in the highland Zone. The agriculture in Mabyan is based on terraced land and is predominantly rain fed. This terracing structure is ancient and highly labor-intensive for both maintenance and new construction. Cropping in the highlands is dominated by cereal and legume crops. Qat, coffee, fruit and olives are also cropped on terraces.

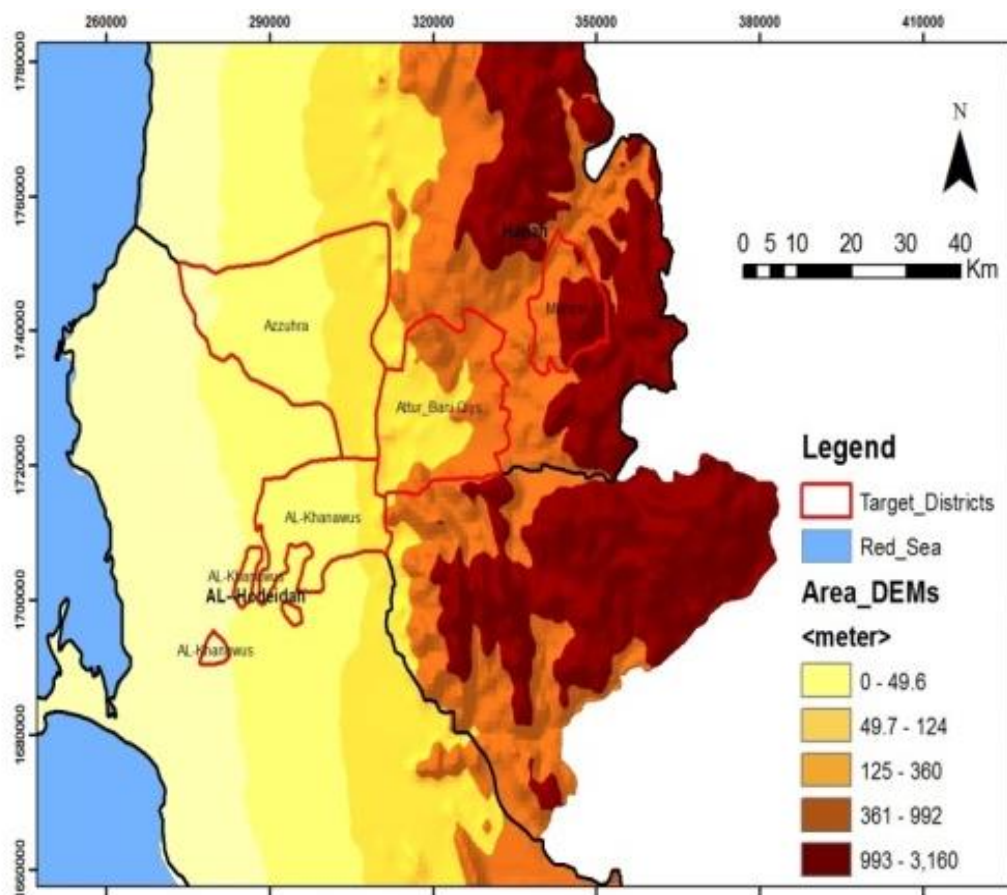


Figure 4: The targeted four districts in Hajjah and Hodeidah

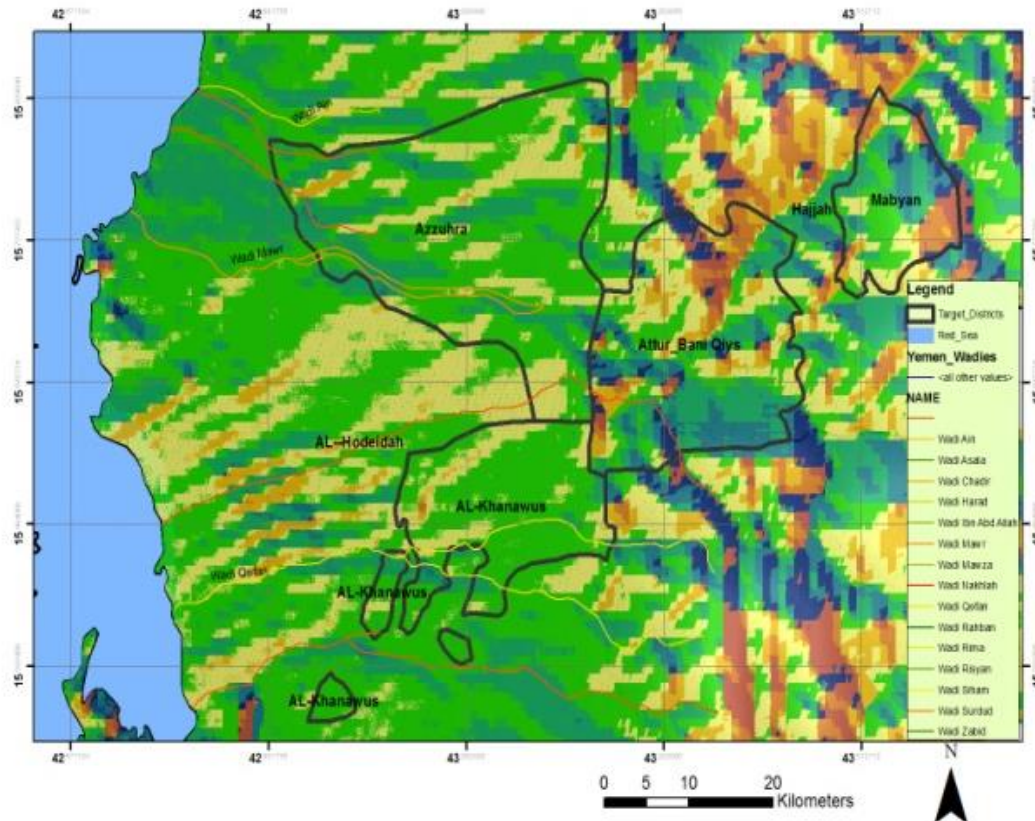


Figure 5: Running wadis in the working districts

4.1.3. FOOD AND NUTRITION SECURITY IN THE PROJECT AREA

For the project area three indicators have been tested namely, the Food Consumption Score, the Household Dietary Diversity Score (HDDS) and the Household Hunger Scale (HHS).

Food Consumption Scores

The information collected in the standard household food consumption scores (FCS) includes:

- The types of foods eaten.
- The frequency of consumption of each food group over the past seven days (how many days each food group has been consumed in the last 7 days).

From Figure 6 we can see that cereals, rice and tubers are the most dominant food consumed in the four districts. Household meals are very poor in eggs, meat and sugar.

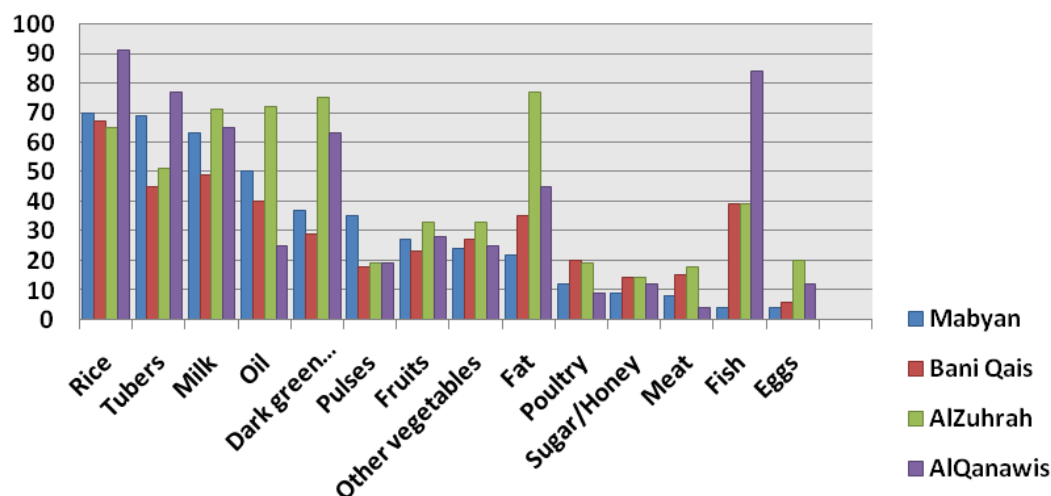


Figure 6: Percentage of respondents to food consumption groups (cereal 100)

The calculation of FCS is to be seen in Table 6. Based on the weighted scores description in the methodology (page 12) we can see that the FCS in the four districts lays so far in the acceptable thresholds.

On an average, the surveyed households in Hajjah had a FCS in Mabyan and Bani Qais districts of 28 and 31.7, which are categorized at "poor" and "borderline" levels, respectively. Households in AlHodeidah with FCS of 41 and 49.2 in AQanawis and AlZuhrah districts, respectively are laying at the "borderline" and "acceptable" range.

Table 6: Food Consumption scores in the four served districts (May 2017)

| | Mabyan | Bani Qais | AlQanawis | AlZuhrah |
|----------|--------|------------|------------|------------|
| FCS | 28 | 31.7 | 41 | 49.2 |
| Profiles | Poor | Borderline | Borderline | Acceptable |

Household Dietary Diversity Score (HDDS)

The HDDS is the second indicator calculated to reflect the ability of the HHs to access to a variety of food groups. As described in the methodology (page 12-13) the calculation of the HDDS is based on summing the numbers of food groups consumed over the 24 hours recall period. In Table 7 we can see that AlZuhrah is the only district which has good HDDS compare to the other three districts with medium score.

Table 7: Household Dietary Diversity Score (HDDS) in the four served districts (May 2017)

| | Mabyan | Bani Qais | AlQanawis | AlZuhrah |
|---------|--------------------------|--------------------------|--------------------------|------------------------|
| HDDS | 5.07 | 5.50 | 5.90 | 6.90 |
| Profile | medium dietary diversity | medium dietary diversity | medium dietary diversity | good dietary diversity |

Household Hunger Scale (HHS)

The HHS in the four districts is reflected in figure 7 and figure 8. Figure 7 shows that between 25 and 35% of the interviewed families in the four selected districts have deliberately dropped at least one meal during the four weeks prior the survey. Dropping of at least one meal of almost one third of the family households is relatively high.

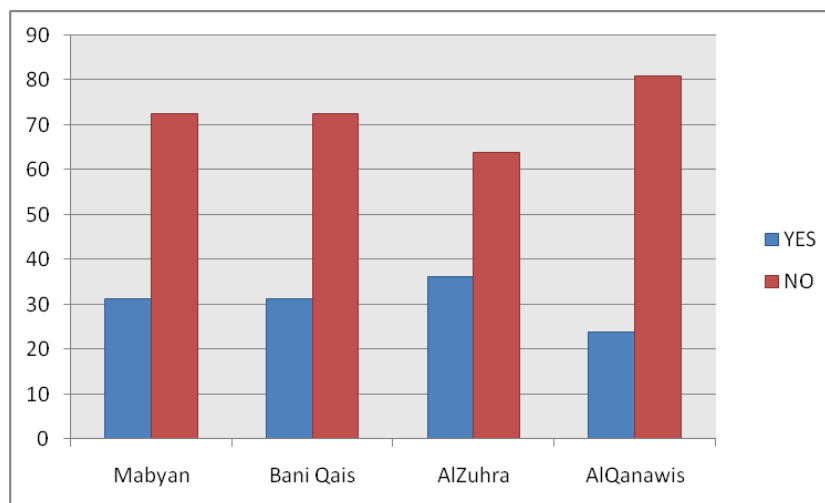


Figure 7: Percentage respondents to the question: Have you ever been forced to reduce number of meals per day in the past four weeks due to lack of food (at least one occurrence)?

Figure 8 reflects the response to the question of going to sleep at night hungry. The highest figure is in AlZuhrah districts with more than 40% of the households reported to have at least one member of the family gone to bed hungry and the lowest is in AlQanawis district.

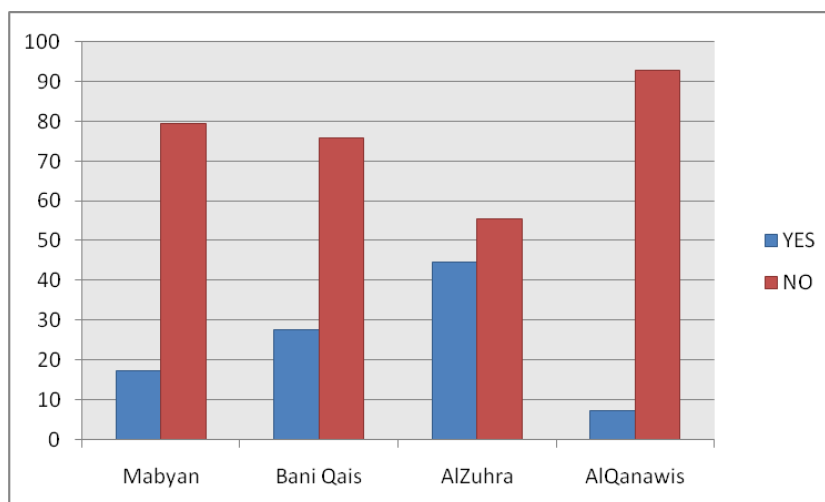


Figure 8: Percentage response of head of family households to the question: In the past [4 weeks/30 days], did you or any household member go to sleep at night hungry because there was not enough food?

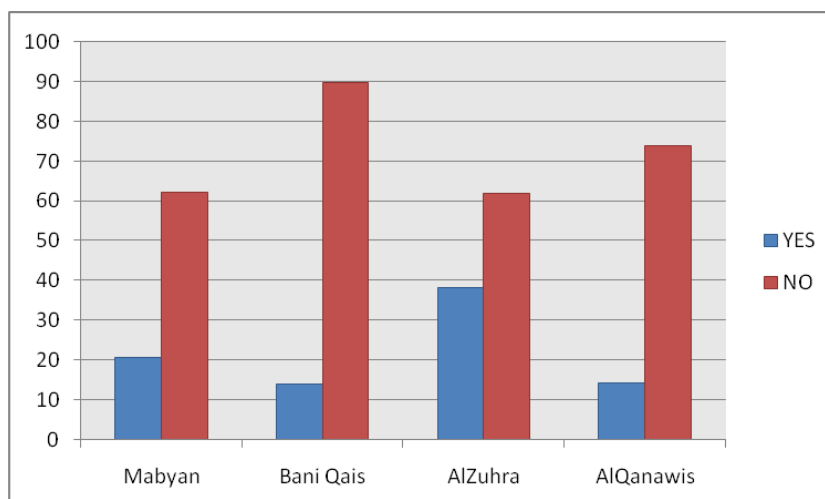


Figure 9: Percentage response of head of family households to the question: In the past four weeks did diarrhea occur in the household?

Diarrhea among children

Figure 9 shows the occurrence of Diarrhea among the children in the four districts. Between 13% (Bani Qais) and 38% (AlZuhra) family households have reported diarrhea in their household. Since the family HHs reported that the diarrhea cases were occasionally we can say they lay in the normal diarrhea cases occur elsewhere in Yemen.

Figure 10 shows the percentage of households consuming food groups in the week prior to the survey. It is normal to see that the main food in all districts are cereals (Wheat, Sorghum, Millets), followed by tubers (manly potatoes) rice and milk. Fish is

also main food in the Tihama districts of Bani Qais, AlZuhrah and AlQanawis due to their proximity to the Red Sea.

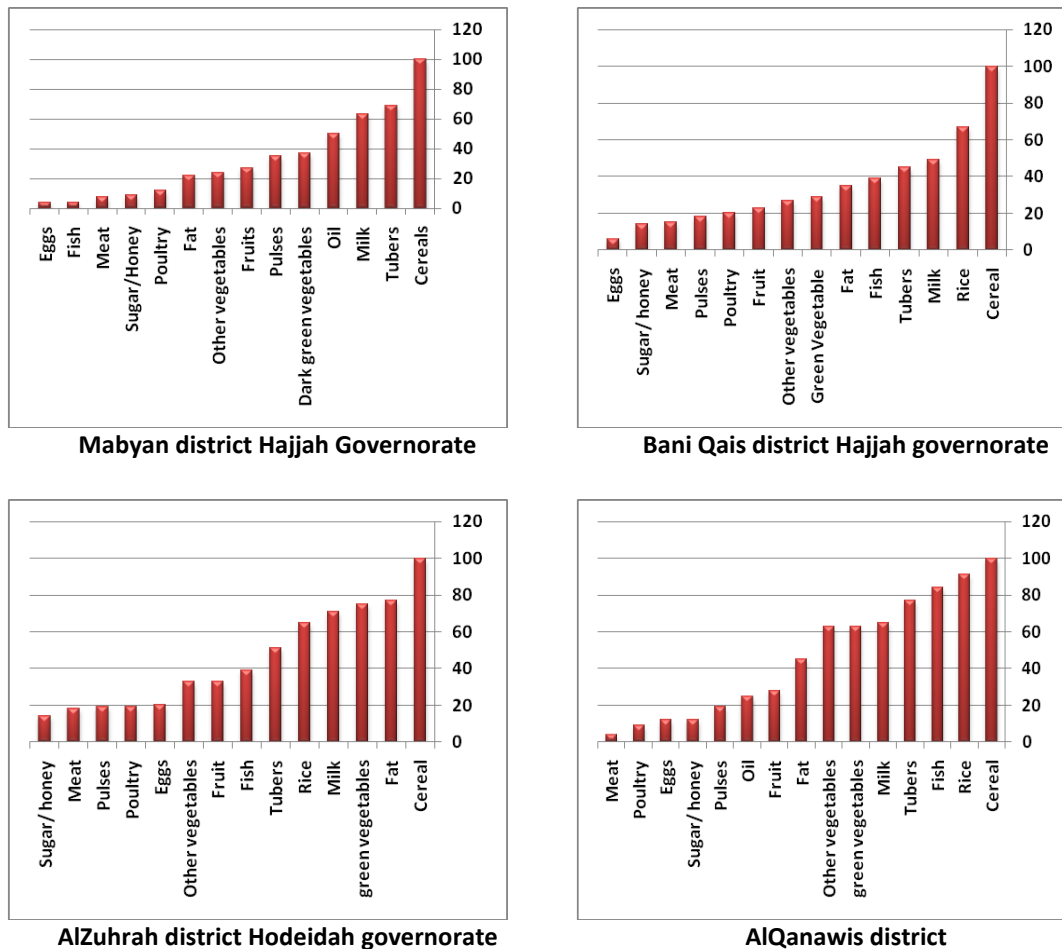


Figure 10: Percentage of households consuming food groups in the week prior to the survey in the four selected districts

4.1.4. CONFLICT SITUATION IN THE PROJECT AREA WITH A FOCUS ON THE FEASIBILITY OF THE PROJECT IN THE WAR ENVIRONMENT

The conflict situation in the project area is made worse due to absence of governmental structures and leads to declines in responsiveness to interventions. Expectations of the beneficiaries among rural peoples and IDPs are often higher than the proposed objectives of development activities or relief organizations and the resources available. Clear descriptions of the objectives of the proposed project for the beneficiaries were outlined to the head of the villages (Shaikh, Aqel) to reduce subsequent conflicts regarding objectives.

Any intervention targeting IDPs should be carried out among the resident population otherwise it will lead to a conflict between these groups in the implementation stage.

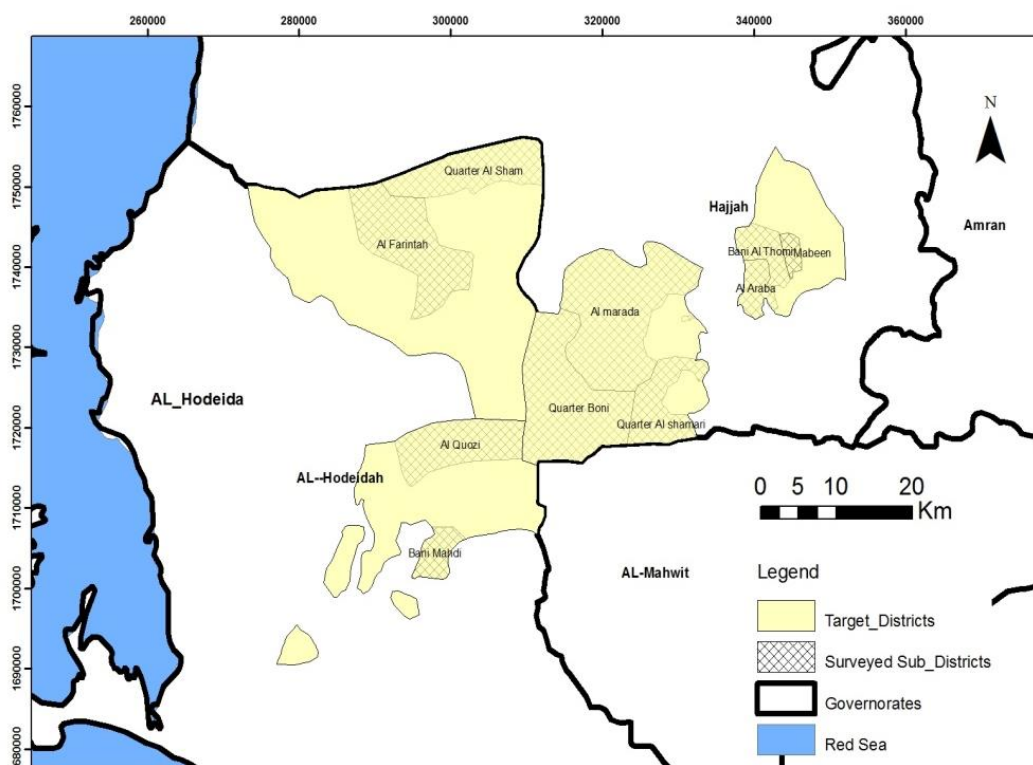


Figure 11: Sub districts surveyed in the four Main districts

4.1.5. PROBLEMS TO BE ADDRESSED

The proposed project will help the target populations to overcome the current situation (Help for Self-help), together with other donors and national and international organizations working on the ground. The following key problems will be addressed to varying degrees:

- Deterioration of food and nutrition security due to the ongoing conflicts.
- Emergence of newly targeted groups (IDPs).
- Lack of access to critical agricultural inputs (seeds, fertilizer and fuel for irrigation etc.) and the need for emergency agricultural inputs support.
- Lack of access to animal feed (e.g. fodder, concentrate, mineral blocks etc.) leading to inadequate control of livestock disease and requiring emergency support.
- Households engaged in livestock production who have sold livestock to cater for other household needs e.g. food, health.
- Reduction in livestock numbers compared to the pre-crisis period due to:
 - Distress selling to cover household needs e.g. food, health and other family needs.
 - Death of animals due to diseases.
 - Lack of livestock vaccination services.

- The urgent need for re-stocking and diversification of livelihoods to support the most affected households.

4.1.6. INTERVENTIONS BY OTHER PARTIES/DONORS

Table 8: Interventions by other parties in governorates

| | | |
|-----------------|--|--|
| HAJJAH | <u>MABYAN</u> WFP UNICEF VHI | <u>BANI QAIS</u> WFP UNICEF VHI CARE CSSW CHARITABLE SOCIETY FOR SOCIAL WELFARE UNHCR UNITED NATIONS HIGH COMMISSIONER FOR REFUGEES |
| HODEIDAH | <u>ALZUHRAH</u> CSSW UNICEF WFP SFD | <u>ALQANAWIS</u> ISLAMIC RELIEF YEMEN UNICEF NRC |

Table 8 reflects the organizations and programs working in the four districts. Due to the ongoing conflicts, most of the organizations are working in humanitarian issues and represent different clusters like the Food Security and Agriculture cluster, the Nutrition cluster, the WASH cluster and Health cluster.

4.2. WITHOUT PROJECT SITUATION

4.2.1. POPULATION AND SOCIAL INFRASTRUCTURE

Yemen is a lower-middle income country, ranked the second poorest country in the Near East and North Africa region with 34.8 percent of the population under the national poverty line. The country's dependency on food imports further aggravates this situation.

The proposed project will serve selected households among the population of approximately 450,000 inhabitants in the four districts (Figure 12).

In the governorate Hajjah there are 63595 IDPs households of which less than 2% are in the districts Mabyan and BaniQais compare to 18235 IDPs households in

AlHudeidah governorate of which around 40 are located in AlZuhrah and AlQanawis districts¹¹.

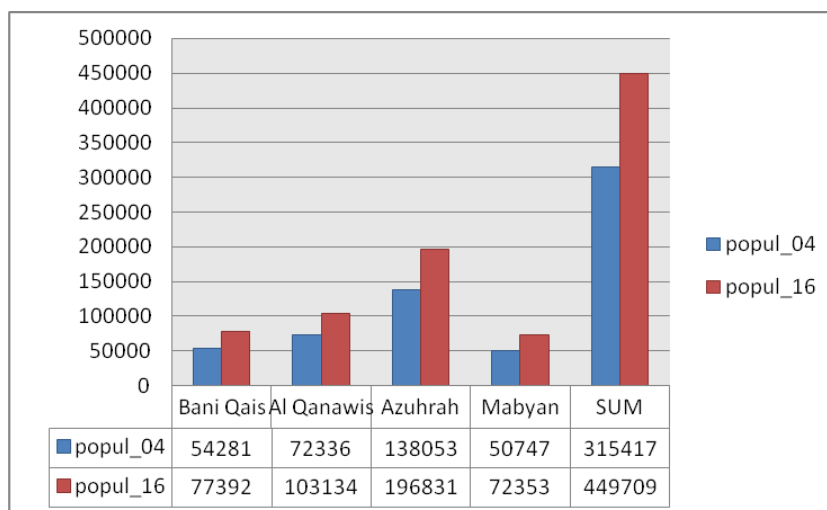


Figure 12: Population in the four districts

4.2.1.1. DEMOGRAPHIC INDICATORS AND SOCIAL SERVICES

The country's limited endowment of natural resources, coupled with high demographic pressure, poses serious concerns for the future. Yemen's economy has previously been highly dependent on the oil sector. This sector has been negatively affected by the ongoing war and oil exports have been stopped since March 2015.

4.2.1.2. OWNERSHIP OF THE IRRIGATED AREA

Land in Yemen may be owned by either individuals, government or trusts. In Wadi Moor, where most of the proposed activities will take place, around 60 percent of the total area is in private ownership, with the remaining lands belonging to the government or religious trusts. Both in the highland and coastal plains the lands are owned by large land holders, and small farmers are interspersed among large farmers.

4.2.2. SOURCES OF FAMILY INCOME

4.2.2.1. AGRICULTURE BEFORE PROJECT IMPLEMENTATION

In the proposed project area agriculture is the main source of income for family households, especially in rural areas. Plant production, particularly of cereals, is the main source for food and nutrition security. Keeping of livestock is the second major

¹¹ Task Force on Population Movement (TFPM), 14th report, May 2017, Yemen women Union, Yemen Protection Cluster and the UNHCR, Yemen UN Refugee Agency

economic sector for food security of Yemeni rural families. Bee keeping is a third sector that provides people with substantial incomes and can be further developed.

Figure 13 reflects the current percentage of family incomes from these three major sectors across the four selected districts. Figure 14 shows the predominance of plant production is for farmers' own consumption with the option for marketing. Cash cropping is virtually absent in the four districts.

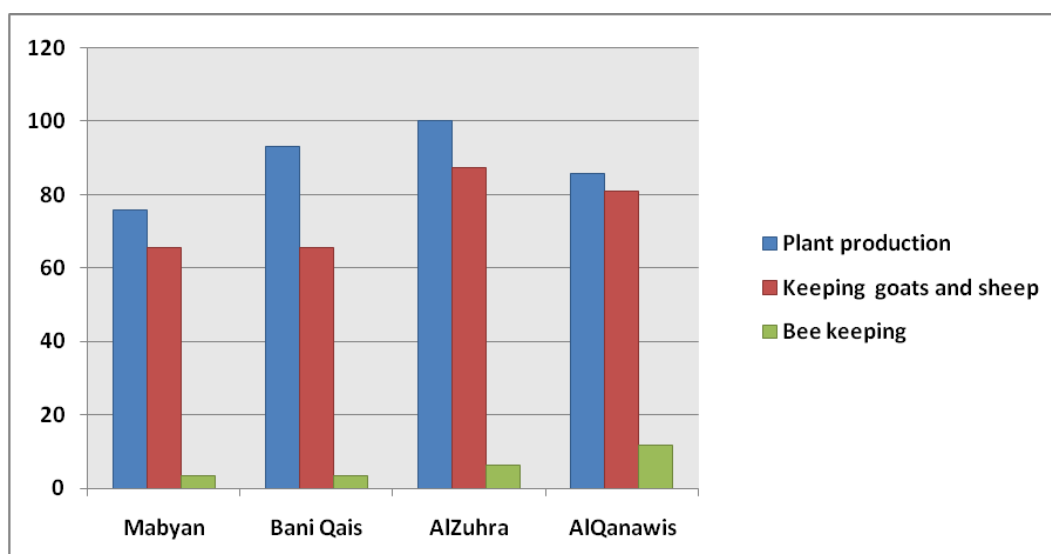


Figure 13: Percentage of family incomes from three major agriculture activities

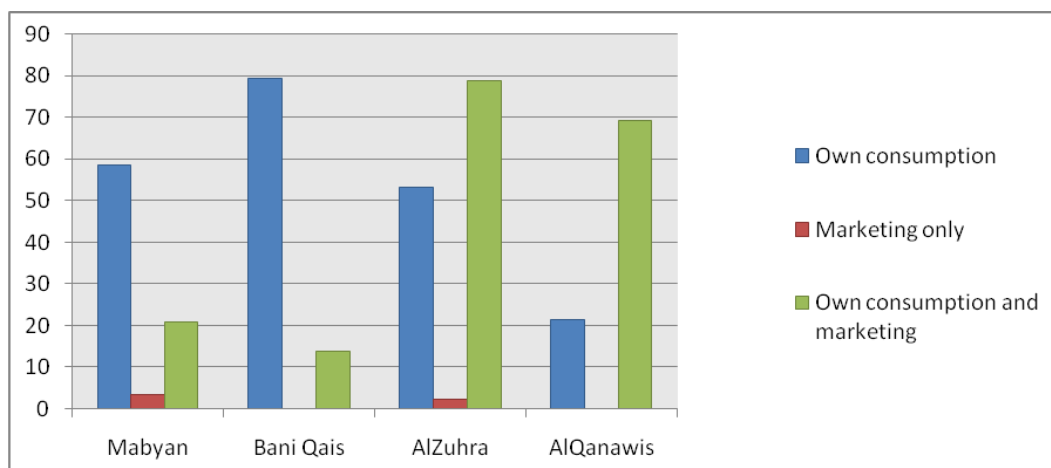


Figure 14: Use of the harvested crops by the farmers in the four selected districts

4.2.2.2. IRRIGATED AREA AND CROPPING PATTERN

The cropping pattern in these districts has historically been adapted to water availability, which has been more limited in the last three decades. Limited water availability has led to increases in speculative planting after flooding or unusual rain run-off events. In the past 15 years, capital-intensive irrigated agriculture has been

widely introduced along the wadis of the Tihama, bringing greater stability to crop production in this region. The Tihama is now Yemen’s most productive agricultural area, however great challenges remain with regard to sustainable water management. The dramatically declining of water resources in Yemen is illustrated in figure 15.

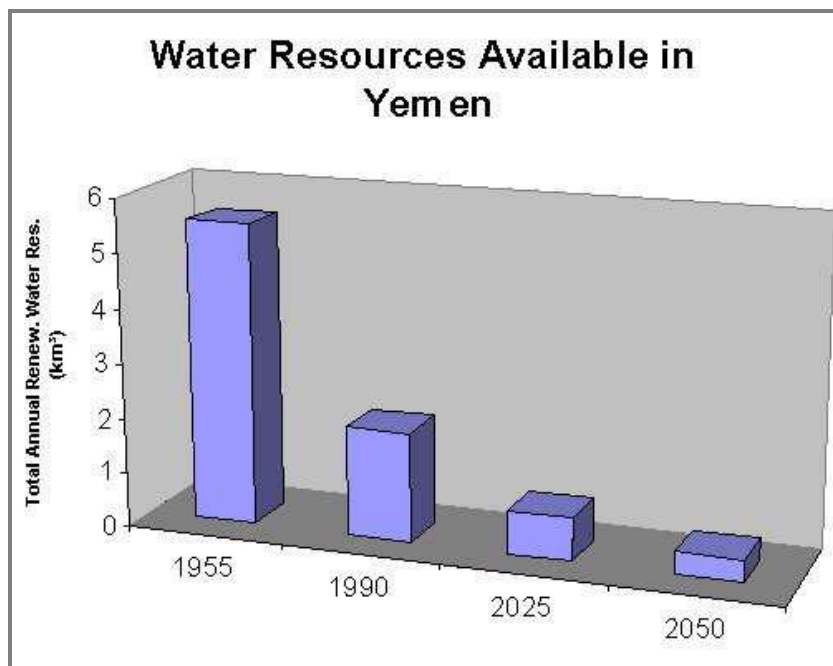


Figure 15: Dramatically declining of water resources in Yemen¹²

International and national organizations working in Yemen are providing different services for poor people and communities to mitigate the current conflict situation and to help people to be more resilient. Agriculture and water resources are very important sectors and most people are worried about food and water scarcity due to the ongoing crisis and civil war. Fuel scarcity and the absence of government services have added new challenges. Rainfall is the major source of all water in the country. Figure 16 reflects the crop pattern in the four districts. Cereals are the most dominant crop. The most important grain cultivated is sorghum, with the grain being used for human consumption and the vegetative parts of the plant used as either green or dry fodder. Qat is dominant in the highland of Mabyan district. Vegetable, Fruit and sesame are more to be found in the lowlands. The crop calendar for wheat and sorghum is illustrated in figure 17 and the Seasonal calendar for a typical year is reflected in figure 18.

¹² <http://www.yemenwater.org/wp-content/uploads/2013/03/hydrology-of-yemen.pdf>

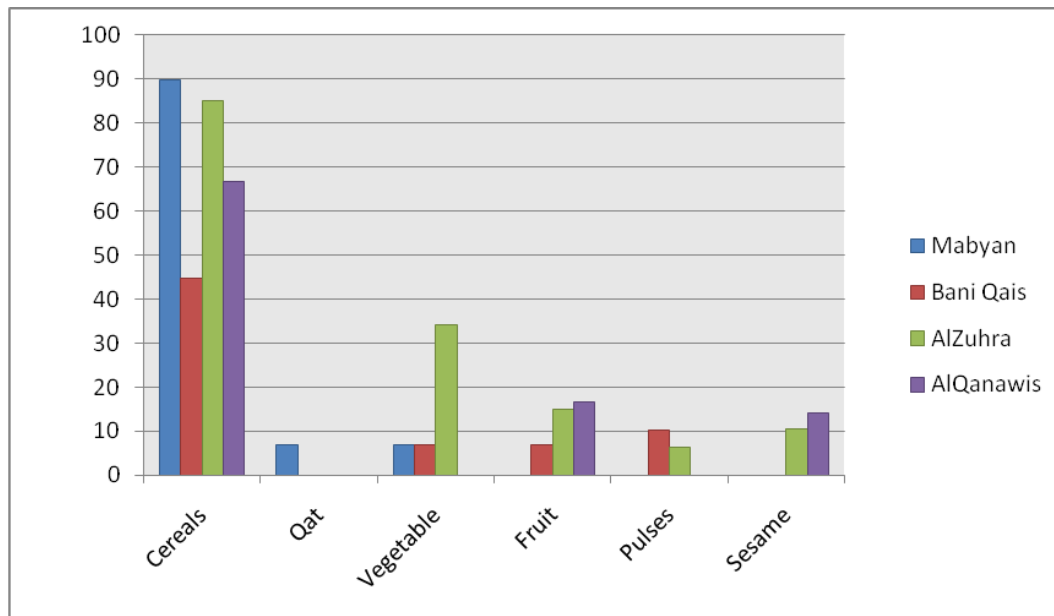


Figure 16: Crop pattern in the four districts in percentage according to the interviewed respondents

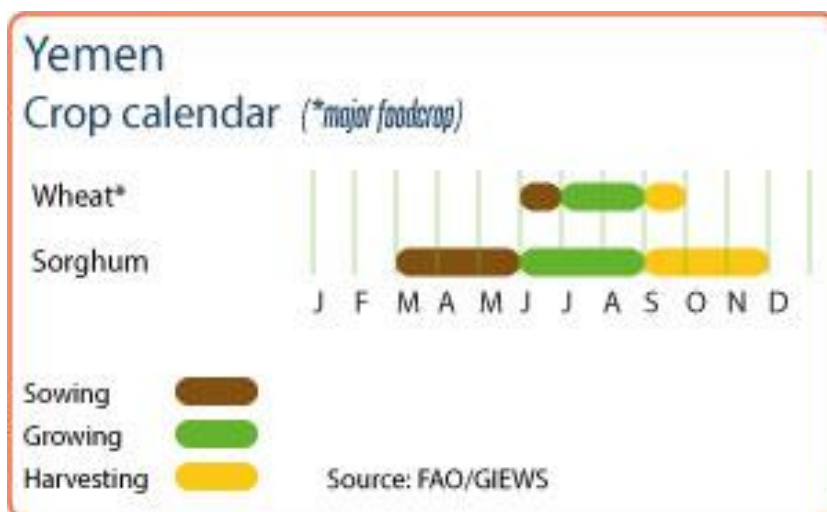


Figure 17: Annual crop calendar for wheat and sorghum Yemen

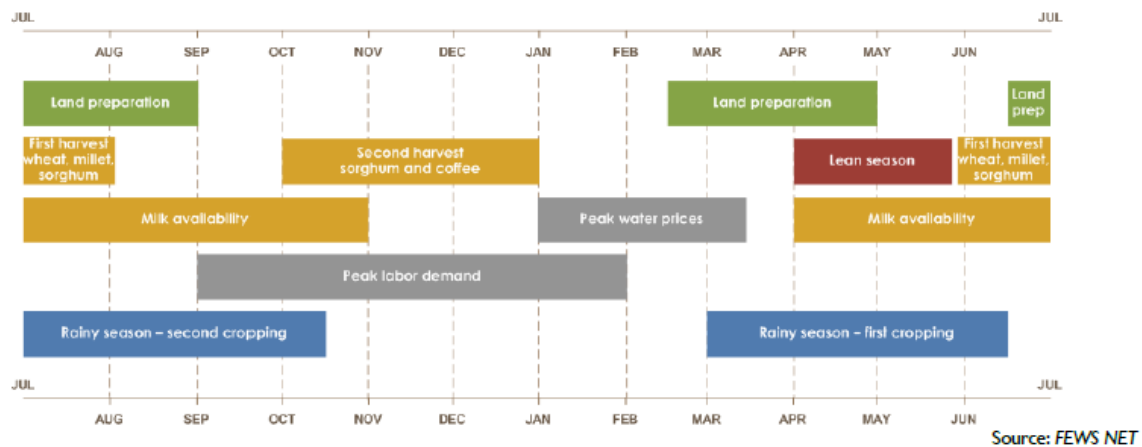


Figure 18: Seasonal calendar for a typical year

4.2.3. BENEFITS FROM AGRICULTURAL PRODUCTION

Plant production and livestock are the two main components of the agriculture sector in the proposed project area. There is a close linkage between the poverty incidence among the population and annual fluctuations in agricultural productivity. The current conflict has added negative impacts to the agriculture sector and the people of Yemen, especially those living in rural areas.

The contribution of the agriculture sector to food security in Yemen is demonstrated in the following percentage ratios of production to need calculated for various agricultural commodities¹³: The percentage figures also reflect local production of consumed items.

- Sorghum 100%
- Wheat 7%
- Millet 100%
- Barley 42%
- Vegetables 100%
- Fruit 90%
- White meat 99%
- Red meat 68%

Hajjah governorate is a major contributor to livestock production and the people in Hajjah rely on agriculture and livestock for food security. Livestock are the main cash crop for farmers who can sell one or more goats or sheep when necessary to cover

¹³ <http://www.yemenwater.org/wp-content/uploads/2013/03/hydrology-of-yemen.pdf>



family needs. Hundreds of families had to sell about 70% - 100% of their livestock to cope with the current situation in the country.

Surveys of people in the mountainous areas in Hajjah who had lost all or part of their livestock assets, were asked which animals they prefer to keep. The majority of them said goats as they can graze on mountain grass that is available in the rainy seasons and can get to water sources easily. Sheep are preferred in the lowland plain areas.

Ownership of cattle has become very rare as people cannot afford to buy a cow or to keep and feed their calves while needing to buy food items for their families.

Much of Yemen livestock sector is dependant on natural forage in rangelands. Rangelands forage are over exploited which could lead to desertification and reduction of available of forage for livestock producers.

Rehabilitation of rangelands may also require the rehabilitation or new establishments of nurseries for forage plants (e.g Bani Qais nursery). This is a key activity to help rural livestock owners to maintain or expand their herds.

ANIMAL DISEASE IN HAJJAH

Livestock, in particular the small ruminants, are facing huge health problems. These animal health issues threaten the main livelihood assets of the most vulnerable rural families in Hajjah, particularly landless livestock owners and other smallholders. During wet weather conditions, external and internal animal parasites are activated which affect livestock. This effect has been increased due to the current challenges of weak veterinary services. In addition, there have been ongoing cases of endemic diseases such as PPR, sheep and goat pox. These cases have continued due to the lack of vaccines and lack of operating funds for official vaccination campaigns.

Some animal medicines are missing from the market. These include those previously supplied through the private sector such as anti-clostridium drugs and foot and mouth disease (FMD) vaccines. Drugs such as anti-parasite medicine that were previously relatively cheap, have increased in price beyond the ability of livestock owners to buy. Prices have increased by 75% to 100% depending on the origin of the drugs. Pricing of drugs further affects the health status of animals as well as availability to the veterinary services, provided by both public and private sector.

LIVESTOCK IN TIHAMA

The Tihama region and Hodeidah governorate are major livestock areas with more than 2 million head of animals, representing more than 12% of the total animal



production in Yemen. This productivity is due to the wide availability of livestock fodder in the Tihama region produced from irrigation water, as well as the evolution of veterinary services during past years.

However, the Tihama districts have not been exempt from the effects of the current crisis in Yemen. Most official agricultural services have collapsed including veterinary services, vaccination campaigns and extension services. As a result, most farmers have sold large numbers of their animals. Others have lost all their animals due to animal diseases in the absence of veterinary services.

AlZuhara district is suffering from the deteriorating situation of animal production. In this area, livestock holders focus on sheep with some goats as the main source of their income, fattening the animals and selling them to market especially during Eid occasions. This source of income is still important although it has significantly decreased due to the crisis.

The situation in AlQanawis is worse than AlZuhrah as it includes significant numbers of goats beside sheep farming and bee keeping. Most villages in AlQanawis are outside the access to irrigation water from Wadi Moor and farmers rely on rain or well water from far areas. During the last two years, hundreds of livestock holders lost part or all of their animals due to lack of fodder or its price rising beyond their ability to pay, as well as the absence or high price of veterinary and other official services.

ANIMAL DISEASE SITUATION IN ALZUHARA AND ALQANAWIS

In addition to the presence of the two major diseases of animals, sheep and goat pox and PPR, parasite infestation is widespread with no control or protection. Many farmers have indicated that there has been rapid spread of screwworm cases in the region. This situation has emerged in recent years due to poor veterinary services and their high cost, lack of extension awareness and the inability of farmers to buy appropriate drugs.

4.3. LOGICAL FRAMEWORK MATRIX

4.3.1. ADAPTATION OF THE DRAFT LOGFRAME AFTER THE FIELD VISITS TO INCREASE FEASIBILITY

Agriculture is the main source of income for family households especially in rural areas. Plant production, particularly cereals, are the main source for food and nutrition security. Keeping of livestock is a second major economic sector for security of Yemeni rural families. Bee keeping is a third sector that provides people with substantial incomes and can be further developed. In the four targeted districts, livestock holders focus on sheep and goats as main source of their income, fattening



the animals for market sale especially during Eid occasions. This source of income is still important although it has significantly decreased due to the crisis

4.3.2. ESTABLISHMENT OF TARGETS FOR OUTCOMES AND OUTPUTS

Farmers, rural peoples and IDPs are the targeted groups. Criteria for selecting the target groups must be clearly defined and delineated to include the most vulnerable households. Clearly defined activities (as outlined in the annexes 4 and 5) are essential to produce outputs for fulfilling the project objectives.

Heads of the villages can help by nomination of villages to be included in the first phase of the project (2017- 2018). Up to 10 villages from each district can be selected up to a maximum total of 40 villages in the first phase.

A total of 60 farmers are proposed to be targeted in the first phase, spread evenly with 15 in each district. Households where a mother is the head of the family are to be included, if present, in the targeted beneficiaries.

4.4. WITH PROJECT SITUATION AND PROJECT IMPLEMENTATION

4.4.1. SELECTED IMPLEMENTING PARTNERS

The following partner are to be included in the project implementation:

In Hajjah governorate:

- Al-Thadamon Social Foundation (annex 2);
- The Hajjah Agricultural Office of the MAI;

In AlHodeidah governorate:

- Abu Musa Al Ashari Social Charitable Association (annex 3);
- Room for Maintenance of Traditional Irrigation Network in Wadi Moor (for activities of maintenance of irrigation network in Alzuhrah district);
- Tihamah Development Authority (TDA)

4.4.2. CAPACITY BUILDING NEEDS FOR THE SELECTED IMPLEMENTING PARTNERS

The following training needs for the partners were raised in the target areas:

- Book keeping
- Financial issues
- Administrative issues
- Grouping of beneficiaries into sectors like Water User Associations (WUAs), Water User Groups (WUGs), Marketing Groups (MGs), etc.

- Conflict management
- Report writing

4.4.3. RECOVERY OF TECHNICAL INFRASTRUCTURE

To assist in recovery of the technical infrastructure it is proposed to pay attention to deferred maintenance of water wells including well reconstruction and covering. Other important infrastructure related to improved development are the construction of roads to fields, water sources and markets. Rehabilitation of rural market sites is an activity proposed to boost recovery and improve the situation of the people in the targeted districts.

Rehabilitation of damaged irrigation infrastructure will be considered a priority where a water supply opportunity or source exists. Improved water supply for production efficiency projects may be provided using low cost technology such as solar panels, or also possibly by implementing cash for work schemes.

4.4.4. MARKET RESEARCH OF AVAILABLE FOOD COMMODITIES (EMERGENCY RESPONSE) AGRICULTURAL EQUIPMENT, SEED, FERTILIZER, PESTICIDE, VETERINARY SERVICES, FEED AND OTHER

Eight markets in the targeted districts were visited and found to be working effectively. A wide range of food commodities were available. Nevertheless, all of the household representatives interviewed reported that although food commodities are available, due to price increases it is very difficult for most households to buy sufficient food for their families.

Even if funds were available at the local level, agricultural equipment is not available for purchase in the visited markets of the four districts (Figure 19). Aid and relief organizations (e.g. FAO), and historically wealthy agricultural investors, buy agricultural equipment on a tender basis from suppliers in the major cities (e.g. Sana'a, Al Hodeidah and Hajjah) and deliver them to farmers.

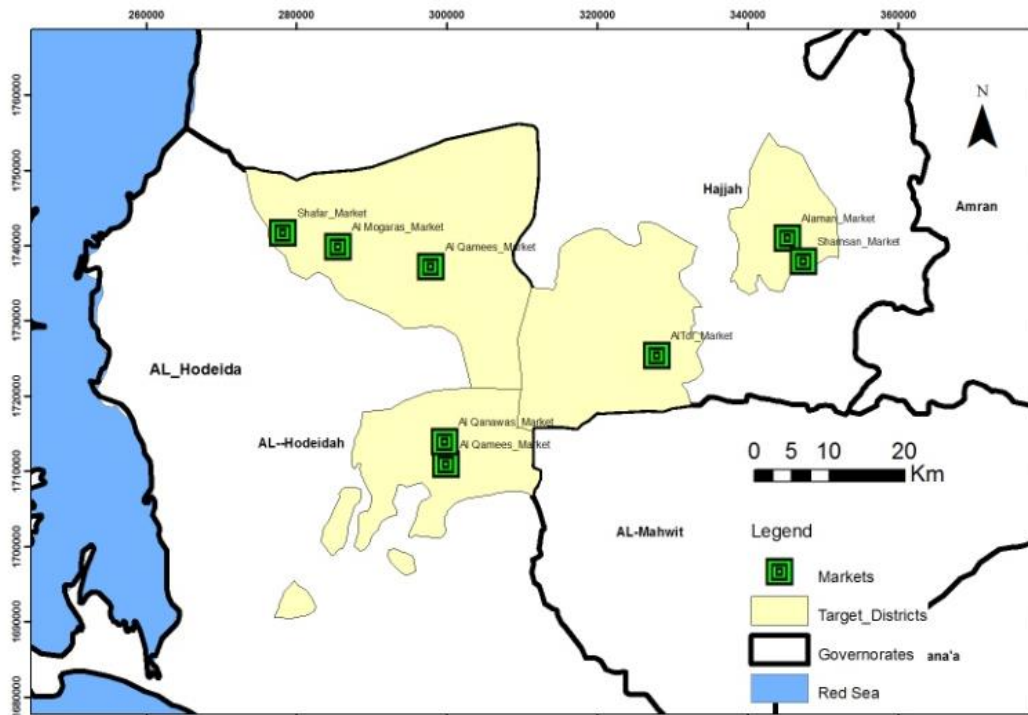


Figure 19: Main markets in the four selected districts

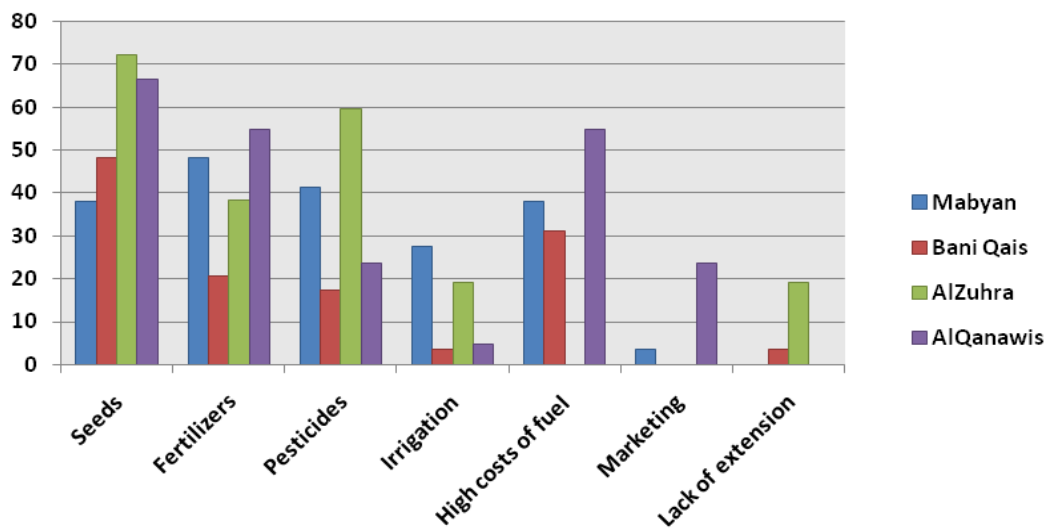


Figure 20: Constraints of current agricultural activities as mentioned by the respondents (Percentage)



Figure 21: AlMuaras Market in AlZuhrah districts

4.4.5. TRAINING NEEDS FOR FARMERS AND FARMER ASSOCIATIONS

Figure 22 reflects the training needs of the farmers as mentioned by the interviewed farmers. An understanding of plant protection, marketing of harvested crops, training in beekeeping, and food processing to add value to production locally are the training courses most desired by farmers.

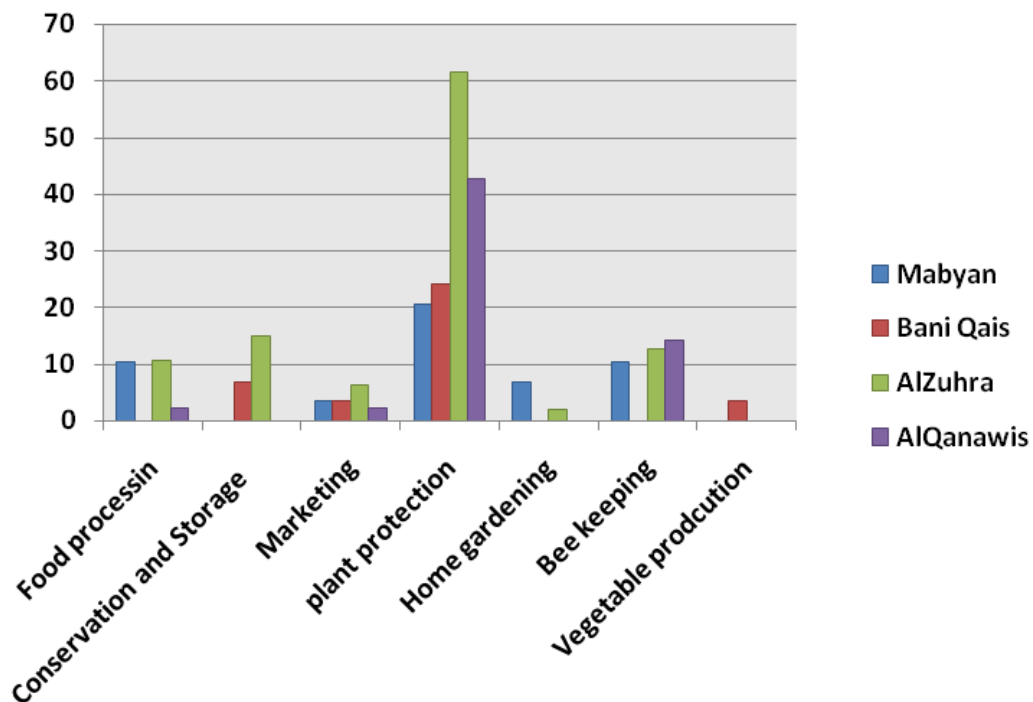


Figure 22: Training needs mentioned by the respondents



4.4.6. IDENTIFICATION OF LABOUR INTENSIVE WORKS TO INCREASE AGRICULTURAL PRODUCTION AND TO INCREASE RESILIENCE WITH A SPECIAL FOCUS ON IWRM MEASURES INCLUDING UNEMPLOYED YOUTH

Annex 4 reflects the proposed activities discussed in interviews with the beneficiaries, project partners and representatives of other development and aid organizations working in Hajjah and Al Hodeidah. Detailed specification of labour intensive work are to be taken in Annex.5.

4.4.7. FEASIBILITY OF FOOD PROCESSING ESPECIALLY DAIRY PRODUCTS, FRUITS AND VEGETABLES

Food processing of dairy products in the four districts is limited to production of traditional fat (samn) and liquid yogurt (laban). These activities are already practiced by all farmers and rural households who have at least one cow, although production is mostly for their own consumption. A very limited number of households bring their production to the market to sell in exchange for other household needs like wheat, sugar, salt, oil, soap etc. Organising, promoting and building groups for dairy product marketing is feasible and may be trialled.

Training the farmers and rural households in the quality management, processing and conservation of tomatoes, peppers and cucumber would be beneficial and add value for nutrition and food security.

4.4.8. MEASURES TO INCREASE DIVERSIFICATION OF AGRICULTURAL PRODUCTION

Seeds selection and distribution of improved hybrid seeds of vegetables and grains are recommended measures for diversification of agricultural production. Adoption of new technologies and provision of small agricultural machines and equipment is necessary to both increase the production and decrease the losses of harvested crops.

4.4.9. HOUSE GARDENS FOR FEMALE HEADED HOUSEHOLDS (FEASIBILITY AND COSTS)

Household gardening is integrally linked to the reduction of malnutrition in low-income families. Home gardening is feasible and targeting household females and unemployed youth to develop their knowledge and skills in producing a garden for all seasons can assist in ensuring food security and provide the possibility of a cash income from surplus produce.

Many daily use vegetables include coriander, mint, turnips, carrots, spinach, okra, cucumber and tomato. These can be integrated into home gardening with little investment of training, time and money provided seed is available. Home gardening ensures chemical free, fresh vegetables available in the immediate community without needing to go to the market.

4.4.10. PROVISION OF SAFE DRINKING WATER THROUGH PROVISION OF WATER FILTERS AND TARGETED HYGIENE PROMOTION

Questionnaire respondents, agricultural heads and specialists at the governorate and districts levels stated that provision of safe drinking water is imperative. In Yemen, good success has been seen in improved water quality resulting in raised human health indicators through the provision of water filters and targeted hygiene promotion programs.

The figure. 23 shows an example of an unhygienic well in one the four targeted districts. Wells in this and poorer condition are widely distributed. Rehabilitation and covering of wells and awareness raising on reasons for keeping well areas clean can assist in ensuring safe drinking water supplies and decrease cases of diarrhea especially among children.



Figure 23: Collecting drinking water from unhygienic wells

4.5. PROJECT IMPACT AND BENEFITS

4.5.1. FINANCIAL AND ECONOMIC ANALYSIS

4.5.1.1. COST-BENEFIT ANALYSIS (CBA)

The envisaged project is assessed as being “highly feasible” given the current miserable conditions of the targeted communities as discussed above. In depth CBA does not seem to be necessary, at least not at this initial stage. Many of the proposed measures are expected to have social benefits driven by relief and humanitarian features, see the discussion of social impacts below.

However, it may be relevant to indicate that alternative measures have been considered at the specific activity level, noted in the list of proposed activities. Possible alternative activities have been considered not only to satisfy CBA aspects,

but more importantly to ensure a high level of flexibility during the implementation phase which is crucial for risk mitigation.

4.5.1.2. SENSITIVITY ANALYSIS

The proposed fields of intervention are in line with local community needs while planned outcomes are designed to meet priority requirements for the targeted societies. This has been verified through the direct sampling survey for the targeted communities and cross checking with other donors and active field operators. Nevertheless, it can be argued that sensitivity concerns may arise from the limited scope of the planned interventions.

Targeting certain social groups within the 4 districts may be sensitive for other groups or nearby locations. This should be considered especially during service delivery processes. It is recommended to conduct introductory workshops prior to project initiation with local stakeholder representatives to explore the aim, scope and limitations of each project, so as to avoid undesired misperceptions of the planned interventions.

Project management should ensure that project interventions are not misused or abused by political players at the local or any other level. From a client point of view, certain issues have to be considered and clarified prior and during the implementation e.g. child labour, gender aspects, and the actual capacity of local implementing partners.

4.5.2. SOCIAL IMPACT ANALYSIS AND GENDER EFFECTS

4.5.2.1. IMPACT ON FARM LEVEL

Farmer will be encouraged to organise themselves and collaborate with the project implementation partners. If farmers are constrained during the implementation of project activities impact on the farm level will be low unless these issues are adequately addressed, except where they are producing for subsistence use,. There is need for innovative ways to deal with organizational issues at the same time as proposed activities are delivered to farmers.

4.5.2.2. OTHER SOCIAL IMPACT

The majority of the targeted communities are made up of rural people, subsistence farmers and their families who have been affected by the ongoing war and its consequences. This project proposes to facilitate the rehabilitation of certain basic services which have been distorted due to the ongoing conflict. Additionally, it is expected that outputs and outcomes of interventions will have significant impacts on



the local communities which now include new families displaced from other regions into the targeted communities.

Some of the planned intervention measures are expected to strengthen market structures. It is anticipated that these may facilitate certain value chains in the agriculture sector leading to increased incomes and employment opportunities in the targeted regions and societies.

4.5.2.3. GENDER EFFECTS

Traditionally, women are considered as the main societal driving force in the targeted rural areas. It obviously follows that implementation of the planned measures with their involvement would have major positive effects on gender balances in both the short and long term.

4.6. ENVIRONMENTAL IMPACT

During implementation, it is advised to make use of accessible techniques to enhance environmental impacts especially when it comes to irrigation and water supply activities. Solar power solutions should be considered as best practice options for power supply in agriculture and for domestic water supply. This would facilitate sustainable development and inclusive businesses over the long term while providing efficient and environmentally friendly solutions over the short and medium term.

4.7. EVALUATION OF RISKS

As mentioned above, a key risk was identified due to the limited scope of intervention planned to provide assistance for the nearly half a million inhabitants of the 4 targeted districts. This risk could be mitigated through better clarification of the project aims and scope with local stakeholders and related partners through an introductory workshop. The risk of misuse of interventions or their funding by political representatives must be mitigated through transparent funding disbursements.

5. CONCLUSIONS AND RECOMENDATIONS

Conclusions

The governmental structures are not completely absence. We met representatives and engineers of the governorate offices of the Ministry of Agriculture and Irrigation (MAI) in both governorates. Nevertheless, lack of running costs and stop of paying the salaries to the governmental employees since several months have led to paralyzing of all official agricultural activities.

Major part of the project targeted community groups are made up of rural people and subsistence farmers including their families who have been affected dramatically by the ongoing war and its consequences. The project is supposed to facilitate rehabilitation of certain basic services which were distorted due to the ongoing conflicts. Additionally, it is expected that outputs and outcomes of interventions would have significant impacts on the local communities including some IDPS families who were disposed from other regions to the targeted communities.

Agriculture and water resources are very important sectors and most people are worried about food and water scarcity due to the ongoing crisis and civil war. Fuel scarcity and the partially absence of government services have added new challenges.

Food security

- Food security remains a critical issue in Yemen. The agriculture sector can provide a large portion of the solution.
- Three indicators have been tested namely, the Food Consumption Score (FCS), the Household Dietary Diversity Score (HDDS) and the Household Hunger Scale (HHS).
- On an average, the surveyed households in Hajjah had a FCS in Mabyan and Bani Qais districts of 28 and 31.7, which are categorized at "poor" and "borderline" levels, respectively.
- Households in AlHodeidah with FCS of 41 and 49.2 in AQanawis and AlZuhrah districts, are laying at the "borderline" and "acceptable" range respectively.
- AlZuhrah is the only district which has good HDDS compare to the other three districts with medium HDDS.
- between 25 and 35% of the interviewed families in the four selected districts have deliberately dropped at least one meal during the four weeks prior the survey.
- Between 13% (district Bani Qais) and 38% (district AlZuhra) family households have reported of diarrhea among their children.

- The main food in all districts are cereals (Wheat, Sorghum, Millets), followed by tubers (manly potatoes) rice and milk. Fish is also main food in the Tihama districts of Bani Qais in Hajjah and AlZuhrah and AlQanawis in Hodeidah due to their proximity to the Red Sea.

Agriculture

- Agriculture is the main source of income for family households especially in rural areas. Plant production, particularly cereals, are the main source for food and nutrition security. Breeding of livestock is the second major economic sector for food and nutrition security of Yemeni rural families. Bee keeping is a third sector which provides people with substantial incomes and can be further developed
- In mountainous area the agricultural plots consists of small terraces. The most areas are rain fed.
- The most important grain cultivated is sorghum, with the grain being used for human consumption and the vegetative parts of the plant used as either green or dry fodder. Therefore, it is the prefer plant for subsistence farmers.
- In general subsistence farmers suffer from the lack of association formation, poor access to improved inputs and have limited marketing channels for their surplus production.
- Improved seeds, fertilizers, pesticides and cultivation techniques are all needed to improve productivity.
- Fertilizers is generally not used in sorguhm production with exception of organic manure.
- Both in the highland and coastal plains the lands are owned by large land holders, and small farmers are interspersed among large farmers.
- Many of the landless poor find work on large commercial farmers.

Livestock

- Livestock is critical part of the agriculture sector in Yemen.
- The vast majority farmers and rural people have some livestock resources and may rely on live stock as a saving account, as animal are sold as money is needed.
- Households consume livestock products such as eggs and milk which account for an important food sources.
- Improvement in livestock production for small farmers can play a significant role in the food security of rural households through increased consumption of livestock products and increased income through sale of animals and dairy products.
- Much of Yemen livestock sector is dependant on natural forage in rangelands.

- Rangelands forage are over exploited which could lead to desertification and reduction of available of forage for livestock producers.
- Rehabilitation of rangelands may also require the rehabilitation or new establishments of nurseries for forage plants (e.g Bani Qais nursery). This is a key activity to help rural livestock owners to maintain or expand their herds.

Market

- Eight markets have been visited in the four districts.
- All kinds of food commodities are available in the markets. Nevertheless, all interviewed households have reported that prices of food have been increased tragedy that although availability of food commodities in the market it is very difficult to the most households to buy enough food for their families.
- Agricultural equipments are not available in the most visited markets of the four districts. Therefore, aid and relief organizations (e.g. FAO) buy agricultural equipments from the big cities (Sana'a, AlHodeidah and Hajjah) in tender basis and deliver these to farmers.
- Some planned intervention measures are expected to strengthen market structures which could facilitate certain value chains in agriculture sector that can lead to increased incomes and employment opportunities for youths in the targeted regions and societies.

Recommendations

Food security

- As the Indicators of the FCS and HDDS have been shown that in the two surveyed subdistricts of AlZuhrah in the governorate of AlHodeidah are laying in the acceptable range compare to all other subdistricts with results of poor or borderline levels, we recommend to work in other subdistricts of AlZuhrah.
- Additional intensive baseline survey is also needed to be conducted at the beginning of the project implementation in all districts to include other indicators like Individual Dietary Diversity Score (IDDS), the Minimum Acceptable Diet (MAD) for woman and small children (6 to 23 months) as well as the Food Insecurity Experience Scale (FIES).

Agriculture

For small scale farmers

- Farmer should be encouraged to organise themselves and collaborate with the project implementation partners. If farmers are constrained in

implementation of project activities, impact on farm level will be low (except if they are producing for subsistence use), unless these issues are adequately addressed.

- Support cereal production by rehabilitating the seed production and distribution systems along with the provision of other required agricultural inputs.
- Support diversification of production, including the provision of agricultural inputs such as plastic sheets for greenhouses and diversification to other cash crops to increase household income (herbs and spices, beekeeping, etc.).
- Increase support for backyard vegetable and poultry production through distribution of quality seeds and chicks.
- Establish agriculture based micro enterprises in rural areas.
- Establish village based private seed production and distribution centers to supplement the Limited public distribution.
- Seeds selection and distribution of improved hydride seeds of vegetables and grain are the most recommended measures for diversification of agricultural production. Adoption of new technologies and agricultural small machines and equipments is necessary to increase the production and decrease losses of harvested crops.
- Home gardening is feasible to direct targeting household female and unemployed youth to develop their knowledge and skills in producing a garden for all seasons, thus ensuring food security and a possibility of a cash income from surplus produce.

For livestock breeders

- Provide livestock producers with fodder, animal assets, vaccines and regular veterinary drugs.
- Train livestock holders in home processing of milk for cheese, yoghurt and other dairy products in selected areas, particularly where access to other markets is difficult, to provide income generating opportunities and improve local diets.
- Support honey production to improve livelihood in rural areas through introduction of modern beekeeping and honey production technologies.
- Introduce of training courses for rural farmers including women, working in animal husbandry, develop their awareness regarding animal and honey production opportunities and involve them in small business development through organizing of production and marketing comities and through provision of affordable (low interest) loans.
- Training of selected livestock breeders to give them the necessary skills to work in field to animal health, production, nitraton and extension services in their communities.



- Expansion in the distribution of animals (goats, sheep), bee colonies for poor people.
- Training and use of community animal health workers.

Water and irrigation

- Rehabilitate damaged irrigation infrastructure and improve water for production efficiency through low cost technology (solar panels and others), possibly by implementing cash for work schemes.
- Construction and Rehabilitation of cisterns for provision of potable water in combination with silver filters.
- The water is the most reason for conflicts therefore, it is better to involve local authorities including high rangig people like AQel/Shaik in the implimenation of the water relating activities.
- There are high needs to support women and girls to reduce the pressure over their heads due to water collection and other household responsibilities.
- Rehabilitation and covering of the wells ensure safe drink water to the households and decrease cases of diarrhea especially among children.
- Traditionally, women are considered as the main driving force in the targeted rural areas (including the 4 selected districts). Therefore, it is obvious that planned measures would have major positive effects on gender balances in the short and long terms.
- In the high land areas it is suitable to providing the farmers with Greenhouses equipped with modern irrigation system include small poster pump (2.5 KW), and small low cost water harvesting reservoir with 150 M3 capacity and small Solar power to operate the irrigation system and operate the Fans in the Greenhouse to reduced the Humidity in the hot time.
- In the low land the agricultural land are big and consumed a huge amount of water, so the introduction of modern irrigation technologies to pilot communities farmers with Modern Irrigation system (drip Irrigation system) for about 10 ha to irrigate vegetables. Average farm size is about one Hectare (to targeted the poor farmers). Also it is recommended to introduce to the farmers with Conveyance pipe systems to save about 20 % from the irrigated water amount . The area covered with this system is about 50 ha.



Annexes

- Annex 1: Questionnaires translated from the Arabic
- Annex 2: Hajja partner Social Solidarity Foundation for Development (Tadhamon)
- Annex 3: Hudaidah partner Abu Musa Al Ashari Social Charitable Association
- Annex 4: Proposed activities
- Annex 5: Specification and some details for the proposed cash for works
- Annex 6: list of key persons met