



Water Sector Programme Yemen

Component 5: Support to Local Actors in Water Scarce Regions for Sustainable Management of Water Resources on Community Level

Technical Report: Target Group Survey and Analysis Four Selected Districts in Amran Governorate May 2008

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**Water Sector Programme Yemen
Component 5:
Support to Local Actors in Water Scarce Regions for
Sustainable Management of Water Resources on
Community Level**

**Technical Report:
Target Group Survey and Analysis
Four Selected Districts in Amran Governorate
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NOTE

This report is an English translation and abridgement of the Arabic original report. While the structure and content of the report is in general agreement with the original, the section dealing with statistical analysis of data and the annexes containing the data are not presented here.

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List of Abbreviations

CARE International	World's Largest Private Non-Profit Humanitarian Organisation
CBO	Community-Based Organisation
GDP	Gross Domestic Product
GFA	GFA Consulting Group
GTZ	German Development Cooperation
ha	Hectare
L.C.	Local Council
MoLA	Ministry of Local Administration
MSAL	Ministry of Social Affairs and Labour
MWE	Ministry of Water and Environment
NGO	Non-Governmental Organisation
NWRA	National Water Resources Authority
PRA	Participatory Rural Appraisal
USD	United States Dollars

1 INTRODUCTION

The project “Community-based Water Use in Water Scarce Areas of Amran Governorate” is one of the five components within the Yemeni German Water Sector Programme “Institutional Development of the Water Sector” agreed upon between the Government of the Federal Republic of Germany and the Government of the Republic of Yemen.

Details of the programme are laid down in the implementation agreement between the German Technical Cooperation (GTZ) and the Ministry of Local Administration (MoLA) that was signed in Sana’a on 4th June 2007. The mentioned implementation agreement covers the first phase of the programme, which is scheduled for a total period of two years (2007 – 2009).

GTZ as the project-implementing organisation contracted the Consulting Consortium “GFA Consulting Group – Otterwasser – Ghayth Aquatech” for the execution of this programme component. The Consultant started the project implementation on 7th September 2007. The project implementation period is scheduled for a period of 22 months.

The overall objective of the project is to provide assistance to the governorate and district administration including the regional representation of NWRA as well as non-governmental stakeholders (user groups, NGOs) in water scarce areas of Amran governorate in developing and implementing models for an improved development / utilisation of water resources based on a participatory approach. Small pilot water and/or sanitation investment and management projects shall be supported and implemented through local subsidies.

The target group survey was executed by the project team in order to obtain information about project target groups and beneficiaries. This survey and analysis was conducted for households, women’s groups, water users associations, community based organisations (CBOs), community representatives, local councils, and farmers of local communities selected from four districts of Amran Governorate: Dhi Bin, Khamer, Kharef, and Al Soudah.

This survey is considered as one core activity where target group analysis findings would be presented as reference for the project's future activities and as a baseline to be considered in future monitoring and evaluation procedures.

The survey was kindly supported by the GTZ Water Sector Programme Leader, Mr Jochen Renger and the Governor of Amran, H.E. Mr Noa’man Douayed.

2 BACKGROUND

2.1 Amran Governorate

The Amran Governorate was established as a separate governorate in 1998 when Sana'a governorate was split. It includes 20 districts and is located in the north-central highlands of the Republic of Yemen. It is bounded by five other governorates: Sana'a to the south, Jawf and Saada to the east and north, Hajja to the west, and Mahwit to the southwest. The governorate capital is Amran City, which is some 56 kilometres north of the national capital Sana'a City. Amran governorate has an area of 7,588 square kilometres (km²); with a total population of 873,000 (4.4% of Yemen total population based on 2004 statistical information).

Amran governorate scores as either first or second poorest governorate depending on the statistics used, with 65% of the population categorised as poor. The gross domestic product per capita per year (GDP) is 15,766 Yemeni Riyals (approximately USD 75). The governorate depends economically on agriculture, industry and some tourism. Agriculture is considered the primary economic activity with the main crops planted being: cereals, vegetables, fruits and some coffee. Qat has also a growing part in the agricultural sector with new planting on margins of agricultural areas and in the highlands. Some farmers also raise animals and livestock (sheep, and cows).

The labour force (>15 years old) is listed as 25.4% of the population with 68% in agriculture, 8.6% in industry and 23.4% in services. Wage labour covers a further 26.4% of the population with 1.4% being female. Public sector employees comprise 4.1% (0.3% females). Official unemployment rates (>15 years old) are 8.8% for males and 1.7% for females.

Basic literacy level, reading and writing, is 55.8% for the urban population in Amran governorate, while it reaches 41.8% in the rural areas. The average percentage of youth joining schools (elementary / secondary) is 52.5% (27.8% for females).

Rain falls predominantly in the summer season with an average rainfall of 250 - 300 mm per year. This rainfall is higher in the mountainous western parts of the governorate decreasing significantly to the east. Rains also fall in the winter season but in limited and rare situations.

Records indicate only 20% of the governorate population gets safe water, decreasing to 12% in the rural areas. Approximately 2.2% receive water-based sanitation services. In the rural areas only 16% have any form of sanitation, while in the urban areas 70% of the total population lacks this service.

Health services are available at a rate of 1.1 doctors, 1.1 patient beds and 0.9 health units for every 10,000 persons. Paved road services are present at 0.0002 km per capita.

2.2 Selected Districts

The project selected four districts in Amran governorate as its project site of implementation. Selection criteria included the following:

- Poverty considerations: Districts that suffer poverty and lack of facilities;
- Education & literacy considerations: Priority was given to districts that pose high literacy level particularly among young girls' categories;
- Water services / projects availability: Water sources and sanitation services availability (water quantity & quality). Communities suffer drinking water deficiency. Water quality was considered;
- Demography related measures: Special interest was given to population intense districts and gender issues;
- Sustainability consideration: Measures of successfulness and sustainability are also considered.

2.2.1 Dhi Bin District

Located on the eastern border of the governorate, Dhi Bin District has its centre in Dhi Bin City, (37 km from the city of Amran). Its area is 265 km² divided into 8 uzlas containing 62 villages. Its estimated population is 46,074 inhabitants (23,091 males and 22,983 females). Average household size equals 9.21. The district consists of 4,999 households that live in 4,877 houses. The population density is 174 individuals per km², however as population is clustered in villages this average of density is an under-estimate. Dhi Bin district is considered one of the most famous areas for grape production in addition to other crops.

2.2.2 Khamer District

Khamer City is the capital of the district with the same name and is located 50 km northeast of Amran city. Its area is 480 km² divided into 5 uzlas with 133 villages. Its population is estimated at 73,148 (37,200 males and 35,948 females). The 8,970 households live in 8,329 houses with the average household size being 8.15 persons giving a population density of 151 per km². The district contains various fertile agricultural valleys with famous springs such as the Al Hamam spring located in Asman Valley.

2.2.3 Kharef District

Kharef district is located east of Amran city, south of Khamer and west of Dhi Bin. Total area is 334 km², divided into three uzlas with 70 villages. Population estimates are 29,805 (15,203 males and 14,602 females) comprised of 4,352 households living in 3,311 houses. Average household size is 6.84. The population density is 87 per km².

2.2.4 Al Soudah District

Located north of Amran city is Al Soudah centred on Al Soudah city some 48 km from Amran city. Its area is 299 km² divided into 4 uzlas with 62 villages. Its total population is estimated at 32,898 (16,477 males and 16,421 females) with 3,814 households that are living in 3,367 houses. The average household size is 8.62 persons and the population density is 190 per km².

3 SURVEY OBJECTIVES AND RESOURCING

3.1 Objectives

The objectives of the target group survey were to use participatory appraisal techniques to obtain the data for the following items:

- To obtain information on local communities socio-economic needs and water related priorities;
- To obtain input from community groups on the above mentioned needs and priorities;
- To exchange information and lessons learned with other projects serving the selected districts;
- To discuss with local communities on water management and sanitation issues, models, timing and procedures;
- To identify opportunities to enhance local communities / women’s participation in associations and create supportive local teams;
- To open discussions and increase coordination / cooperation among various stakeholders and build consensus.

3.2 Survey Team

The survey team comprised a total of 16 persons being:

- Dr. Khaled Al-Odyni, Socio-economics Professor at the University of Sana’a;
- Ms. Ruby Assad, Community-based Water Use Project;
- 7 female and 6 male enumerators.

Females	Males
Amat Salam Babli	Amin Daham
Esharg Gouhali	Esam Ahmad Kawkabani
Ekbal Quhali	Mohammed Hashem Robo’
Badreieha Shash	Mohamed Jaber Abraki
Ferdous Saleh Reemi	Mohammed Ali Gherasi
Jameela Ali Gherasi	Usama Mansour Babli
Nawal Yehia Mefereh	

At the end of the survey team feedback and evaluation forms were completed and analysed. The team learned that it gained the following skills and awareness:

Empowerment

Knowledge is power. Knowledge arises from the process, and the results of the survey will, through participation, come to be shared with and owned

by local people. New local confidence is generated, or reinforced, regarding the validity of their knowledge.

Respect

The process transforms team members into learners and listeners, respecting local intellectual and analytical capabilities.

Localization

The extensive and creative use of local understanding encourages sharing and avoids imposing external ideas.

Inclusiveness

Enhanced sensitivity to purposely include information about marginal and vulnerable groups, women, children, the aged and destitute.

3.3 Survey Duration

The survey was undertaken within the project time constraints and the knowledge that future project activities were dependent on its successful and timely completion. In total the survey covered a period of 37 working days, some of which included weekends. The breakdown of time was as follows:

Days	Activity
5 days	Survey designing and preparation
4 days	Survey introduction and field preparation
2 days	Team orientation and training
18 days	Field survey (daily from 0700 until 1800 hours)
4 days	Data entry
4 days	Information analysis and report writing

3.4 Survey Fields of Interest

The survey through its questionnaire meetings and other focus group sessions tried to cover and gain information on the following topics:

- General information and background on the community participating including socio-economic status and with special focus on the educational status of female members and girls;
- The main priorities of infrastructure services needed for the community;
- Women’s interest in group and CBO formation for water related issues, literacy classes and revolving grant funds;
- Awareness of water management and water sanitation issues (water source, water collecting, quantities, water usage, and other issues);
- Proposed water supply and sanitation solutions by local communities (where, how, when, why, etc.) including community readiness for contribution (in kind, financial, others);

Community-Based Water Resources Management, Yemen

- Communities' responsibilities toward water services (rights and responsibilities);
- Relationship between water quality, water issues and sanitation methods used by the local communities and diseases affecting the community;
- Gender related questions on women's participation in public life.

4 SURVEY APPROACH AND METHODOLOGY

While designing the survey, the project tried to have a complementary use of two main approaches, seeking to obtain both qualitative and quantitative data.

4.1 Participatory Approach

Use of a standard methodology (e.g. PRA) provides in-depth understanding of the situation (e.g. water / socio-economic) of selected communities and enables the project to gain qualitative information using check lists, observation, semi-structured interviews, triangulation, key informants and community representative meetings.

This methodology pays a special attention on building group and team dynamics that is able to work closely with local people, approach a situation from multiple perspectives and negotiate with relevant stakeholders.

The team of enumerators from Amran governorate was interviewed, selected, and trained on the use of informal, semi-structured interviews and how to use their own senses (such as direct visual notices and indirect questions) to get the information needed. Some feedback sessions were executed to double-check the results and findings.

To ensure that multiple perspectives are represented, sampling received special consideration in this survey methodology including those from the poorest and most disadvantaged sectors of the community. However representative mechanisms may be an inadequate reflection of community diversity. These have proved instructive for crosschecking that the perspectives of the many different constituencies have been included within the sample frame.

The following points were carefully measured and adopted in this survey methodology:

- Trust building: to construct rapport and understanding between the stakeholders and keeps the team members open to multiple perspectives, knowledge and influences;
- Ensuring that the perspectives and realities of the intended beneficiaries of the project are accurately reflected in the evaluation;
- Allowing the different stakeholders, and especially those whose voice may be marginalized, to articulate and present their needs, interests and expectations, to work through differences with others, and to develop longer term strategies.

4.2 Formal Survey

Formal surveying of a sample population is a methodology that provides quantitative information to back up information discovered through the in-depth data collection methods. A questionnaire was developed and tested by the project experts in cooperation with a socio-economist from Sana'a University. Such expertise was crucial to identify and select variables and indicators that are in corporation with study objectives. Three unique questionnaires were developed to collect data from households, farmers, and focus groups.

Based on statistical parameters a sample size of 506 questionnaires was collected; 389 for households (women and men were interviewed) and 117 for farmers. Table 1 illustrates the number and ratio of interviewed households, while Table 2 presents the distribution of farmers interviewed.

Table (1): Households Distribution in Selected Districts and Uzlas

District	Number	%	Uzla	Number	%
Dheibin	129	33.2	Merhebeh	60	15.4
			Bani Jaber	69	17.7
Kharef	57	14.7	Khamis Gafi	25	6.4
			Khamis Harmal	32	8.2
			Thaher	104	26.7
Khamer	183	47.0	Gerban	17	4.4
			Gheshem	62	15.9
Soudah	20	5.1	Ibn Ohkom	18	4.6
			Nasher	2	0.5
Total	389	100	Total	389	100

Source: Households Sample

Table (2): Farmers Distribution in Selected Districts and Uzlas

District	Number	%	Uzla	Number	%
Dhebin	38	32.5	Merhebah	20	17.1
			Bani Jaber	18	15.4
Kharef	17	14.5	Khamis Gafi	7	6.0
			Khamis Hrmal	10	8.5
			Thaher	25	21.4
Khamer	56	47.9	Gherban	6	5.1
			Gheshem	25	21.4
Soudah	6	5.1	Ibn Ohkom	6	5.1
			Nasher	0	0.0
Total	117	100	Total	117	100

The most important issues considered while implementing the survey were:

Participation

Opening up the design of the process to include those most directly affected and giving the intended beneficiaries the chance to speak out about their life conditions focusing on water and sanitation services.

Negotiation

Between the project staff and local communities to reach agreement about what kind of projects could be implemented and how to make them most sustainable, who could manage the activity and how should it be implemented.

Learning

A focus on cumulative learning by all the participants as the basis for subsequent improvement and sustained action. This action includes local project staff.

Flexibility

In adapting the project plans and implementation steps to the wider external environment and to the set of local conditions and actors, as these factors change over time.

5 FIELD SURVEY PROGRESS

5.1 Dhi Bin District

In Dhi Bin two uzlas were chosen (Merhebeh and Bani-Jaber). 41 villages were selected (11 in Merhebeh uzla and 29 in Bani-Jaber). The total sample size was 129 interviews (98 women, 31 men and 38 farmers). The villages are listed below:

Merhebeh	Bani Jaber
Al Hejrah	Bait El Gharnat
Kulat Al Jaeish	Al Eglal
Dathan	Al Rawna
Dabah	Bait Sulayman
Tahtha	Bani Azeer
AL Kheysien	Al Heiat
Aram	Mahda
Al Kasad	Bait Shalwan
Hunaieyesh	Sahma
Kharfan	Bait Maresh
Kohol	Bait Daghar
Sawlan	Bait Abu Monassar
	Batan
	Ghoula
	Majzar
	Wadeideh
	Jader
	Soudan
	Khada'
	Bait Azei
	Aragha
	Yanour
	Belsen
	Drayb
	Theibin
	Darb Haddan
	Dala'
	Bani Zaydan

Dhi Bin Local Council was met before field survey implementation. Project goal and objectives were introduced to the council as well as survey aim and main concept. The Council was generous enough to nominate one of its members to join the team in the field and guide it to the locations. The team covered the survey mission in Dhi Bin district within 5 continuous working days. Two sheikhs and one akel were interviewed. One women group focus meeting session was executed.

5.2 Kharef District

In Kharef two uzlas were chosen (Khamis Gafi and Khamis Harmal). 17 villages were selected (9 in Khamis Gafi uzla and 8 in Khamis Harmal). The total sample size was 57 interviews (38 women, 18 men and 17 farmers). Kharef Local Council was met before field survey implementation. The villages are listed below:

Khamis Gafi	Khamis Harmal
Bait Al Hathar	Bait Taher
Yana'a	Droub
Ghowara	Samneh
Souda	Demneh
Najed	Bait Jarba
Bait Sharif	Ghoulet Harmal
Thobar Kanet	Eben Hajeb
Bait Hajeira	Swat

Project goal and objectives were introduced to the council as well as survey aim and main concept. The Council was generous enough to nominate one of its members to join the team in the field and guide it to the locations. The team covered the survey mission in Kharef district within 4 continuous working days. Two sheikhs and two akels were interviewed. One women's NGO and one men's NGO were interviewed. One women group focus meeting session was executed.

5.3 Khamer District

In Khamer three uzlas were chosen (Ghashem & Gharban and AL Thaher). 32 villages were selected (10 in Ghashem uzla, 6 in Gharban, and 16 in Al Thaher). The total sample size was 183 interviews (144 women, 39 men and 56 farmers). The villages are listed below:

Al Thaher Uzla	Gherban Uzla	Ghashem Uzla
Darb Ras	Sabha	Afri
Delwan	Mawajel	Bait Abu Hadaseh
Bait El Anz	Natheer	Al Habeileh
Ayyaneh	Azan	Hujarat El Jabal
Oughayli	Ghasaba	Faseireh
Bait Akhram	Wakfah	Al Nayef
Mushayje		Al Enwah
Bait Abdulrahman		Hujarat Al Azei
Athrat		Al Makass
Bait Al Ermeza		Al Musayjed
Bait Al Wada'i		
Bait Al Mashreghi		
Bait Al Husam		
Baslan		
Khamer		
Yashei		

Khamer Local Council was met before field survey implementation. Project goal and objectives were introduced to the council as well as survey aim and main concept. The Council was generous enough to nominate two of local community members to join the team in the field and guide it to the locations. The team covered the survey mission in Khamer district within 4 continuous working days. Two sheikhs and two akels were interviewed. One women’s NGO representative was interviewed. One women group focus meeting session was executed.

5.4 Soudah District

In Soudah two uzlas were chosen (Ibn Ahkam and Nasher). Three villages were selected (2 in Nasher uzla and 1 in Ibn Ahkam). The total sample size was 20 interviews (19 women, 1 man and 6 farmers). The villages are listed below:

Ibn Ahkam	Nasher
Souda Centre Atad	Al Akhwa Al Khoff

The Head of Soudah Local Council was met twice before the field survey started. Project goal and objectives were introduced to him and some community leaders (head of policy authorities, director of civil services and director of health centre) as well as survey aim and main concept. The head of the Council was generous enough to nominate one of the community members to join the team in the field and guide it to the locations. The team covered the survey mission in Soudah district within 3 continuous working days. One sheikh was interviewed. One local NGO (CARE International) representative was interviewed. One women group focus meeting session was carried out.

6 ANALYSIS AND FINDINGS

6.1 Basic Statistics

Basic statistical information collected during the survey confirmed many of the national and governorate statistics.

Literacy and Education

66.3% of the respondents are illiterate (30.3% males and 77% females) while 10.8% can read and write (21.3% males and 7.7% females), 9% have an elementary education level, 0.3% a secondary one, 4.4% a diploma before secondary, 2.3% a diploma after secondary, and 6.9 % a university level.

Among the mothers, 80.5% are illiterate while 11.6% can read and write to a basic level. This group attained to elementary education (4.1%), secondary education (2.3%) and university (1.5%).

Main reasons preventing females from completing their basic education are (listed in order of importance):

- Schools far distance from the house;
- Helping the mother in house work;
- Family unawareness regarding education;
- Low income;
- Water fetching;
- Lack of separate female schools.

Income and Employment

Surveys indicated household financial status as:

- 35.7% poor (own no land, have unstable / seasonal income, own limited furniture facilities, with no electrical equipment);
- 48.9% medium (have stable income e.g. officers or in the army, possess some electrical devices such as television and washing machine, own a piece of land);
- 15.7% rich.

Main employment categories were:

- 32.9% farmer,
- 20.1% public officer,
- 26.2% labourer,
- 14.4% in the army forces,
- 5.4% trader.

Home ownership is common with 92.8% of the sample owning their own houses while 3.3% rent them, 2.3% live in religious endowment houses (waqf), and 1.5% in other settings.

House construction is matched to availability of materials and some comparison with poverty: 40.6% of the respondent houses are constructed from stone, 31.6% from stone/cement, 12.6% from stone/block, 7.7% from concrete cement, 4.4% from bardin block (baked clay bricks), 1.8% from mud blocks and 1.3% others.

Services

Households ranked the most needed services as (listed in order of importance):

- Water,
- Literacy classes for women,
- Small loans,
- Electricity,
- Health services,
- Water and sanitation,
- Roads,
- Education,
- Garbage collection services.

6.2 Water Issues

Water Supply

The main water supply for 23.1% of the households is surface water (cisterns / springs), 22.1% on ordinary hand-dug wells, 13.4% artesian well, 8% wells constructed by the government, 7.7% wells constructed by the government plus buying water, 18.5% buying water, and 7.2% from dams.

76.1% of the houses are not connected to any water network, 8.2% were connected and now disconnected, and 15.7% are connected to an existing water network (In Dhi Bin / Bani-Jaber uzla households are connected to private wells; in Khamer / Al Thaher uzla households are connected to public network).

Water collection is primarily women's work with:

- 42.6% of the households dependent on women in fetching water,
- 28.6% on girls,
- 8.6% depend on men,
- 11.4% on boys,
- While 9% have their own system.

Households reported that the women normally go to fetch water with 43.5% more than three times per day, 30.4% more than six times per day, while 26.1% said once to twice daily from the source.

Distance to source is measured in time taken and respondents travel:

- 41.9% less than half hour from the source to their houses,
- 28.7% from half an hour to one hour,
- 20.1% from one hour to two hours,
- and 9.3% two or more hours to bring water from the source.

49.1% of the households fetch water by carrying it (on heads or by hands), while 31.4% use donkeys, and 19.5% by cars. Commonly available container sizes for persons / donkeys range between 10 and 20 litres while vehicle tankers are between 1,000 litres and 10,000 litres.

A number of respondents indicated that fetching water from the source causes them problems including:

- 38.7% physical problems (especially when holding the bucket up on woman's head or on the donkey and due to rugged road);
- 26.7% said it causes them psychological problems;
- 23.6% consider it risky (especially for pregnant women, because of crowding, demand by other women, fights among women, and when dragging the bucket up from the source - especially wells and cisterns),
- and 11% face other difficulties.

Water Use

Responses indicate that household water use (which may exclude use for household animals) ranges as follows:

- 26.2% use less than 40 litres per day,
- 13.1% use 40 to 100 litres per day,
- 60.7% of the households use more than 100 litres per day.

It is common to have more than one family group per household or home (for example in one house we found two parents, four sons and their families a total of between 20 and 36 persons). In such situations, they share most resources (food, house). However, water and its collection are the responsibility of the individual family groups. A woman responsible for cooking for all family groups on any one day is responsible of the collection of all water used in the kitchen. This additional water quantity could be as much as 40-70 litres.

Water carried to homes is used for:

- 65.6% cooking, washing clothes, hand washing, house cleaning, etc.,
- 17.4% drinking water for animals,
- 17% for bathing.

63.8% of the respondent indicated that the water quantity that they are getting is insufficient, 16.5% said it is barely enough, while 19.8% said it is sufficient.

The reasons given for not having sufficient water were:

- 41.1% water scarcity,
- 33.5% due to financial incapability,
- 19% bad distribution,
- 6.3% had other reasons.

Water Services and Potential Projects

88.8% of the respondents stated that they strongly agree that there is a need for water services improvement, 6.3% agree, and 4.8 disagree.

42.1% of the respondent households asked for any water project to be implemented to cover their water deficiency need, 29.2% asked for digging a well, 9.5% need to improve their existing well, 5.8% need to improve their existing water project, 3.2% asked for expanding their current water source, 2% to connect their houses with their water source, and 8.1% asked for water harvesting cisterns.

Respondents were aware that water projects alter the status quo. 61% of the households expect that if a water project is implemented in their villages their water consumption will increase, 14.2% expect that the water quality will improve, 15.5% expect that the water will be available throughout the year, 14.2% expect more time will be saved, 14.4% expect efforts will be saved, 8.4% expect water costs will be reduced, 12.7% expect reduction in diseases will occur, 4.5% expect other benefits.

73.8% of the households offered their financial and in-kind contribution for any future water project, 12.3% only in-kind contribution, 5.7% stated they cannot contribute, 5.1% indicated that their contribution depends on their capabilities, 3.1% said they will follow the community opinion.

82.8% of water sources have management committees. Although the committees theoretically exist, they perform no actual practical work. Their duties are limited to assigning a well operator and a guard. It's a one man's job where a person would have to collect water fees and guard the water pump. 17.2% have no water management committees at all.

32.5% of water management committees were appointed by the government, 31.3% elected by local beneficiaries, 23.8% selected upon all beneficiaries, and 12.5% through other procedures.

29.3% of water resource beneficiaries stated that the main role of a water source management committee should be limited to well operation. 26.6% stated that it should be limited to collecting operational fees. 24.5% stated that it should be limited to maintaining and fixing technical difficulties. 9.0% stated that it should be limited to guarding and maintaining the well site. 5.3% stated that it should be limited to reporting to the responsible committee and 5.3% stated that it should be limited to raising the beneficiaries' awareness.

38.3% of water source beneficiaries are fully satisfied with current water source management committees, 30.9% were unsatisfied, 13.8% accept current committees' performance, and 17.0% have no comments.

25.9% demanded future water source committee's main duty would be increasing water allocations, 22.6% demanded a decrease in water consumption fees, 21.6% expected an increasing in the time of water provision, 16.6% encourage women's participation in such committees, and 13.4% expected educating and raising the awareness of beneficiaries.

26% of people suggest that future project water source management committees should be a team of one or more institutions and parties. 17.8% suggested the committee to consist of sheikhs and village representatives, 14.4% suggested it being from a local council, 12.1% suggested an elected committee, 9.6% suggested a foreign donor, 8.8% suggested a governmental committee, 5.4% suggested the local community based organisation, 5.1% suggested appointing a person who is responsible and cares enough about the project, and 0.8% suggested a contractor.

28.9% suggest that paying fees is mainly the consumers responsibility to cover all of management and maintenance activities, 21% suggest being responsible for maintenance and technical problems, 21.2% suggested being responsible for keeping the site clean, 19.9% suggested being responsible for reporting to related authorities.

Water Awareness and Future Perspective

66.6% are sure that water supplies will dry soon in the coming future, 18.0% do not think water sources will dry in the future, and 15.4% know nothing about this issue.

42.3% believe that water deficiency problems is due to low rainfall, 23.0% believe that it is due to the intensive use of water for irrigation purposes, 17.7% believe that its due to the lack of management and awareness usage in households.

35.9% believe that house water reuse is the best measure to preserve water source, 20.7% believe that in all aspects of life, water is to be used in the most efficient way possible, 16.5% believe in recycling irrigation water, and 27% through using various other measures.

53.7% believe that scarce water resources are the main factor that obliges households to use water in a most efficient way, 27.3% because fetching water is a very hard task, and 19.0% to decrease households expenses.

Water Services and Quality Satisfaction

64.3% are completely not satisfied with water in general, 29.7% relatively satisfied (no other option), and 6% are fully satisfied.

40.4% are unsatisfied of water quality, 39.3% relatively satisfied (no other option), 20.3% are satisfied.

28.9 refer their dissatisfaction with the water quality to the bad taste of water, 25.7% being a source of diseases, 21.1% say water is dirty, 15.1% it has bad odour and 9.2% others.

Water Sanitation Services

52.7% of interviewed households are connected to certain sanitation measure. 47.3% have no sanitation service.

43.4% out of the connected houses (with sanitation measures) use cesspits, 38.5% use pipes to outdoors, 14% open dry plots, and 4.1% are connected to public sanitation services.

55.6% of the households use the outdoors and open areas as alternative for toilets, 29.8% use more than one alternative (outdoors, public places, mosques), 7.6% use mosques, and 7.1% others.

Out of the households that do have sanitation facilities, 52.4% use Turkish toilets (squatting), 28% use hole toilets, and 19.6% do not have toilets for defecation and just use their washing place for urination.

37.8% of households are unsatisfied with current sanitation services they have, 35.2% relatively satisfied while 27% are completely satisfied.

After asking households why they are unsatisfied or relatively satisfied with the sanitation services they use, 31.8% stated because it brings them insects, 20.2% it produces bad odour, 19.5% it is source of diseases, 8.8% it causes disputes with neighbours, 8.2% it floats on roads, 6.3% it causes destruction of the houses, and 5.1% because of different other reasons.

Garbage Collection Services

97% of the households throw the garbage on roads, or anywhere outside their houses. They do the same with their children napkins. There are no public services like containers for such purpose.

During the feasts, people on community level collect the garbage and burn it (they call it Feast-Fountain).

Garbage collection issues are considered women's and young girls' responsibility.

Garbage that accumulates on roads or outside the houses consists mainly of plastic bags, which are used for buying Qat.

Community-Based Organisations

During the survey a special focus was put on CBOs availability and work; it was noticed that various CBOs were established (mainly in 2005) by CARE International with the purpose of women development and empowerment. Most of such CBOs are inactive or not functioning anymore.

All of CBOs established by CARE are registered under the umbrella of the Ministry of Social Development & Labour with income generating activities.

Two women CBOs were identified and interviewed that are actively functioning; Kharef Women Cooperative & That El Netaquane Women Charitable Society. One mixed society was recognized that do serve youth (males & females) in Kharef district (Hala Belhusain Society).

All women CBOs do have literacy related activities or classes.

None of the interviewed CBOs implement loaning or revolving fund schemes. However, interviewed CBOs showed their interest in loaning and revolving fund programmes to help their societies.

None of the identified / interviewed CBOs do work on water issues as a specific goal and target. All agree that this is a very important goal and it should be tackled within women activities.

Community Awareness and Other Issues

During focus group discussions, the majority of the women indicated that they do participate in main elections and vote for a candidate (presidential and parliamentary elections, and to a lesser extent for the Local Council elections).

Respondent women stated that they have never heard that one of their local community women had run for any elections. Some wished to have the chance to run for elections for herself or for her daughter.

In some villages (Kohol and Solan in Theibin) men showed their readiness to support women from their community run for Local Councils elections.

In almost every house there is a small corner (separate place, either in sitting room, or in the kitchen) called “Methar” that is used for hand washing, to take a bath, and for urination. Water residues could be collected in a bowl or pass through outlet to outdoors and flow in the back yard or into the road.

Women and old people who are unable to defecate outside their houses use special bowls that contain sand. Young girls will add some charcoal on the residues and expose them to sunshine to dry and reuse them or sell them as natural fertilizer.

Irrigation Water / Farmers & Agricultural

Agricultural Land Ownership: The survey covered about 191 thousand hectares where agricultural land ownership ranged between 0.023 hectare up to 27.6 hectare. This means an average of 1.6 ha per individual.

Arable Lands: The arable land within the target area is around 135 thousand hectares with individual ownership of 0.1 – 23 hectare.

Ownership Pattern: Most farmers own their agricultural lands; few (8.5%) are sharecropping with landowners while very little (2.6%) rent their agricultural lands.

Cropping Pattern: Cereals such as wheat, barely, lintels, and others are the major crops planted in the targeted area. It was noticed that such crops have a distinguished value among locals and are mainly considered for house consumptions. Qat crop ranks as the second major crop next to cereals, followed by vegetables (potato, tomato), grapes, other fruit trees, and fodders.

Water Resources: Most of agricultural lands depend on rainfall and are considered as rainfed crops, but Qat crop depends mostly on irrigation through wells. Qat farmers buy water for irrigation purposes or use their own wells. The

same applies to vegetables. Supplementary irrigation is used for fruit trees, fodders, and grapes. Farmers depend on three main water resources for agriculture: rainfall (59%), underground wells (34.2%), and on surface water and springs (6.8%).

Competition on Water Sources: Farmers compete on water sources with a ratio of more than 20 farmer households per one water source. This was stated by half of the survey sample, while 10-20 farmer households have a water source for themselves.

Development of Agricultural Lands: In general, farmers are not increasing nor decreasing in their agricultural land areas. Some mentioned that they decreased their land size due to various reasons while very few farmers stated they have increased their agricultural land size.

Reasons for Agricultural Lands Decrease: Water scarcity and insufficient rainfall was one of the major reasons behind land size decrease. Land degradations as well as soil erosion contributed to this phenomenon. In addition, migration from rural to urban areas was considered as one reason too. Farmers did complain from some discouraging factors that disabled them from expanding or even holding on the same land size such as low-income rates and absence of government support.

Irrigation Water Supply: Farmers complained about the long distance of the irrigation water supply that results in a lot of water waste and losses. Water sources are sometimes located far away from farms. 54.6% of farmers mentioned that they consume three hours to bring water to their farms, while 54.5% needs less than half hour to convey water to their farms. Most of farmers use earth channels to convey water from the source to their farms. Some do use water pipes and few use water hoses or iron pipes or covered channels. Farmers also comment that the water supply systems lack a maintenance follow-up and are subject to negligence and carelessness.

Irrigation Methods: The majority of farmers use traditional methods for irrigation (land flooding). This leads to an inefficient water use and lots of losses. Farmers indicated that the water quantity is insufficient to fit their crops irrigation needs.

Water Usages: Supplementary Irrigation and animal drinking purposes are considered as the main usage of the water sources available in the survey area. 90% of respondents stated that rainfall is their main water source for agriculture.

Respondents Awareness about Underground Water Depletion: 59% of respondent farmers indicated that underground water sources were dropping down by 2-12 meter through the past five years while 41% stated that no change occurred on their water sources level thanks to good rainfall during the last five years. 39% of the respondents said that they were forced to deepen their wells level by 1-3 meters to overcome the decrease in water production. 61% did not do anything to their wells as they were unable to dig deeper or they left their wells.

Farmers refer wells drying to low rainfall, underground water overuse, random well constructions in addition to the absence of modern irrigation techniques such as drip irrigation and sprinkler irrigation.

Irrigation Water Quality: Most farmers use high to medium water quality for irrigation purposes. Some farmers use water for irrigation purposes with low quality such as salty and sulphurous water.

Water Users Associations: 85% of respondent farmers do not belong to any water users association. 15% are members in water source management committees. Almost all farmers are not involved in any association or organisation that targets water management issues as one of its goals. At the same time, farmers are very interested in participating in water users groups or organisations to regulate and manage the water used for irrigation. The role of such organisations would be very appreciated especially if they cover fee collecting, water distributions, water channels maintenance, marketing and other activities.

6.3 Lessons Learned from Other Experiences Available in the Field

Some water projects / water harvesting cisterns face technical gaps after physical construction. The team witnessed more than one project that was expensive and did not function due to some technical failures (cracks in the base or broken pump). When the responsible persons of such projects were questioned, they answered “no budget allocation for such purposes”, anything after construction work will be out of budget. It was realised that budget flexibility to include certain follow-up activities is essential.

The team also recognised some projects that lacked elements of sustainability and where no follow-up mechanisms were guaranteed. It was noticed that many water management committees are functioning poorly. It was mentioned by one of the local representatives that “during project implementation not enough focus and time were given for establishing such committees, committee’s mandate was limited to very technical roles such as operation”.

The cost-benefit relation was not always examined and taken into account. One of the most costly projects that were implemented will benefit only few little prayers. The time and cost invested could have been used in another project that would provide help to a larger number of population in need.

Some projects (water projects and/or women empowerment projects) established local community-based organisations for the project management and for future sustainability issues. It was noticed that most of these CBOs are frozen or collapsed just after donors/implementing agency withdrawal. Community representatives explained that most of such CBOs were “one man shows”. Members of the administration or general assembly committees were insufficiently included in establishing and follow up of activities. In addition, the umbrella organisation or institute’s role was very superficial.

Community comments on “the participation” terminology used by some water projects implementers show that practically the project was deciding and

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designing all of the activities and concepts, and participation remained theoretical. Accordingly, this led to bad impact on projects sustainability and efficiency.

7 CONCLUSIONS

7.1 Water Demand and Water Management

Water scarcity and water quality problems are very tangible on community level.

Lack of means to manage local sources exists in almost all communities.

Low household income is strongly correlated with difficulty in obtaining sufficient water. Rich families are able to additionally buy water.

Qat is competing with domestic water use because of its high return.

There is a strong connection between water quality and health situation of the local population. Various waterborne diseases are spread around, caused by the difficult water situation, including malaria, bilharzias, diarrhoea and infant diseases in particular.

People are aware of the water shortage problem, but they still do not know how to solve it and wish external help. They are fully aware that they need some capacity building and training programmes on water systems, maintenance and operation as well as sustainability issues.

People are ready to contribute financially and in kind if some water projects are implemented. They would prefer to manage the operation of projects through local administration committees with the sheikh's participation.

Due to water shortage and water transport complexity, water is used several times for more than one purpose.

Households do not treat water before using it, although some leave it to settle or filter it through cloth before utilisation.

People are requesting water network facilities; however this requires sufficient water quantity.

Many constructed wells did have water management committees; some were elected while others were appointed among community members. Most of these committees collapsed or are not functioning anymore. The rest restricted their role to well guard and fees collector.

For any future water project, households are interested in forming an active water management committee or specific community based organisation (CBO) that is elected and would have specific mandates to include education and awareness rising, operation and maintenance, site cleaning, and fees collection. They prefer the committee /CBO working under the Sheikh's or local council's direct supervision and umbrella.

7.2 Water and Sanitation Services

In almost all villages of the four visited districts people use the outdoors or open area and valleys to get rid of their excrements. However some houses do have small toilets and/or use the kitchens for bathing and personal hygiene. Due to water scarcity issues, they are forced to use the open-space for defaecation especially during the daytime and use internal toilets at night times only. In Khamer city, households depend on toilets and bathrooms inside their house borders and do not use the outdoor or open areas.

High percentage of households lack sanitation installations and use the outdoors, open area or valleys for this purpose only. Few households use cesspits.

There is a clear demand by local communities for sanitation services (particularly in Soudah district). Communities are ready to contribute in kind and financially in accordance with their low-income situation.

Women, girls and old household members are most affected by the absence of sanitation installations, as women are responsible for sanitation issues.

Lack of sanitation installations cause disease, bad odour, flies, and disputes with neighbours.

In most of the households, stools of young children are thrown into the streets or yards around the buildings.

7.3 Women and Gender Issues

Women and girls are most affected by the lack of sufficient water services. They go and fetch water from the source up to 6 times per day. Carrying water on their head is causing them various difficulties.

Girls are enforced to leave school in order to help their mothers in home works and transporting water.

Women / young girls' daily schedule is fully occupied with various heavy-duty tasks. They start working from sunrise and have to continue till sundown with inside and outside house activities. Their duties include: fetching water several times a day, house work, children-raising, managing sanitation issues, animal grazing, wood collection, fuel-block processing out of animal residues, working in Qat fields and agriculture, and others. Men consider that fulfilling or helping women in any of such activities will undermine their position within the society.

Although women / girls movement within the district and even within their own communities is restricted by local traditions and culture, they still appreciate any activity or project that can enable them to move and exchange news and information.

Girls and mothers are deeply affected by being not educated. In some villages mothers regret not being able to send their daughters to school. They also mentioned that the last decision regarding daughters' education is always the

father's and brothers' and that they normally do not accept girls to go to outside villages for education or to mixed schools.

Illiteracy spread among local community in general and young girls and women in particular is caused by a variety of reasons. The most important reasons are the engagement of women in water services and housework activities that hinder them joining classes.

Women wish to join literacy classes to educate themselves, communicate with other women within their community, learn new issues, and amuse themselves with something else than their daily routine activities.

If sufficient water sources would be available on household level, more than half of women's time could be saved and more focus could be laid on her personal awareness issues.

Women participate in public elections but this is due to men's enforcement and pressure. The woman usually has no right to overstep her husband's decision.

Some women wished to have the chance to run for local councils or parliament elections. They hesitate because of their fathers, brothers or husband opposition.

Women wish to participate in solving water problems through participation in CBOs and to render volunteer services on community level.

7.4 Irrigation Water / Farmers & Agriculture

The biggest part of agricultural activities in the project areas and districts are rainfed farming systems. Supplementary irrigation is used when needed.

Agricultural land in the project districts suffers from a land fragmentation phenomenon.

Water transportation means and methods used by farmers are very traditional methods that lead to water waste and losses.

Irrigation techniques in the project districts are still very traditional and lack concepts and methods for improving water efficiency on farm level.

Farmers that were interviewed through this survey were mostly with low education or in some cases even illiterate.

Activities by water users associations or water groups are lacking in the surveyed districts. However, farmers showed their interest in being members in such associations or groups.

The Qat crop is expanding even inside village areas and between houses. Farmers are buying drinkable underground water to irrigate Qat crops. Women and young girls are heavily involved in Qat crop agricultural activities and duties.

Qat crop is generally increasing in size and was described by one woman “it is a cancer. It will never stop and will make our children and new generation suffer more and develop less”.

7.5 General Environment

Weak infrastructure services (water, roads, electricity, water sanitation, garbage management), low income, no access to small loans, and weak education services - all of these conditions led to limited regional development as well as a lack of knowledge and awareness in the community in general. Women and young girls are particularly affected.

A high potential for cooperation among local communities and expressed willingness in local project contribution in kind and financially (considering their low income) were found in the project districts. This indicates that water is highly needed and community work / management in water issues are expected to be successful. Sustainability aspects should be considered.

The majority of the population does realise water scarcity and link it to the lack of sufficient rainfall. They consider the absence of modern irrigation techniques and irrigation water mismanagement in addition to farmers’ low awareness as the main factors causing water problems. They also see that lack of knowledge and awareness in general and weak water management on household level contribute to the water problems.

8 RECOMMENDATIONS

8.1 General Recommendations

The creation and launch of literacy classes are recommended and highly appreciated by the local population. Such classes shall be additionally used as a tool for awareness raising and for capacity building activities that will be executed by the “Community-based Water Use” project.

To raise woman’s awareness and her role in planning and decision making, it is necessary to encourage and to enable women to go out of their houses, communicate with new people, exchange ideas, read and write, and be exposed to outside societies. This may not be possible on individual basis and certainly should be preferably organised through a CBO. More than 90% of surveys of female respondents indicate that they wish to participate in a CBO and serve the community. Assistance to the establishment and management of CBOs shall therefore play an important role in projects activities. CBOs may be established for men’s affairs too. All CBOs should include among their main objectives water management and water conservation.

Capacity building programmes and public awareness activities should be considered for the local population and local NGOs on various topics. Topics could be among others: communication, establishment of a NGO, bookkeeping, project management, appropriate sanitation and hygiene measures and/or proposal writing. Capacity building programmes should be additionally planned and implemented with the four local councils to strengthen their performance and understand their mandate. A further training needs assessment is required.

Further investing in the existing survey team, which has been well trained and exposed to most of the project locations, will aid an effective project implementation and will minimise costs in recruiting and training additional staff. The members of the team may implement public awareness measures and may serve as project communication group.

A strengthening of the relations between local councils and local communities is necessary and recommended. This may be arranged through integration of the local councils in the management committees of the trial and pilot projects.

Water filters (pottery filters designed by component 4 of the GTZ Water Sector Programme) are acknowledged and demanded by some communities and shall be also introduced in the project districts. The introduction of water filters would follow awareness measures and could lead into widespread improvement of water purification.

8.2 Recommendations for the Pilot Projects

Selection of villages for undertaking trial and pilot projects for the improvement of water management should be made according to human and technical capacities of these villages.

Before implementation of any water and sanitation project it is recommended to:

- Specify an administration / management committee that is responsible for collecting of local contribution, hiring contractors and follow-up of the implementation. A functioning committee shall ensure sustainability. The above committee should be a CBO administration committee or a new selected committee from existing NGO members. Project implementation should be under the additional supervision of governmental officials (MSD and PW or L.C.);
- Organise the financial contribution of the local population through a proper bookkeeping system in a separate fund (e.g. through existing NGOs or new CBOs) to sustain financial management.

The project shall assist in these matters by capacity building measures.

In survey sessions with local communities (men and women groups), it was recommended to install some water pumps on big water cisterns to ease water collection for women. Other interviewed villages (Kohol and Sawlan / Merhebeh / Dhi Bin) welcomed the idea of having individual water harvesting installations on household level. For improving rain water harvesting systems it is recommended to consider following issues: installation of water filters, covering the cisterns, fencing, keeping catchment areas clean and management issues of cisterns. An expert shall analyse possible technical solutions in depth.

In Merhebeh uzla in Dhi Bin district and Soudah District, there were noticeable request for sanitation services. People are in need and wish to have support in this field and are ready to contribute. Poor people asked for demonstration of improved sanitation installations. The possibility for a demonstration scheme shall be further investigated.

Communities recommended the formulation of volunteer teams among youth (male and female) that can do maintenance and cleaning for the existing cisterns. The project shall take up this recommendation.

In all selected districts it is recommended to identify a person (male and/or female) from the local community that acts as a project extension agent. This person shall be educated, well respected by locals, ready to cooperate and shall possess communication talent in order to reach all community categories (women, girls, students, teachers, Imams, sheihks, etc.). Such person should be trained and educated on project's technical and conceptual background and messages. The project team during its beneficiary group analysis mission has identified some local representatives, teachers, Imams and active women, who seem reliable and could act as extension agent. They were all supporting the project's activities and may further assist to collect some quantitative-qualitative data required for future project implementation.

Targeted awareness campaigns are required to achieve the objectives of the project. These campaigns should be aimed at local level (community centres, CBOs and local councils) where management of water issues will be concentrated through the decentralisation process. Such programmes should

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include the following topics: water cycle, personal hygiene, health issues, disease and pathogen transfer mechanisms, water sanitation concept and methods. Where possible, local context information (e.g. poetry, photos, cartoons) should be included to make the campaigns as acceptable and effective as possible. The further content of these campaigns shall be worked out by the project.