WASH Needs Assessment Report

Shibam Kawkaban District, Al-Mahwit Governorate, Yemen

Responsiveness for Relief and Development Foundation – RRD

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Executive Summary

In Yemen, one of the world's most water-scarce countries, the ongoing war continues to exasperate the dire humanitarian situation particularly for children and women who depend on clean drinking water and sanitation for good health and survival. According to the UN OCHA's 2018 Humanitarian Needs Overview (HNO), an estimated 16 million Yemenis are in need of humanitarian assistance to access safe water, basic sanitation and hygiene facilities, out of which 11.6 million are in acute need. The local economy continues to greatly suffer amid the collapse of public services leading to social collapse and increased risk of disease and starvation. Collapsing urban water and sanitation systems, deteriorating water and sanitation conditions in rural areas, and lack of means to maintain personal hygiene and purchase safe drinking water all contributed to one of the worst cholera outbreaks.

Restrictions on fuel imports have sparked critical shortages and price hikes across the country, severely impacting access to safe water and other services, including health care and sanitation. The cost of fuel has more than doubled, jeopardizing the provision of water, particularly for the most impoverished. Water pumping stations serving over 3 million people via public networks in 14 cities are running out of fuel. It is estimated that 30% of water stations operate only once a month due to lack of fuel and financial resources, while the remaining 70% are in poor conditions and inoperable. Prices of commercially trucked water – a main source for one fifth of Yemen's population have skyrocketed forcing people to spend long hours waiting in endless lines to secure a few liters of water for their families from free water sources randomly supported by donors. The situation is even more miserable in rural areas, with some women spending four to five hours a day collecting water from remote locations.

Since 2015, RRD has operated in governorates including Sana'a, Al-Mahwit, Hodeidah, and Hajjah governorates to provide humanitarian assistance in the Health and Nutrition sectors as well as Water, Sanitation and Hygiene projects. RRD works and coordinates with local authorities and stakeholders to conduct need assessments, presenting key findings to donors seeking to fund interventions aimed at meeting needs of conflict-affected communities.

On December 10, 2018, RRD conducted a WASH Needs Assessment in Shibam Kawkaban district of Al-Mahwit Governorate to gather information on the humanitarian situation and determine the level of needs in the area. This report provides a summary of the data collection methodology, key findings and recommendations generated as a result of the assessment.

Objective of the Needs Assessment

Shibam Kawkaban is one of the most important districts of Al-Mahwit Governorate given its strategic location that serves as a crossing point connecting three governorates, namely Sana'a, Amran and Al-Mahwit governorates together. Shibam Kawkaban continues to suffer from the deteriorating economic situation in the country to a similar degree as majority of Yemen's districts. Its population has been directly affected by the conflict witnessing major damages to public services and infrastructure. RRD targeted the district with this needs assessment to measure effects of the prevailing poverty levels along with the failing health conditions and crumbling water, sanitation and hygiene sector on the community.

A total of eight water sources, water distribution networks and sanitation facilities serving approximately 70,000 people were targeted by the assessment. The objective was to:

- Understand the current situation of WASH Sector in the targeted areas of Shibam Kawkaban District;
- Find out the causes behind a great level of negative health impacts; and,
- Identify the possibilities of future interventions aimed at solving problem facing the WASH Sector in the targeted communities.

Methodology

This assessment was conducted using tools and approaches to collect quantitative and qualitative data in various forms including key informant interviews (KIIs), focus group discussions (FGDs) and household surveys. Interviews and focus group discussions were conducted with host communities and local authorities including members of local councils as well as staff of the National Water Supply and Sanitation Authority in the district. Survey questionnaires were conducted through random sampling of 80 households from different areas in the district and focused on collecting data related to water sources, water consumption levels, time spent to get water, hand washing practices, availability of latrines, and garbage disposal.

The field monitors were trained on the assessment's objectives and tools developed for the process and targeted the main water sources, and the sewage network of Shibam Kawkaban. Details such as specs and measurements required for a technical study of the network's situation were collected and documented.

Findings

Key findings generated from the data collection and needs assessment process are categorized and listed in the sections below.

Water

Groundwater is considered as the main source of drinking water in the district of Shibam Kawkaban. It is also the main source of water for agriculture along with the seasonal rainwater sludge, ponds, dams and springs. The largest population groups in the district are concentrated in Shibam city and Dhela' sub-district; both regions targeted by the needs assessment process resulting in the following:

A- Shibam City and Neighboring Communities:

The National Water and Sanitation Authority (NWSA) established its branch in the district in 1983. During that period, it dug six boreholes and connected households to an established public water network. These boreholes were connected to pump water to a central reservoir that was then connected to water storage tanks and two water-pumping stations benefiting approximately 53,000 individuals. Airstrikes damaging the National Authority's office in the district in 2015, along with scarcity of income and financial resources due to the deteriorating economic situation resulted in hindering its ability to continue providing its services in the area. The following table provides a summary of the above mentioned boreholes:

Figure 01: Table with details on the boreholes in Shibam City

#	Name	Depth (in Meter)	Pumping Level (in Meter)	Status	Reasons for being inactive	Comments
1	Qubat Al-Shamsi	90	120	Not Working	Public electric source connected to the well is no longer operating/generating electricity	
2	Arat Yakoosh (#1)	70	260	Not Working	Needs further drilling	
3	Wadi Al-Naiem	200	300	Working	--	Supported by UNICEF
4	Government Compound	87	160	Working	--	Supported by UNICEF

5	Arat Yakoosh (#2)	190	240	Not Working		
6	Al-Mahat	250	350	Not Working	No pressure unit	Needs to be replaced with a new borehole

Details of the water tanks connected to the central reservoir, their capacity and number of individuals they served are listed in the following table:

Figure 02: Table with details on the Water Tanks Pumping Water to Households in Shibam City

#	Location	Type	Capacity (in M3)	Status	# of Beneficiaries	Water Source	Comments
1	Shibam	Ground	400	Needs Rehabilitation	15,815	Fed by the wells in Shibam	
2	Kawkaban	Tower	100	Good	2,953		
3	Kawkaban	Ground	200	Good			
4	Wadi Al-Naiem	Ground	50	Good	2,610		
5	Hawshan	Ground	100	Good	-		Used for re-pumping
6	Thula	Ground	200	Good	11,656		
7	Al-Serm	Ground	200	Good	5,595		
8	Hababah	Ground	200	Good	14,832		

With only four out of the six boreholes currently operating (Table 01), water production levels dramatically reduced and pumping to the central reservoir was limited to the operational boreholes (Wadi Al-Naiem and the Government Compound) that only had the ability to serve a total of 22% of the community in Shibam City center. Accordingly, the remaining 78% of the population considered other alternatives for their main source of water including water trucking (procuring water). It is worth noting that the cost of water trucking has dramatically increased as a result of fuel scarcity and has become unaffordable to a majority of the residents forcing them to resort to contaminated and unsafe water sources such as ponds. Other options included transporting water from distant water sources (springs) adding burdens on women and children in charge of fetching water in the majority of Yemen's rural areas.

Some of the main reasons that led to the interruption of the four wells include:

- The destruction of the National Water Supply and Sanitation Authority's building, its warehouses as well as the deteriorating economy and scarcity of financial resources inhibiting the GA to operate and fulfill its roles and duties.
- Worn out water pumping units including generators and submersible pumps that need to be replaced.
- Obsolete spare parts within the water network that need replacement.

Photo: Broken pipes connecting the water network

Recommendations and solutions include:

- Provision of solar pumping systems/unit to the six boreholes
- Provision of training and tools to the maintenance teams.
- Rehabilitation and maintenance of the central water reservoir
- Maintenance of the water network.

B- Dhela' Sub-District:

Groundwater is considered to be the main water source for drinking, while other sources such as ponds, dams and springs are sources used for agriculture and irrigation in the area. The following table provides a summary of the main water wells in the community:

Figure 03: Table with details on the boreholes in Dhela' sub-district

#	Name	Depth (in Meters)	Pumping Level (in meters)	Status	Reasons for being inactive
1	Bait Maleek #1	245	340	Not Working	Lack of Fuel Supply
2	Bait Maleek # 2	270	360	Not Working	Damaged submersible pump

Water tanks connected to the wells are listed in the following table:

Figure 04: Table with details on the Water Tanks Pumping Water to Households in Dhela' sub-district

#	Name	Type	Capacity	Status	# of Beneficiaries	Water Source
1	Bait Maleek	Ground	200	In need of Rehabilitation	6,691	Bait Maleek Boreholes
2	Bait Mofareh	Ground	150	Good	7,827	
3	Bait Qeerah	Ground	100	Good	786	
4	Al-Zakateen	Ground	65	Good	413	
5	Bait Khamis	Ground	50	Good	906	

The cessation of pumping units' activities resulted in the interruption of water supply to approximately 17,000 individuals forcing people in the community to search for alternative water sources to cover their needs. Accordingly, and as a result of the high water trucking costs that was affordable to a few, majority of the people in the community resorted to unsafe water sources including springs and dams as well as transporting water from distant open wells adding burdens on women and children in charge of fetching water in the majority of Yemen's rural areas.

Causes that led to the interruption of the four boreholes include:

- The destruction of the National Water Supply and Sanitation Authority's building, its warehouses as well as the deteriorating economy and scarcity of financial resources inhibiting the GA to operate and fulfill its roles and duties.
- Worn out water pumping units including generators and submersible pumps that need to be replaced.
- The dramatic increase in fuel prices was the main reasons for people's inability to afford and pay the increased cost of clean water.

Recommendations and solutions include:

- Provision of solar pumping systems/unit to the eight boreholes.
- Provision of training and tools to the maintenance teams.
- Rehabilitation and maintenance of the central reservoir
- Maintenance of the water network.

Additional Findings

A summary of the data collected during surveys conducted with 80 individuals randomly selected within the targeted community are presented in the following graphs.

Figure 05: Graph presents the proportion of water sources in the community

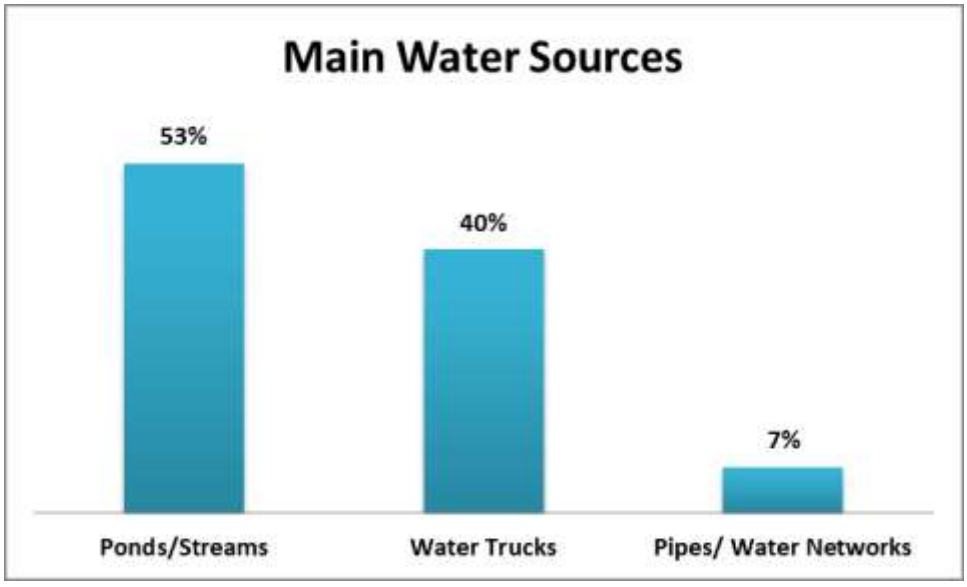


Figure 06: Graph presents a proportion of water-fetching distance traveled in minutes

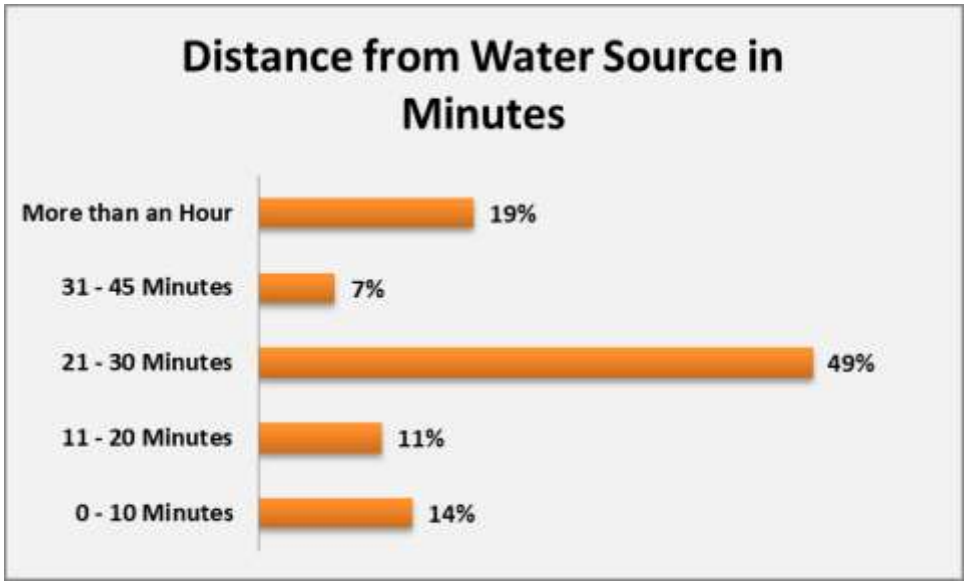


Figure 07: Graph presents the proportion of water-fetching recurrences in the community

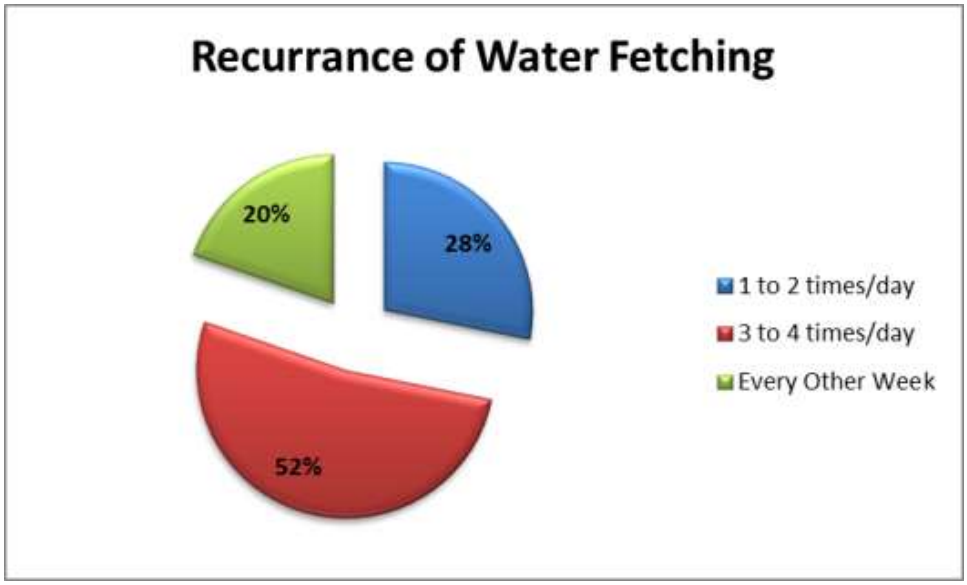
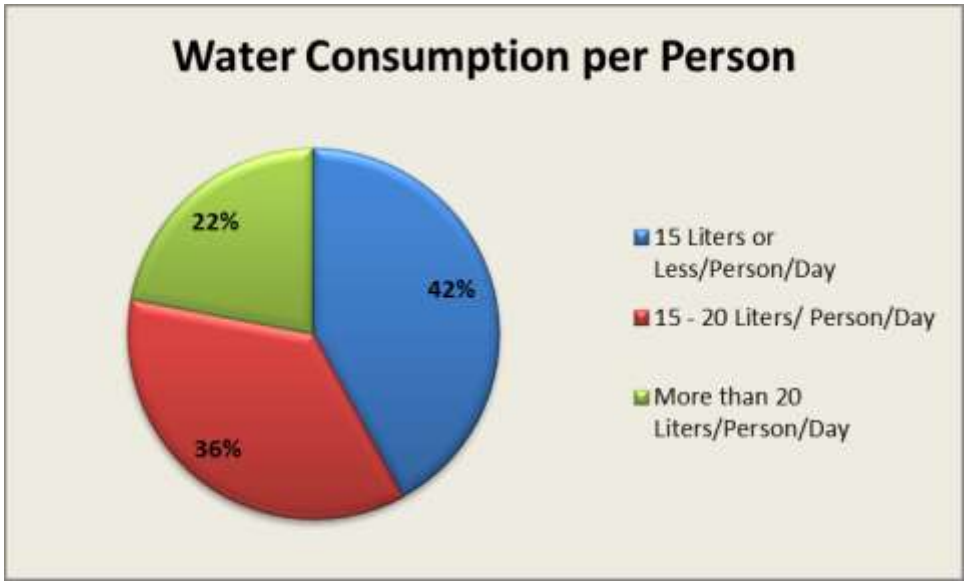


Figure 08: Graph presents the proportion of water consumption per person



It is worth noting that while 97% of the surveyed sample confirmed availability of water storage containers within their households, 17% reported that these containers did not have tight covers to keep them protected from contamination. Analyses for a series of related questions are listed in the table below:

Figure 09: Table with summary of water storage related questions

	Yes	No
Is the container used for water storage clean?	**86%**	**14%**
Are there algae at the bottom of the water container?	**17%**	**83%**
Does your family wash/clean the water storage container?	**86%**	**14%**
If so, how often is the water container cleaned?		
Everyday	**3%**	
Every Week	**29%**	
Every Month or more	**68%**	

Sanitation and Hygiene

Analysis of data collected during surveys and FGDs with members of the local authority showed that despite the existence of a sewage network in Shibam City, several leakages and discharge points were observed and an urgent need of rehabilitation was required. Established in 2003 by the Social Fund for Development (SFD), the network serves approximately 415 households only within the center of Shibam City, while more than 185 households in surrounding areas were not connected to the network and depended either on open drainage for sanitation. Discharging sewage onto public roads and alleys between houses as well as rain streams (flood/water ways) has led to an environmental disaster and a major cause of diseases spreading in the community, in addition to burdens of the unbearable and suffocating odors observed during the data collection process. Response from 52% of survey respondents' show that there is indiscriminate solid waste in addition that 100% of responses showed that there are vector related diseases.

Photo: Sewage discharge between houses

Photo: Sewer drainage between houses in the community

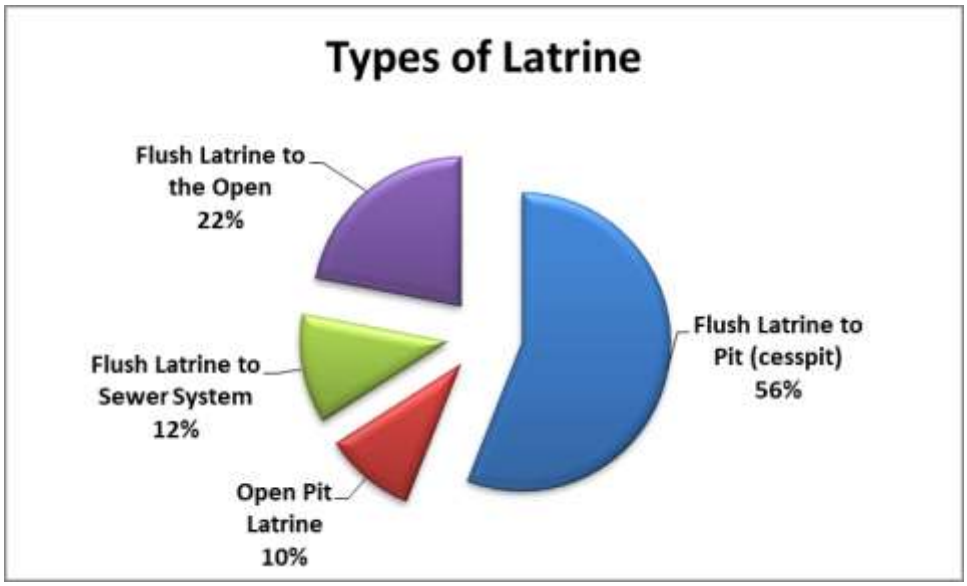
Photo: General Authority's sewer trucks in need of maintenance

Recommendations

- Construction of a sewage network for houses that can be connected to public sewer
- Construction of a sewage network and linking them with cesspits (septic tanks) for houses that cannot be connected to the public network
- Maintenance and Rehabilitation of the sewer trucks owned by the National Water and Sanitation Authority.

While 100% of interviewed respondents reported having toilets accessible to members of their family, the following graph presents the varied types of toilets available in households within the targeted community.

Figure 10: Graphs of types of toilets in the community



It is worth noting that only 52% of the same respondents reported having hand washing facilities while the remaining respondents reported washing their hands using buckets outside their homes. Findings of questions related to hand washing practices are presented in the following graphs:

Figure 11: Graphs of hands washing practices

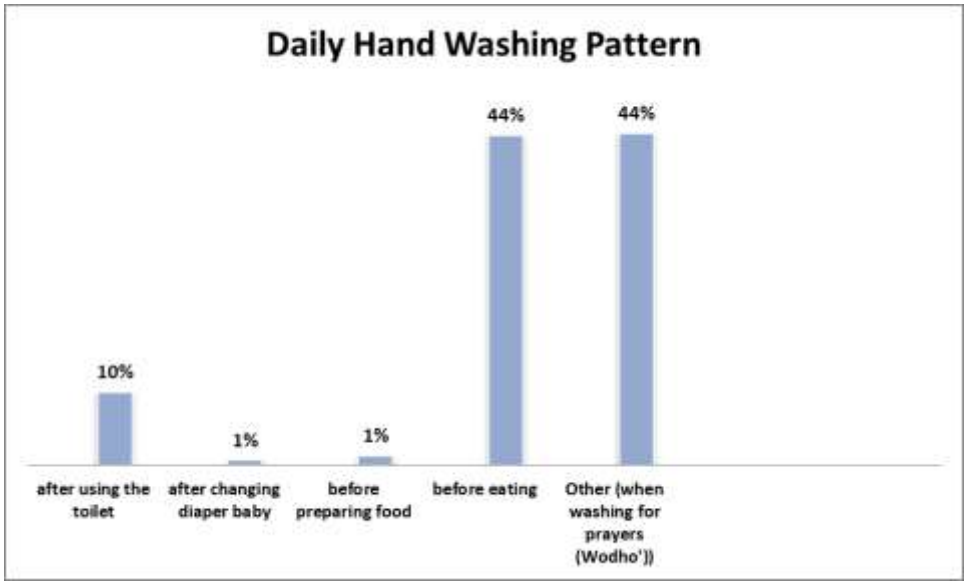


Figure 12: Graphs of hands washing practices using soap

Figure 13: Graphs showing garbage disposal practices

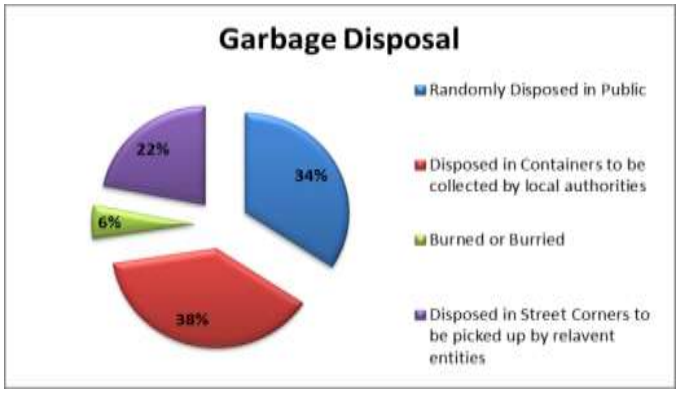
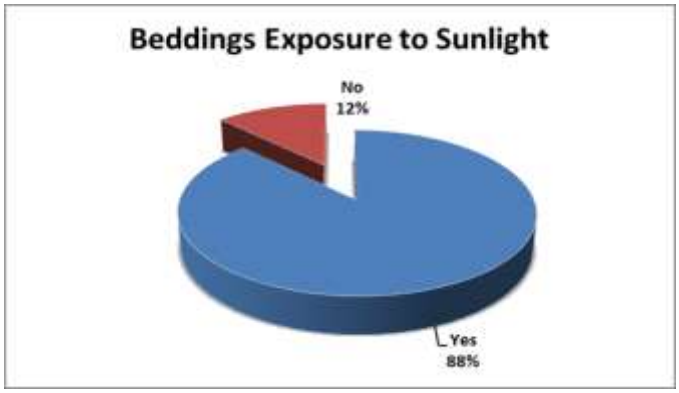


Figure 14: Graphs showing proportion of beddings exposure to sunlight



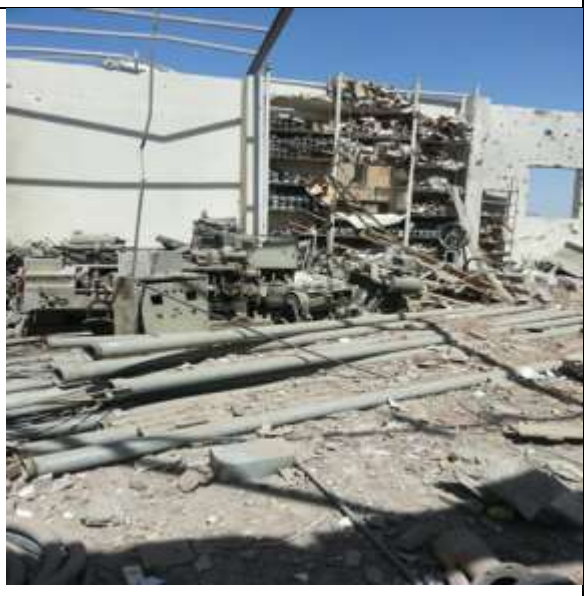
General Recommendations

Supporting the National Water and Sanitation Authority should be given a priority as an intervention that will primarily alleviate the dire humanitarian situation for affected households in the Shibam Kawkaban District. Based on the key findings and observations, some of the general recommendations are as follows:

1- Installation of Solar Pumping Systems to 8 boreholes (6 in Shibam City and 2 in Dhela' Sub-District)
2- Water quality control
3- Training and provision of tools to maintenance teams
4- Rehabilitation and maintenance of two assessed water tanks
5- Maintenance of the Water Network
6- Construction of a sewage network and linking it to the public sewer
7- Maintenance of the General Authority's sewer trucks
8- Construction of a sewerage system and linking it to septic tanks for houses that cannot be connected to the public network
9- Implement cleaning campaigns to raise awareness and reduce effects of solid waste disposal in the community
10- Conduct hygiene awareness campaigns to raise awareness on the importance of hygiene practices in disease prevention
11- Distribute hygiene kits and jerry cans for the most vulnerable groups

Photo Gallery

Airstikes caused major damages to the National Water and Sanitation Authority's building in Shibam Kawkaban District, Al-Mahwit Governorate.



The National Water and Sanitation Authority's warehouses and maintaince units after being targetd with the airstrikes.

Open drainage observed next to houses in Shibam City.

Sewage discharge between houses as well as rain/water streams in Shibam City.

	
Ponds and water springs are the main source of water for majority of the community members in Dhela' sub-district.	*Water trucks collecting water from rainwater sold as safe, clean water to members of the community in Kawkaban sub-district.*
	
A women fetching water from a pond in Kawkaban sub-district.	*Children Fetching water from a community water sources in Hababah sub-district.*

Donkeys and Water Trucks were commonly seen in Shibam District as some of the main water transportation sources used by members of the community.

Random garbage disposal commonly observed around the district.

	
Water tank in Bait Maleek, Dhela' sub-district, Shibam Kawkaban District, Al-Mahwit Governorate.	*The main water storage tank in Shibam City, Shibam Kawkaban District, Al-Mahwit Governorate.*