

Water Sector Lebanon

WASH ASSESSMENT PLATFORM REPORT 2020

Report of the sweep held in 2019-2020

WASH ASSESSMENT PLATFORM REPORT 2020

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Abbreviations

COVID – Corona Virus Disease
CSMC – Collective Site Management and Coordination
CWC – Community WaSH Committee
EWS – Early Warning System
HH – Households
IAMP – Inter Agency Mapping Project
ITSs – Informal Tented Settlements
LAF – Lebanese Armed Forces
LBP – Lebanese Pound
LRA – Litani River Authority
L/c/d – Liters per capita per day
L/pers – Liters per person
MoE – Ministry of Environment
MoEW – Ministry of Energy and Water
MoPH - Ministry of Public Health
NGO – Non Governmental Organization
SWM – Solid Waste Management
UNICEF – United Nations Children Funds
WAP – WaSH Assessment Platform
WaSH – Water Sanitation and Hygiene

EXECUTIVE SUMMARY



Rapid site description

Figure 1: Rapid site description of ITSs within Lebanon



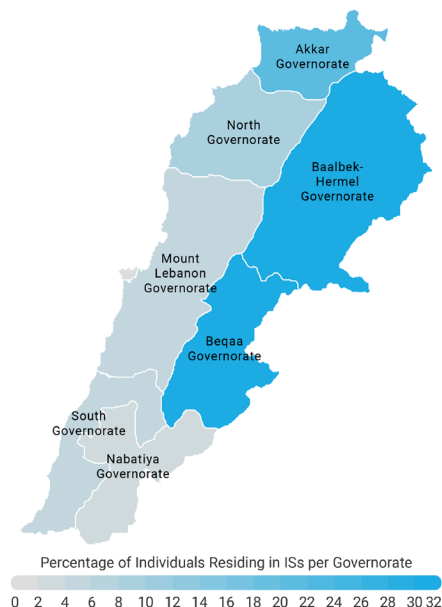
The WaSH Assessment Platform (WAP) Report 2020 highlights the most recent status of Informal Tented Settlements (ITSs) in Lebanon. In collaboration with 16 partner organization, UNICEF Lebanon has consolidated and analyzed data from 7,236 locations from September 2019 through January 2020. The data within this report covers 5,602 ITSs housing 326,812 individuals, 52.2 percent of which are children.

The nationwide vulnerability score in ITSs across Lebanon is influenced by social, water, sanitation, solid waste, and environmental vulnerabilities. The most vulnerable governorates are the three most populated ones being Baalbek-Hermel, Bekaa, and Akkar which house 91 percent of the total refugee population in 81 percent of the settlements.

The WAP Report 2020 weighs out these vulnerabilities per governorate and highlights the types of potential services required to influence programme planning and nationwide response. On average, the sites are hosting 58 people, with the consideration that more than 50 percent of the sites are hosting less than 30 persons.

The situation of the sites is relatively stable. Only 7 percent of the sites surveyed (hosting 9,379 individuals) are inhabited for less than a year and 72 percent of those sites are less than four tents.

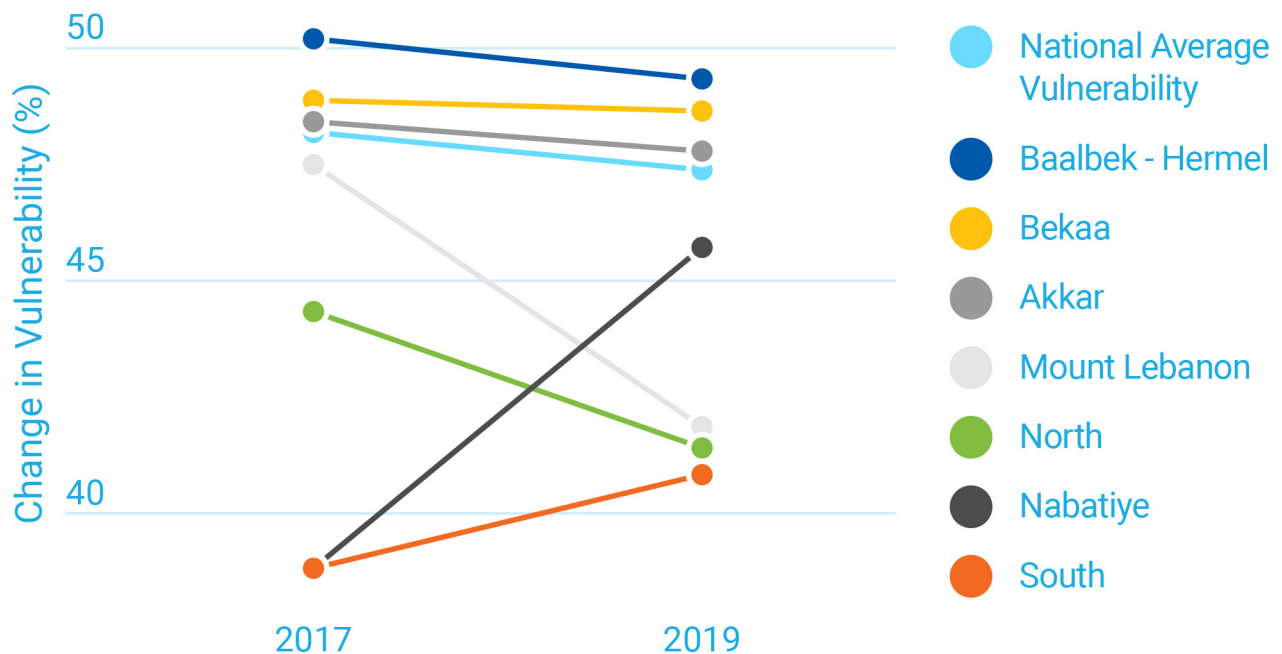
Figure 2: Percentage of individuals residing in ITSs per governorate



Vulnerability

The national average vulnerability is 47.4 percent. The overall national vulnerability is relatively homogenous – ranging from 40.8 (South) to 49.3 (Baalbek-Hermel). The most vulnerable governorates are the three most populated ones - Baalbek-Hermel, Bekaa (48.6 percent), and Akkar (47.8 percent). The different vulnerability scores are presented in the table hereafter.

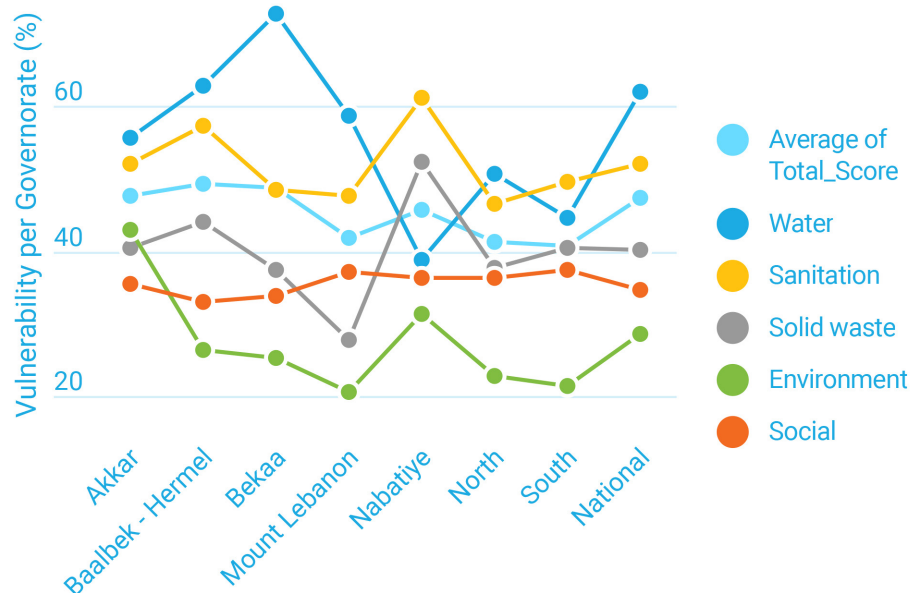
Figure 3: Change in Lebanon nationwide vulnerability



The graph above is presenting the vulnerability results for 2017 and 2019 sweeps. We can notice that the national average of the vulnerability has reduced more than 0.8 points on average. We can also notice that the vulnerability has decreased significantly in the governorates of Mount Lebanon (-5.7 points), and the North (-3 points). It has slightly (around 1 point) decreased in the governorates of Akkar and Baalbek- Hermel. In Bekaa, the average remains the same. The vulnerability has increase significantly in the South (+2points) and drastically increased by almost seven points in Nabatiye.

Vulnerability

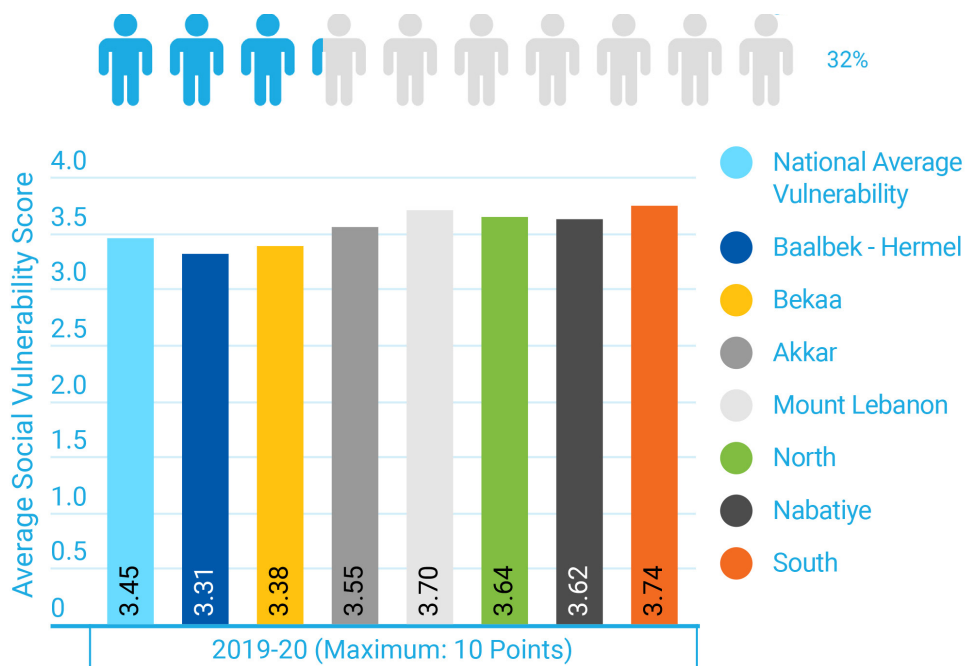
Figure 4: Lebanon nationwide vulnerability



This graphic represents the contribution of the sectorial vulnerability criteria to the overall vulnerability per governorate. It enables us to identify that, for example, sites in Bekaa are more vulnerable for the water access and quantity (as mostly the sites are depending on water trucking made by NGO). We can also notice the significant participation of the environmental vulnerability for the places in the Akkar governorate. Nabatiye is presenting the highest vulnerability regarding solid wastes. The sections after are providing critical highlights regarding the sectorial vulnerability.

Social

Figure 5: Lebanon nationwide social vulnerability



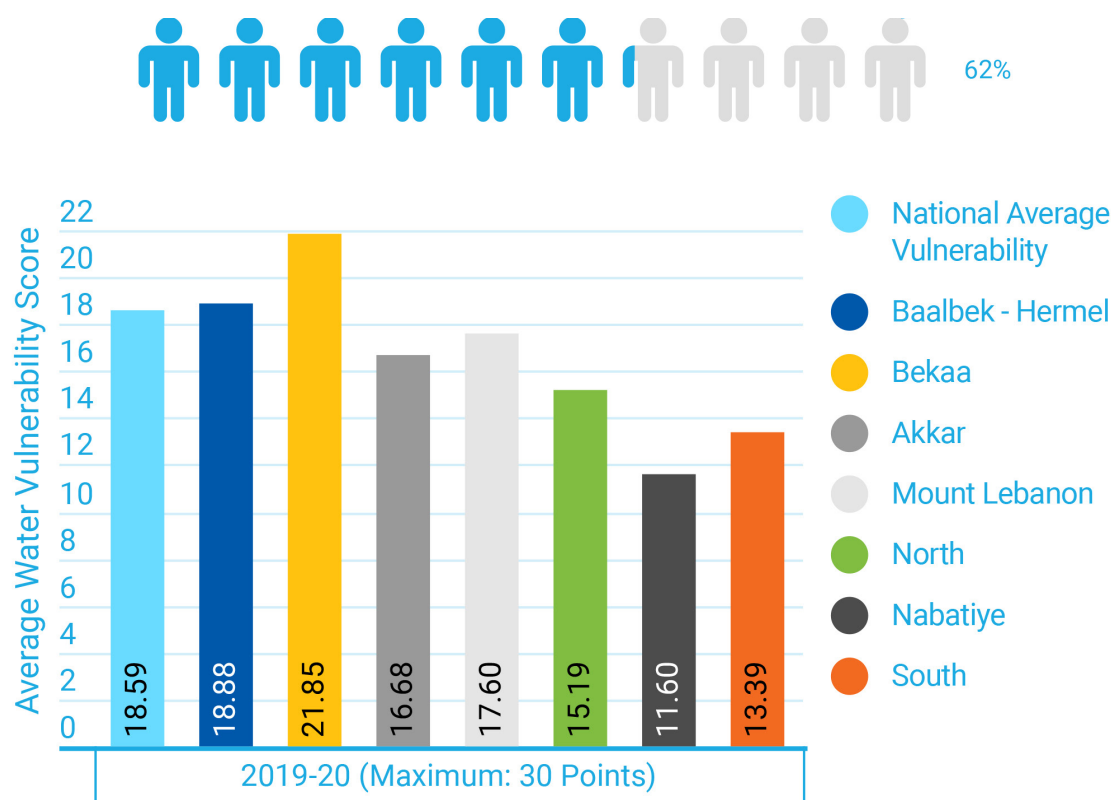
Social

The social vulnerability in Lebanon has multiple sub-criteria, reflected by the community's special needs, community structures, crowdedness, and seasonality. The social vulnerability nationwide in the year 2019-2020 amounts to 32 percent. Given that 85 percent of the tents nationwide are less than 4 meters apart, social vulnerability in Lebanon is related to the proximity of tents to one another within ITSs.

Another variable impacting the nationwide social vulnerability is that almost 3 out of 5 residents in ITSs are children as children make up more than 50 percent of the total refugee population in ITSs.

Water

Figure 6: Lebanon nationwide water vulnerability

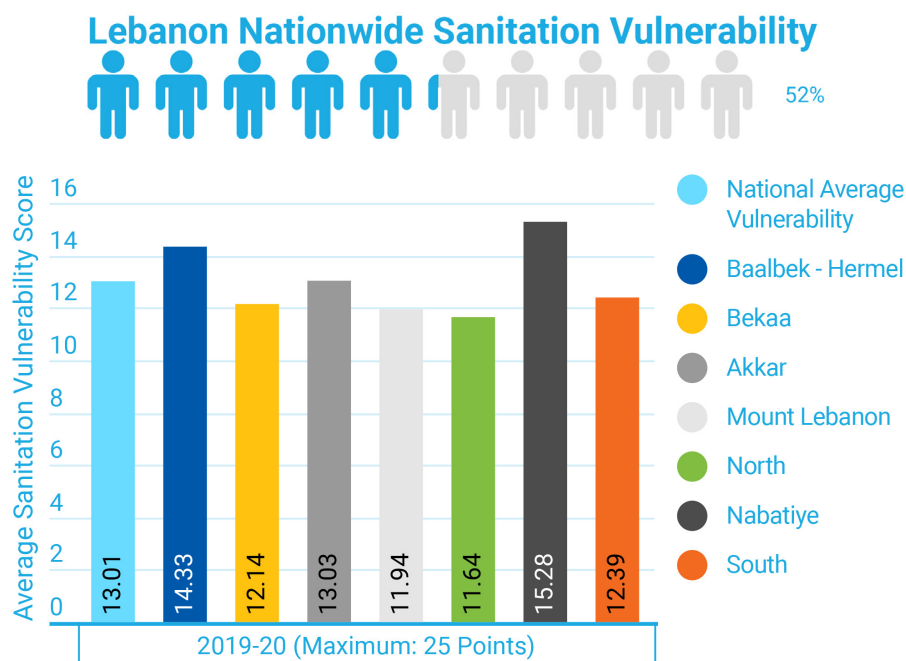


The national water vulnerability is of 62 percent (18.59/30). Water vulnerability depends on access, availability, and quality of water. The main driver of the nationwide water vulnerability is the access of water (depending on the source) and the access of water tanks within the settlement. The two main sources of water within Lebanon ITSs are boreholes and water trucking.

In addition, the variability of quality and quantity amongst each source impacts the sites vulnerability to water stressors. The governorates of Bekaa and Baalbeck-Hermel which host the majority of the refugee population are the two most vulnerable regarding water access. People have 104.5 and 113.4 L/c/d respectively on a yearly average. The vulnerability is mostly due to the the high proportion of sites depending on water trucking paid by NGOs or residents.

Sanitation

Figure 7: Lebanon nationwide sanitation vulnerability

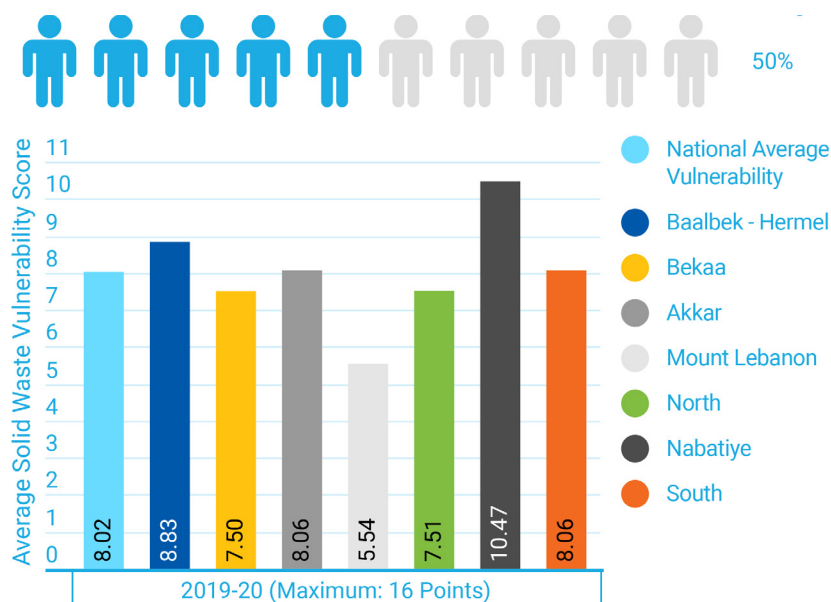


Nationwide the sanitation vulnerability is 52 percent (13.01 over 25). Sanitation depends on access to latrines, wastewater disposal, and treatment. The main driver of vulnerability is due to the average number of individuals sharing one latrine.

The vulnerability is mostly due to the average number of improved latrines per site (1 for 7.5 people) not reaching the sector standard of 1 improved latrine per family in 45 percent of the sites. The main governorates in need of new and improved latrines are the governorates of Akkar and the North where 1 latrine is shared by 10.33 and 9.58 individuals respectively.

Solid waste

Figure 8: Lebanon nationwide solid waste vulnerability

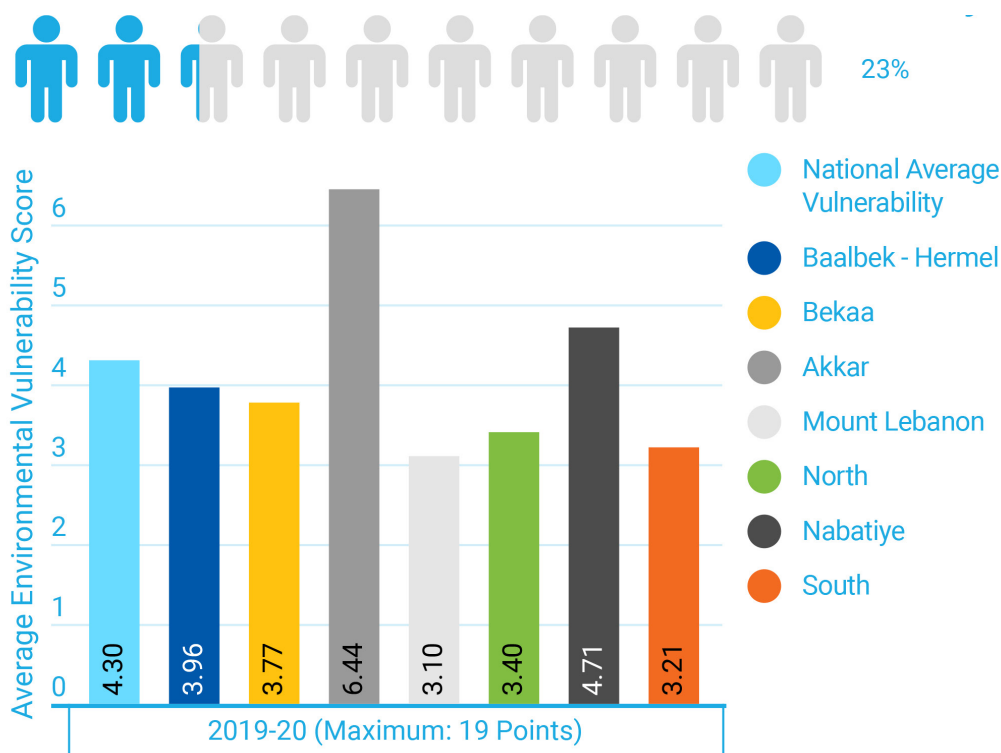


Solid waste

The vulnerability over solid waste is impacted by the collection of waste, its frequency, the availability of waste containers, and the cost of the collection. Nationwide the overall solid waste vulnerability is at 50 percent. It's representative of most of the governorates except Nabatiye and Mount Lebanon. In Nabatiye, the vulnerability is higher than other governorates due to the low presence of waste barrels (94 percent vulnerability of the subscore) and the absence of collection or limited frequency when the collection is done. In Mount Lebanon, the frequency of collection (61 percent of sites have their waste collected twice a week), and the decent coverage of the places with waste containers makes it less vulnerable regarding solid waste. High desludging frequency is largely contributing to the sector vulnerability as well. Most of the high desludging rates are related to undersized or inappropriate containment facilities. Finally, the low proportion of proper greywater management and the absence (apart of few pilots) of treatment in most of the sites are also increasing the sanitation vulnerability of the sites.

Environmental

Figure 9: Lebanon nationwide environmental vulnerability



Environment vulnerability depends on vectors, cleanliness, and location. The national environmental vulnerability is at 23 percent (4.30/19). Nationwide the environmental vulnerability is due to the proximity to a hazardous site (especially in the North, Bekaa, and Akkar), the nuisance caused by both insects and rodents (the primary concern in Mount Lebanon) and the surface of the sites affected by the floods (primarily impacting the sites in Akkar). The littering of solid waste and the open defecation is not so prevalent to influence the average governmental vulnerability.

INTRODUCTION



Background

The WaSH Assessment Platform (WAP) was launched in 2017 to support the WaSH actors to ensure the WaSH response in all Informal Tented Settlements (ITSs) is systematically prioritized and targeted enabling the most effective utilization of any level of funding by:

- Defining which ITSs are the most WaSH vulnerable and what specific factors contribute to this vulnerability;
- Through a weighted scoring system ranking all IS in an online live database;
- Enabling all partners to update the status of the ITSs they are responsible for with new data that changes the vulnerability score;
- Evaluating the impact of targeted and prioritized WaSH activities after a period.

Several criteria have been considered to evaluate vulnerability. Those criteria were defined based on the desired status of ITSs to be independent. The Independence of an IS was defined as:

1. Safely managed drinking water (improved facility/facilities -located on-premises, available when needed, and free from contamination);
2. Safely managed sanitation (private improved facilities -where fecal wastes are safely disposed on-site or transported and treated off-site; plus, handwashing facilities with soap and water);
3. Appropriate hygiene behavior by its residents in the four critical areas of handwashing, menstrual hygiene management, safe water handling, and the safe disposal of excreta;
4. Households whose net income is sufficient to cover their basic needs for a dignified way of living in a displacement setting (affordable WaSH);
5. Negligible environmental, health or social impacts due to WaSH-related activities;
6. Low level of risk for the site to be evicted for any reason;

This tool is robust and straightforward. It enables agencies to prioritize and focus their intervention in the most in need sites as well as to tailor their response to provide the most significant impact. The agencies, having dedicated access online, can make automatic use of those data in their daily programming and decision making as well as can use this to inform their Monitoring and Evaluation plans and reports.

Methodology

The WAP is done in every site known as hosting or having been hosting people. At the end of 2019, the survey was run in 7,236 locations, 5,602 were hosting individuals.

To enable prioritizing sites for further WaSH intervention and to identify gaps, the different WaSH agencies agree to run the assessment in all the existing sites instead of using any sampling methodology. In 2017, the first sweep was run. After, two sweeps have been held, one in 2018 and one in 2019.

Questionnaire

Each year, to ensure comparability, The WAP preserves, to a certain degree, the questions used since 2017. The WAP questionnaire of 2019 was revised by the different agencies in charge of the assessment, notably during the WAP technical meetings. This revision ensures the most accurate measurement of indicators, appropriate wording of the questions.

The questionnaire consists of 85 questions that collect information at the site level.

The questionnaire includes critical indicators on social, water, sanitation, solid waste, and environmental situation of the sites.

The WAP questionnaire is a site survey administrated with either the community representative of the site or any designated focal point of the site. The questionnaire is conducted face to face completed by a site visit to ensure the visual inspection of the WaSH facilities. This survey is taking a maximum of two hours for a more extensive site.

Now, the agencies must ensure the questionnaire is updated in the entire sites and in its area of coverage every four months. A new sweep will run at the end of every year.

The full questionnaire can be downloaded using the following link:



Limitation and data quality assurance

This survey, like any survey, has a limitation. The major limitation is that the survey relies on self-reported data. But the desk review from the partner to assess if the survey matches with their database help mitigate this limitation.

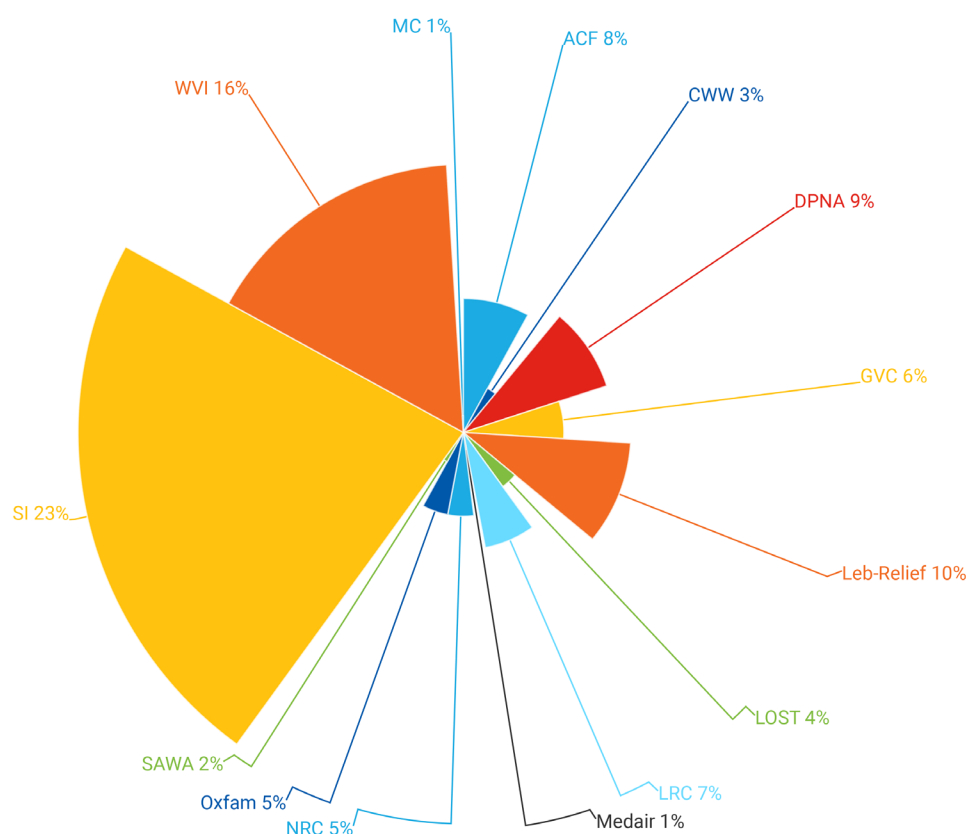
The demographic data from WAP are higher than the IAMP one. When the difference between the WAP data and the IAMP data is above 10 percent, the partners have to revise and confirm which data is valid.

Finally, the calculation or extrapolation of the WAP data could be sometime a bit problematic, and the WAP 2020 has been adapted to increase the reliability of data. Indeed built-in calculation will enable the assessor to directly check if the different pieces of information are realistic by providing directly the calculated estimation of critical indicators such as the number of liter of water per person per day or the average number of persons per useable latrines.

The number of tests available per source is not extensively filled and updated by the partners. The number of tests and the feasibility for the partners to provide analysis for any single source is currently under discussion.

Contributions of agencies during the 2019-2020 sweep

Figure 10: Contributions of agencies during the 2019-2020 sweep



How is the vulnerability score calculated?

The vulnerability score is defined as a combination of social, water, sanitation, solid waste management, and environmental vulnerabilities. Those sectorial vulnerabilities are determined based on several indicators. The indicators, their calculation method, the respective weight to the sectorial, and overall site vulnerability are presented hereafter.

Criteria	Sub-Criteria	Criterion	Criterion weight	Sub-criteria weight
Social	Special Needs	Female-headed households	0.75	3
		Children	0.75	
		Elderly	0.75	
		Physically Disabled	0.75	
	Community Structures	WaSH Structure	1	2
		Community Structure	1	
	Crowdedness	Crowdedness (distance)	1	3
		Crowdedness (density)	2	
	Seasonality	Seasonality (quantity)	1	2
		Seasonality (duration)	1	
Water	Access	Water Storage Capacity	3	15
		Source Type	12	
	Availibility	Quantity when accessed	4	9
		Frequency of access	2	
		Seasonality	3	
	Quality	Fecal Coliform	4.5	6
		Turbidity	0.75	
		Nitrates	0.75	
Sanitation	Access	Latrine access (structures)	9	12
		Latrine access (expansion)	3	
	Wastewater Disposal	Grey Water Disposal	2	11
		Black Water Disposal	3	
		Desludging (frequency)	3	
		Desludging (seasonality)	3	
	Treatment	On-site treatment	2	2
Solid Waste	Storage	Waste Storage	6	6
	Handling	Collection Storage	3	10
		Collection Frequency	3	
		Cost Burden	4	
Environment	Vector	Insects	2	4
		Rodents, Snakes, ...	2	
	Cleanliness	Littering	2.5	5.5
		Open Defecation	3	
	Location	Proximety Hazards	5	9.5
		Flooding Percentage	2.5	
		Flooding Duration	2	

RESULTS DISCUSSION



Sites description

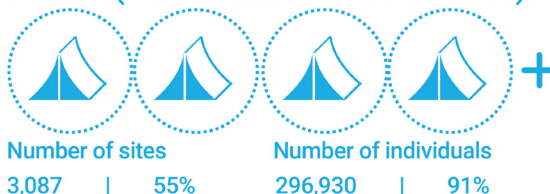
Number of sites and population

At the end of 2019, the survey was run in 7,236 locations. Within those sites, 5,602 were hosting 326,812 individuals. Based on the previous IAMP criterion differentiating sites with four tents and above (the Active sites) and the sites less than four tents, the 2019 survey present the following repartition of sites:

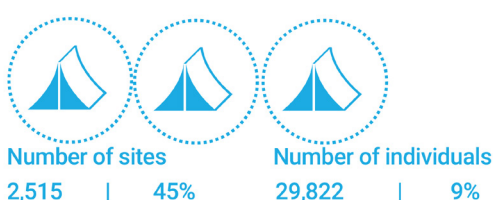
- 55 percent of the sites (3,087) are active, hosting 91 percent (296,930) of the refugee population living in ITSs
- 45 percent of the sites (2,515) are less than four dwellings, hosting 9 percent (29,882) of the people residing in ITSs.

Figure 11: Density of sites in relation to their population

Active (more than four tents sites)



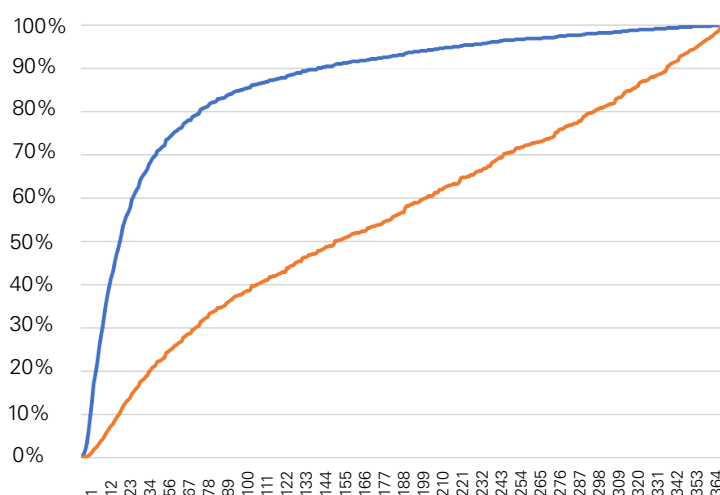
Less than four tents sites



The graph hereunder is presenting the distribution of the number of locations ordered by the number of people residing in the site. Many of the sites are hosting less than 30 people (3340 sites). The table attached is presenting the percentage of the total number of sites and the percentage of the total population in the following group:

- sites hosting less than 30 people
- sites hosting from 31 to 60 people
- sites hosting from 61 to 100 people
- sites hosting 101 to 200 people
- sites hosting more than 200 people

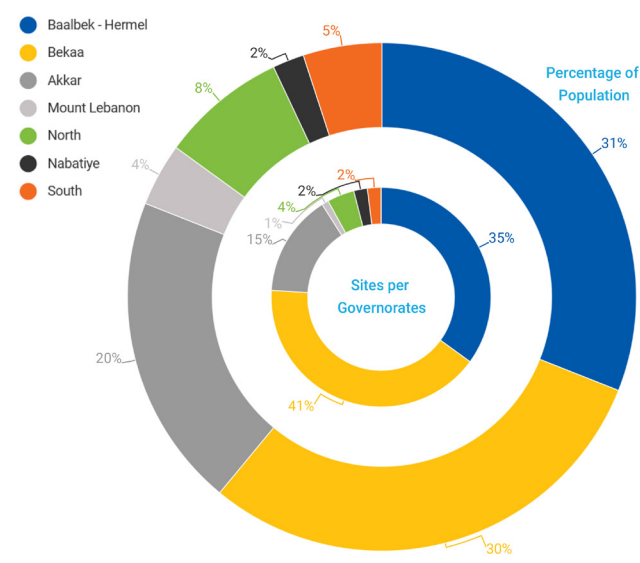
Figure 12: Cumulative representation of the number of sites and number of people



	[1 to 30]	[31 to 60]	[61 to 100]	[101 to 200]	>200
% Sites	60%	18%	9%	7%	6%
Overall % of ITSs residents	15%	13%	12%	18%	42%

Repartition of sites and people per governorate

Figure 13: Percentage of population per governorate

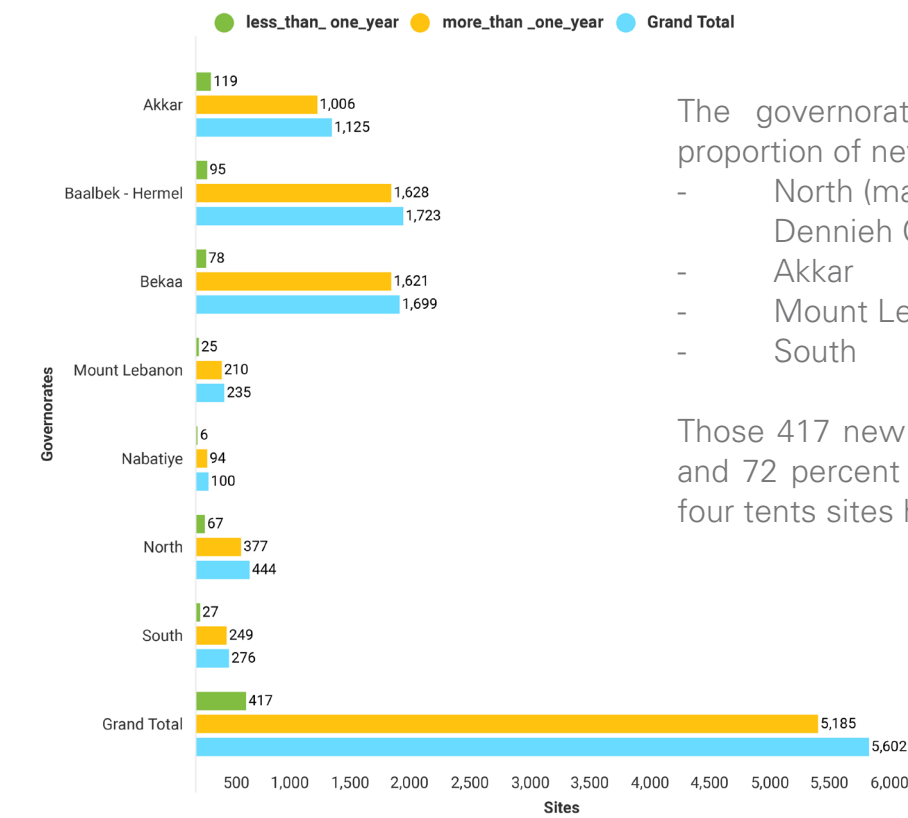


The largest refugee communities are living in the provinces of Bekaa and Baalbek Hermel. Those two governorates are hosting slightly 76 percent of the refugee population residing in 61 percent of the sites in the country. The third-largest refugee population is living in the governorate of Akkar. This governorate is amounting to 20 percent of the sites nationwide, hosting 15 percent of the overall Syrian population residing in ITSs. The remaining governorates are hosting less than 10 percent of the population hosted in 19 percent of the sites.

How long has this site been inhabited?

Overall, the situation of the sites is relatively stable, with 5,185 (93 percent) sites established for more than a year, and only 417 newly established (seven percent). The figure hereunder is presenting the sites and percentage of new sites per governorates.

Figure 14: Snapshot of established sites and newly developed sites



The governorates with the most significant proportion of new sites are:

- North (mainly in Zgharta and Minnie Dennieh Caza)
- Akkar
- Mount Lebanon
- South

Those 417 new sites are hosting 9,379 people, and 72 percent of the sites (300) are less than four tents sites hosting 3,230 individuals.

Presence of community groups

A Community WaSH Committee is present in less than ¼ of the entire sites. Those committees are created and maintained in the most massive site settings. Indeed, it makes sense to have such representation to ensure the operation and maintenance and timely referral for a good quality of the WaSH services. The WaSH Committees or Focal points facilitate the WaSH services provision for a bit less than half of the refugee population living in ITSs.

The governorates with the most significant presence of CWC are:

- the Bekaa, with 30 percent of the sites hosting 60% of the population in ITSs from the governorate,
- Baalbek- Hermel, with 25 percent of the sites and 46 percent of its population
- the North with 29 percent of the sites and 43 percent of the ITSs resident in the governorate.

Figure 14: Presence of community groups

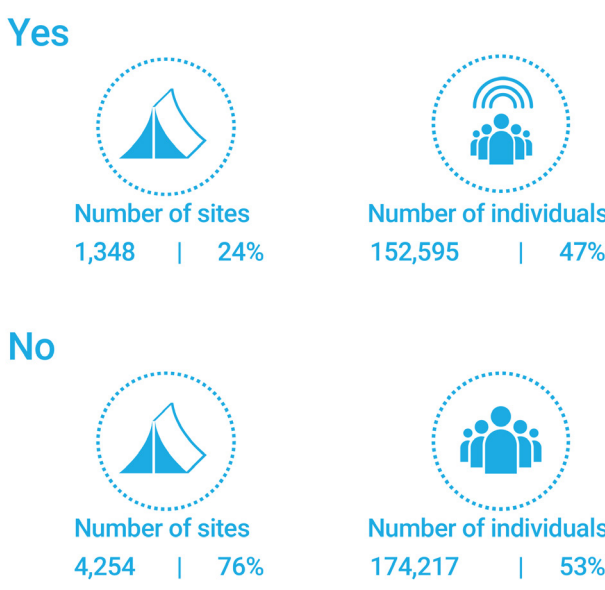
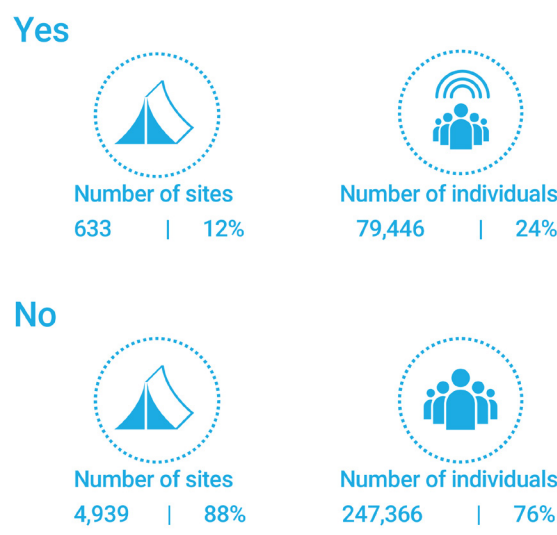


Figure 16: Presence of other committees and community structures



The other committees and community structures such as the Collective Site Management and Coordination (CSMC) or others are present in solely 12 percent of the sites over Lebanon and support the coordination for 24 percent of the overall population in ITSs.

The three governorates with the most significant committee structures (not WaSH) are Baalbek-Hermel (14 percent of sites and 33 percent of the population), Bekaa (12 percent of sites and 22 percent of the population), and Akkar (13 percent of sites and 19 percent of its population).

Seasonal movements

Seasonal movement is a practice reported for a marginal part of the population residing in ITSs. Less than 1 percent of the total number of households (553 over 59,739 (0.92 percent)) are moving into sites. Besides, 1.2 percent of the households are moving out of the sites on a seasonal basis.

For the number of households moving into and out a site, it's challenging to define a trend and possible seasonal movements. Only in Akkar, a small pattern is standing out for people leaving the sites in October and November, but it's not possible to identify where they are going.

Density of population

Two distinct criteria are informing the density of population in the sites:

- the number of households sharing the same dwelling or roof,
- the distance between shelters, being an indicator of the crowdedness, and the risk of quick propagation of fire.

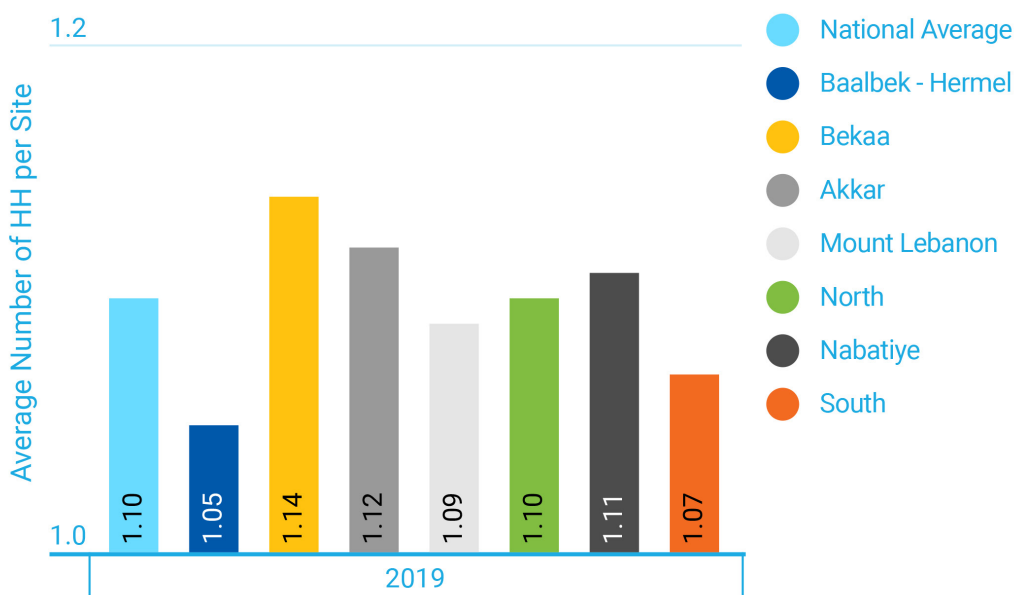
The average number of households per shelter is on average of 1.10 over the country.

Figure 17: Rapid assessments of households per shelter



The repartition of the household sharing the same dwelling is relatively homogenous in the country. The governorates of Bekaa and Akkar are presenting the most substantial proportion of shelter shared by more than one household with a respective average of 1.14 and 1.12 households per accommodation. Baalbek-Hermel and South are the two governorates, where respectively 95 percent and 93 percent of their population have one household per tent.

Figure 18: Average number of households per shelter per governorate



The distance between shelters

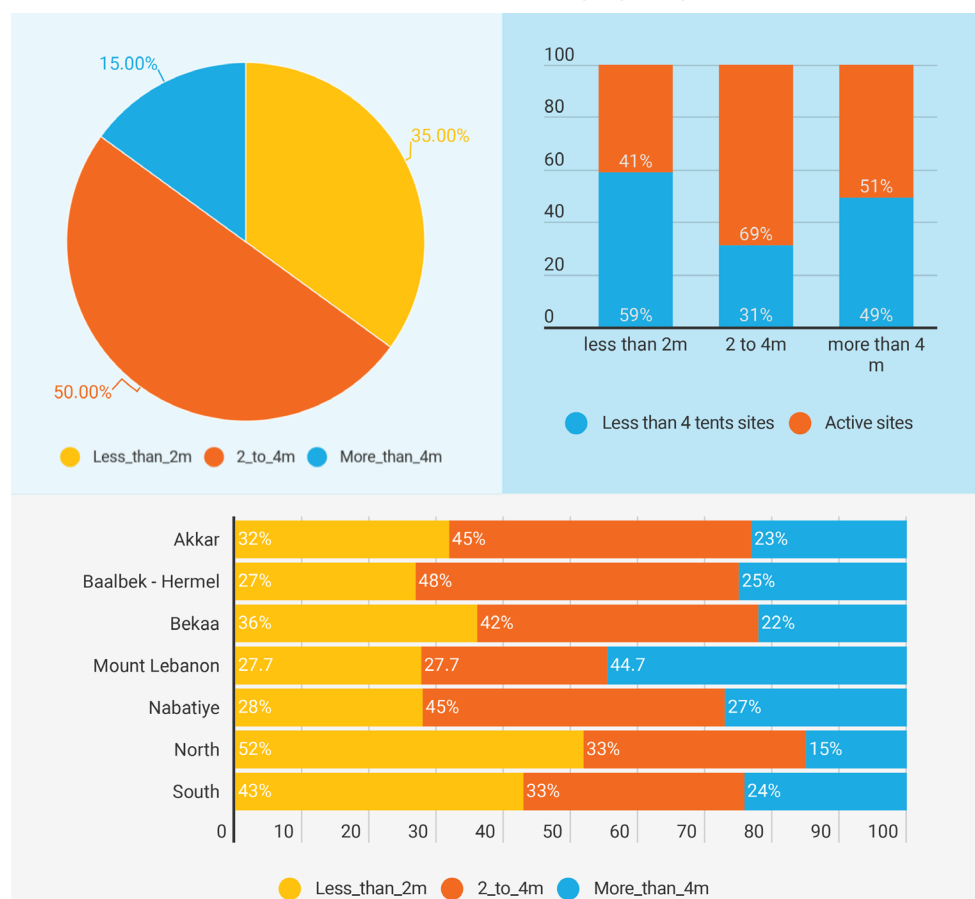
The size of the population living in a site doesn't affect the crowdedness, based on the distance between shelters, as 35 percent of the total population living in highly dense settings (less than 2m) is representing 34 percent of the sites. Most of the population (50 percent) live in a compact environment where tents are separated from 2 to 4m from each other. Twenty-four percent of the sites are sites with low density and hosting fifteen percent of the population.

Besides, the sites less than four tents represent the largest share of the highly-dense settings (59 percent).

The distance between shelters

Finally, across the country, the governorate of the North and the South have the highest representation of the highly-dense settings. The below figure presents the repartition of the distance between dwellings per governorate.

Figure 19: Repartition of the distance between dwellings per governorate



Relation with landlord/authority or their representative

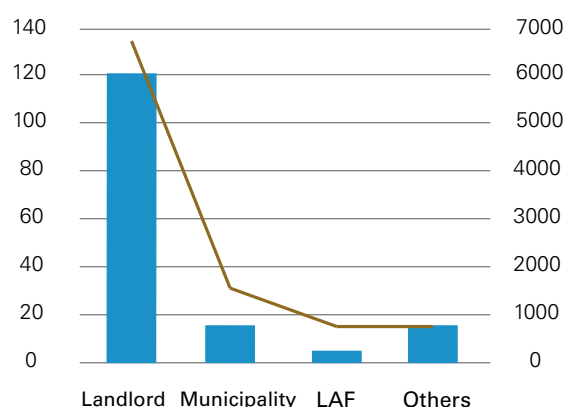
Eighty-nine percent of sites (hosting 90 percent of the population) declare having a good relationship with their landlord, while 525 (9 percent) declare having normal relations. The only 1 percent is declaring having a bad relationship with their landlord.

Governorates	Good		Average		Bad		Total score	
	Sites	Ind	Sites	Ind	Sites	Ind	Sites	Ind
Akkar	986	45,030	120	4,807	19	769	1,125	50,606
Baalbek-Hermel	1,512	102,869	190	7,478	21	3,125	1,723	113,472
Bekaa	1,533	120,856	150	12,240	16	896	1,699	133,992
Mount_Lebanon	228	3,675	1	24	6	95	235	3,794
El_Nabatiye	95	5,327	2	29	3	166	100	5,522
North	385	10,524	51	1,786	8	181	444	12,491
South	258	6,569	11	238	7	128	276	6,935
National Average	4,997	294,850	525	26,602	80	5,360	5,602	326,812

Eviction status

One hundred fifty-eight sites (2.8 percent of the total number of locations) hosting 3 percent of the total population living in ITSs (9,640 people) have received an eviction status. The governorates of Bekaa, Baalbek-Hermel, and Akkar are accounting for 70 percent of the eviction notice.

Figure 20: Number and source of eviction notices received per site



The landlords are predominantly providing the eviction notice. It represents 76 percent of the cases, followed by the municipalities (less than 10 percent of the eviction notice). The security forces and Lebanese Armed Force have sent an eviction notice to 5 percent of the sites. The remaining 8 percent are currently under eviction noticed issued by the MoEW (Bisri Dam lands), LRA or MoE, and neighbors of the property.

As the landlords are responsible for the eviction notice in more than $\frac{3}{4}$ of the cases, we have tried to identify eviction patterns based on the relationships with the landlords. For the sites that have received an eviction notice, 59 percent of the sites report having a good relationship with their landlord, 23 percent average, and 18 percent bad. It is thus difficult to identify any trend on the risk of eviction based on the relationship status with the landlord.

Governorates	Sites with an eviction notice								Sites without an eviction notice		Total score	
	Landlord		Municipality		Other		Security armed		Sites	Ind	Sites	Ind
	Sites	Ind	Sites	Ind	Sites	Ind	Sites	Ind				
Akkar	23	564	3	252	5	384	2	111	1,902	49,295	1,125	50,606
Baalbek-Hermel	33	3,255	1	113	-	-	1	85	1,688	110,019	1,723	113,472
Bekaa	30	2,159	7	1,227	1	150	4	493	1,657	129,963	1,699	133,992
Mount Lebanon	6	85	-	-	5	87	-	-	224	3,622	235	3,794
Nabatiye	-	-	-	-	-	-	-	-	100	5,522	100	5,522
North	19	407	3	48	-	-	1	9	421	12,027	444	12,491
South	10	156	1	15	3	40	-	-	262	6,724	276	6,935
National Average	121	6626	15	1655	14	661	8	698	5,444	317,172	5,602	326,812

Governorates	Good		Average		Bad		Total Score	
	Sites	Ind	Sites	Ind	Sites	Ind	Sites	Ind
Akkar	17	938	7	176	9	197	33	1311
Baalbek-Hermel	22	1785	5	278	8	1390	35	3453
Bekaa	26	2893	11	783	5	353	42	4029
Mount_Lebanon	9	99			2	73	11	172
North	11	166	10	228	2	70	23	464
South	9	124	3	33	2	54	14	211
Grand Total	94	6005	36	1498	28	2137	158	9640

Vulnerable people and people with special needs

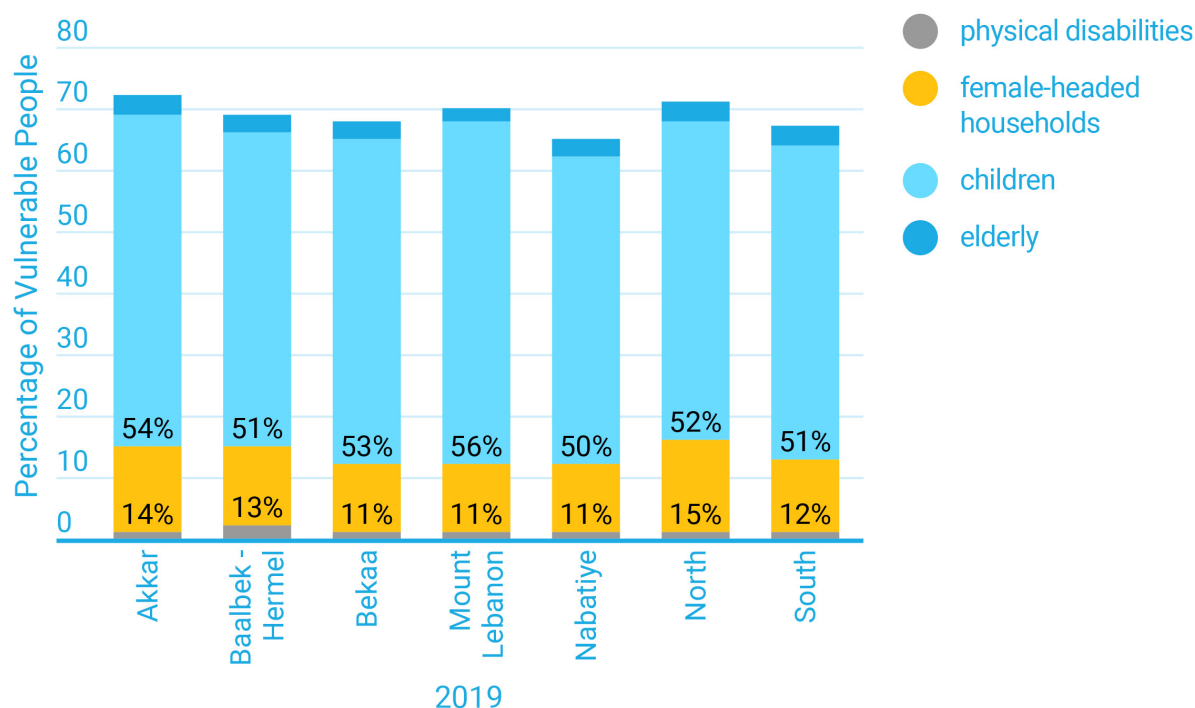
Vulnerable people are divided into four different categories:

- People with physical impairments
- Female head of household
- Elderly
- Children

The table hereunder summarizes the repartition of those vulnerable group nationwide

People with physical impairment	Female head of HH	Elderly	Children
1.1 percent of the people living in ITSs are physically impaired 3,669 people hosted in 452 sites The percentage of physically disabled people is ranging from 1 to 91 percent of the total population of the site.	7353 HH hosted in 1492 sites. (7353/59,739) – 12,3 percent of the HH living in ITSs The percentage is ranging from close to 1 to 100 percent of the total population of the site.	3.2 percent of the people living in ITSs are elderly (60+ yo). 10,534 living in 2880 sites. The percentage of the number of the elderly per site is ranging from 1– 100 percent.	52.3 percent of the total population in ITSs is children (-18 yo) 170,906 children are living in 5504 sites (98.2 percent of the sites). Ranging from 2 to 100 percent of the population of the site.

Figure 21: Percentage of vulnerable people per governorate

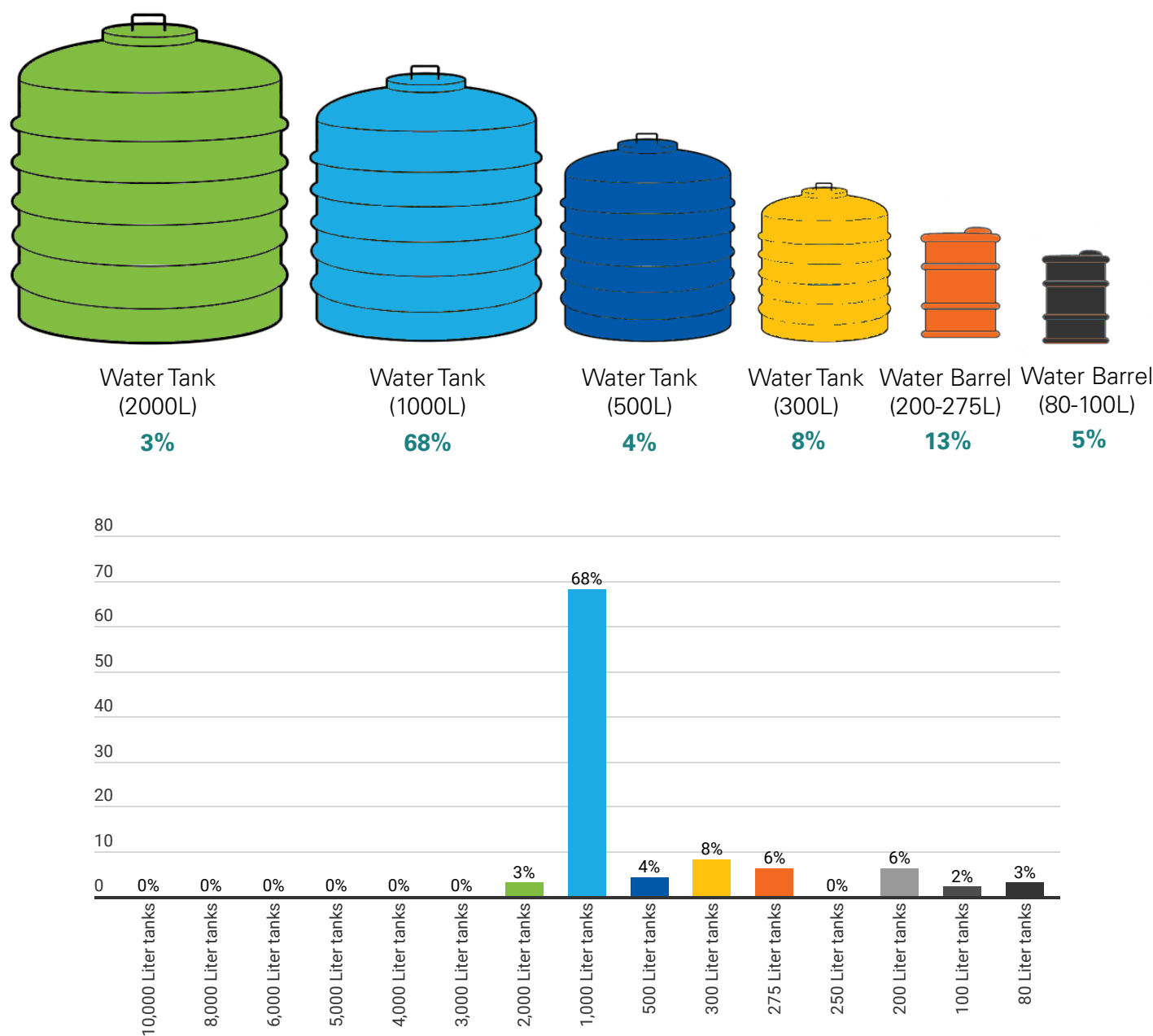


WATER



Water storage volume

Figure 22: Volume of water storage available on site

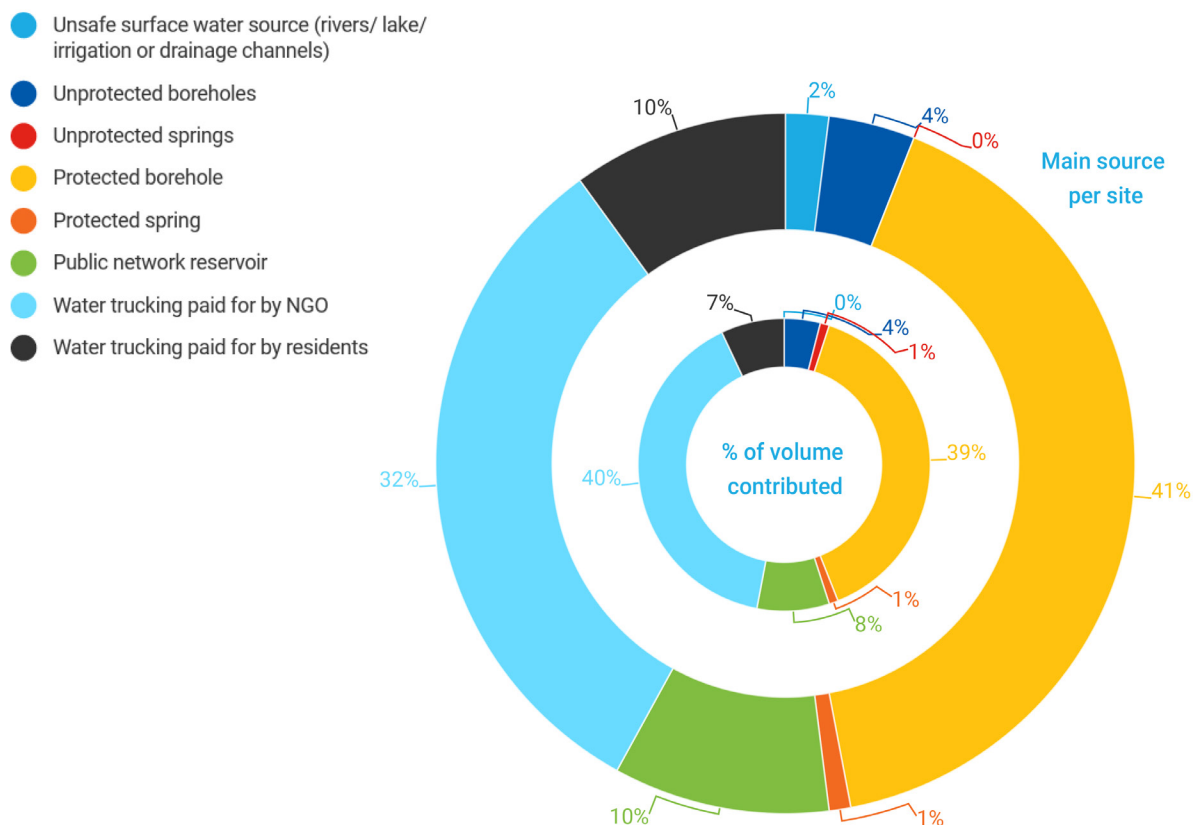


The most common type of water storage container is the 1000 liters tanks, with 46,935 tanks installed in nearly 5000 sites. The average of water storage is of 197L per person. Two hundred forty-two sites report less than one day of water storage per person (35L), with 210 sites reporting not having any of the water tank mentioned above.

Sources of water

Primary source and percentage of contribution

Figure 23: Primary source of water and percentage of contribution



The pie chart above represents the percentage the sources used as the primary source of water in sites and the volume they produced.

52 percent of the sites depend on protected sources available on site (41 percent protected boreholes, 10 percent Networks, and 1 percent protected spring). 42 percent of the sites are receiving water trucked to the site as the primary source. Above $\frac{3}{4}$ of those sites, the water trucking is paid for by NGOs. The volume of the water transported by NGOs for a primary source represents 40 percent of the total volume of the primary sources.

Source of drinking water and mixing of sources

		Sites	Individual	%Sites	%Individual
Sites mixing sources		2,883	202,684	51 %	62 %
Sites only one source	Unsafe surface water sources (Rivers/Lake/drainage Channel)	15	345	0%	0%
	Unprotected Borehole	78	2,528	1%	1%
	Unprotected spring	18	824	0%	0%
	Protected Borehole	1,197	48,643	21%	15%
	Protected Spring	29	425	1%	0%
	Public Network/Reservoir	323	9,403	6%	3%
	Water trucking paid by NGO	674	46,161	12%	14%
	Water trucking paid by the resident	385	15,799	7%	5%

The table above presents that 49 percent of the sites hosting 124,128 individuals (38% of the overall ITSs population) have access to only one source of water. We can notice that 61,960 individuals are relying on unsustainable Water trucking. 75 percent of those people are relying on the Water trucking paid for by NGOs. Those 46,161 peoples are highly dependent on the funding level of this crisis, and further assessment for alternative sources or innovative solutions need to be fund to reduce the risk of not having access to any water if the funding shrinks.

Besides, most sites relying on a single source of water are having access to the protected borehole. It enables 48,643 people to fill their water needs.

Three hundred forty-five people living in 15 sites have only access to unsafe surface water and shall be prioritized for further assistance even if residing in small-sized sites.

The table hereafter is presenting the number of sites using each source and how is it prioritize (from primary to forth water source).

Sources	Total	Main source	Second source	Third source	Fourth source	Fifth source
Bottled Water	1,183	-	1,084	98	1	-
Irrigation/Drainage Channel	58	38	19	1	-	-
Lake	16	12	4	-	-	-
Protected Borehole	2,780	2,286	453	41	-	-
Protected Spring	127	60	62	5	-	-
Public Network/Reservoir	758	553	184	21	-	-
River	19	14	5	-	-	-
Unprotected Borehole	296	207	83	6	-	-
Unprotected Spring	43	27	16	-	-	-
Water trucking paid for by ngo	2,076	1,804	233	38	1	-
Water trucking paid for by res	1,373	599	739	34	1	-

Source of drinking water and mixing of sources

Due to the considerable groundwater resources in Lebanon and as mentioned earlier people in most of the sites are depending on protected boreholes; additional thousand sites are using this source as a primary source. We can notice that 1,804 sites are declaring using Water trucking paid for by NGOs as the primary source. In total, 2,076 sites are using water trucking paid for by NGOs.

It is also essential to notice that 21 percent of the sites complete the water they access as primary or secondary sources with bottled water.

Presentation of the seasonality of the source

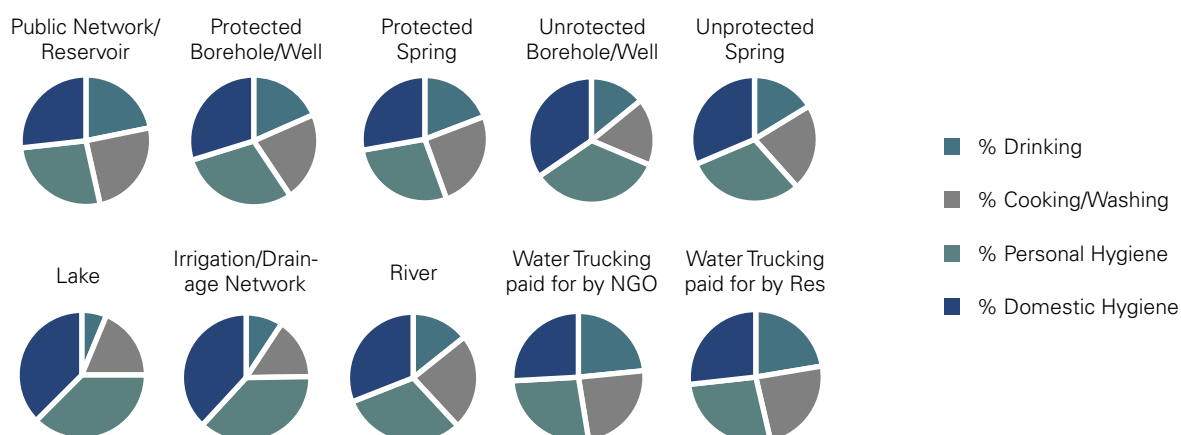
Type of Primary source	available all the year	not available all the year	Grand Total
Irrigation/Drainage Channel	1 %	0%	38
Lake	0%	0%	12
Protected Borehole	38%	3%	2,286
Protected Spring	1 %	0%	60
Public Network/Reservoir	9%	1 %	553
River	0%	0%	14
Unprotected Borehole	3%	0%	207
Unprotected spring	0%	0%	27
Water trucking paid by NGO	32%	0%	1,804
Water trucking paid by the resident	11 %	0%	599

The almost totality of the sources are available all year long. We can notice that only in 4 percent of the case, the water source is for some months unavailable. It is mostly affecting people, depending on protected boreholes. It is mainly due to two different factors:

- 1- the protected borehole is too shallow and becomes dry during or at the end of the summer period,
- 2- the inhabitants are prevented from using this source to enable the landlord to resume the irrigation of its crops.

Presentation of usage per type of source

Figure 24: Percentage of water usage per type of source



Source	Drinking		Cooking/ washing food		Personal hygiene		Domestic hygiene	
	# of Sites	% of Sites	# of Sites	% of Sites	# of Sites	% of Sites	# of Sites	% of Sites
Public Network/Reservoir	433	22%	490	25%	531	27%	531	27%
Protected Borehole	1389	18%	1659	22%	2235	30%	2235	30%
Protected Spring	38	19%	50	25%	55	28%	55	28%
Unprotected Borehole	88	14%	107	17%	212	34%	215	35%
Unprotected Spring	14	16%	19	22%	26	30%	27	31%
Water trucking paid by NGO	1443	23%	1482	24%	1644	27%	1595	26%
Water trucking paid by the resident	485	22%	520	24%	583	27%	580	27%
Lake	2	6%	6	19%	12	38%	12	38%
River	6	14%	10	24%	13	31%	13	31%
Irrigation/Drainage Channel	9	9%	15	15%	36	37%	37	38%

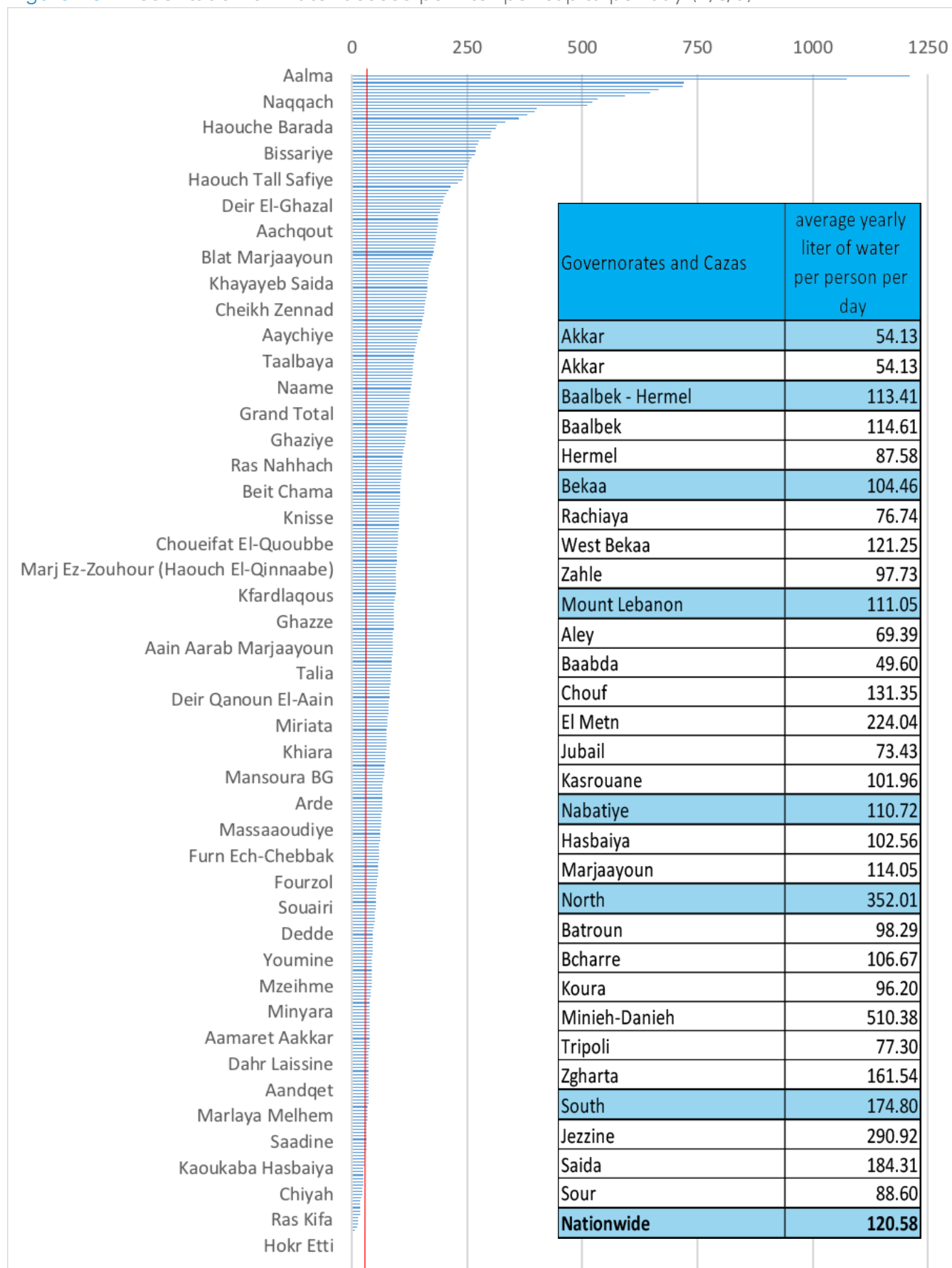
We can notice from the table above that for the protected or safe sources (except for protected boreholes), people are using almost equitably for drinking, cooking, personal hygiene, and domestic hygiene, with a slight increase in the percentage for the last two usages.

For the sites using water from unsafe sources, the people from informal settlements using those sources are using it less for drinking (6 percent and 9 percent of the sites using it for drinking) than people having access to safer sources. They mostly use unsafe water for personal and domestic hygiene. The sites connected to protected boreholes have a similar pattern using it more for personal and domestic hygiene and slightly more for cooking than for drinking.

The protected boreholes and springs, even if considered as safer sources as they are protected, are still sensitive to contamination coming from the collection of shallow water. It has to be noted that most of those water infrastructures were designed for irrigation purposes and not drinking or domestic water supply.

Presentation of L/c/d

Figure 25: Presentation of water access per liter per capita per day (L/c/d)



Presentation of L/c/d

Nationwide the individuals living in ITSs have access to 120.6 L/c/d. The two governorates with the most considerable access to water are the North and the South, respectively 352 and 175 liters per person per day. The two governorates with less access to water are the Bekaa, with 104.5 L/c/d and especially Akkar with 54.13 L/c/d. Moreover, 1,503 sites hosting 97,303 individuals do not have access to 35 L/c/d.

The previously mentioned number of sites includes 210 sites hosting 2078 individuals without water storage.

The remaining 1,293 sites have access to 23 L/c/d on average, and 255 of those sites hosting 15,943 people have access to less than 15 L/c/d.

Payment of the source

Payment for the water	No		Yes		Total	
Type of source	Sites	Ind	Sites	Ind	Sites	Ind
Irrigation Drainage Channel	1%	0%	0%	0%	1%	0%
Lake	0%	0%	0%	0%	0%	0%
Protected Borehole	32%	20%	9%	8%	41%	28%
Protected Spring	1%	0%	0%	0%	1%	0%
Public Network/Reservoir	8%	5%	2%	1%	10%	6%
River	0%	0%	0%	0%	0%	0%
Unprotected Borehole	3%	2%	1%	0%	4%	3%
Unprotected Spring	0%	0%	0%	0%	0%	0%
Water trucking paid by NGO	30%	52%	2%	2%	32%	54%
Water trucking paid by residents	1%	1%	9%	7%	11%	8%
Nationwide	77%	81%	23%	19%	100%	100%

For the primary source of water, most people (263,356 individuals) are reporting accessing drinking and domestic water on-site for free.

But 19 percent of the IS population residing in 23 percent of the sites declares paying for receiving water. They pay for it either in the rent or in addition to the lease.

The majority of people paying for water are paying to access on-site borehole (27,644 individuals living in 485 sites). Within this group, 6,128 people in 126 locations are paying for it in addition to the rent.

The second source presenting a large number of people paying for the water are the sites where the residents manage the water trucking. 92 percent of the 24,884 individuals using this modality as a primary source are declaring paying for it.

Payment of the source

Finally, seven percent (123 sites hosting 6,940 individuals) of the locations receiving water via water trucking paid for by NGO are declaring paying to access this water. Also, 18 percent of them are stating paying for it in addition to the rent. Even if this is happening in a minority of sites (2 percent nationally), NGOs, where the population claimed it is happening, shall investigate carefully.

Water quality of the primary source

Water quality monitoring			% Nationwide
Sites with water tests	2031		36%
Safe water	1239	61%	22%
Not compliant	792	39%	14%
Fecal contamination	675	85%	12%
High Turbidity (above 5 NTU)	177	22%	3%
Nitrate ([NO3] above 45mg/l)	192	24%	3%

Regarding the Water quality, 572 samples (72 percent of the non-compliant water analysis) report solely fecal contamination. Twenty-five additional sites are reporting fecal contamination and turbidity above the palatable limit. For this total of 597 locations, the WaSH partners responsible should hold a further investigation to assess when the source produces a sufficient quantity of water, how to provide safe drinking water from the site. Simple disinfection of the well, if there is no diffuse contamination of the water table by adjacent wastewater containment or network or installation of the filtration unit on-site, could reduce the turbidity and ensure the absence of fecal coliform.

Comments

The exit of water trucking

During this sweep, NGO partners have been requested several times to revise and correct the data inputted to enable the calculation of the quantity of water per person per day per site taking into consideration the yearly average amounts integrating the seasonal variability of the different sources. As presented in the section average liter per capita per day, there is a massive disparity between sites when calculating the average liter per person per day. Even if 73 percent of the sites have access to more than 35 L/c/d, 15,943 people are declaring not being able to access the minimum Sphere emergency standards of 15 L/c/d. Those sites shall be prioritized for an intervention ensuring an increase of the water storage and the water access to achieving the sector standards of 35 L/c/d.

On the other hand, 562 sites (hosting 40,479 individuals) declaring having water trucking paid by NGO as the primary water source are also reporting accessing more than 40 L/c/d. Those sites are mostly located in Baalbek Hermel (327 locations and 21,083 individuals) and Bekaa (164 sites and 17,218 ind.). The rest of the sites are in the Northern and Akkar governorates, with 51 sites (1793 people) and 10 (383 ind.).

NGOs need to be more agile and prepare the planning based on WAP to ensure cost-effectiveness and drastic cost cut in this unsustainable activity. If we consider the data collected in this sweep (and corrected several times by the partners) are entirely accurate, by strictly applying the water strategy of water access in sites, NGOs could reduce more than 1,170,000 m³ per year of water trucked. Nevertheless, few sites present an unrealistic water quantity per person as currently, we can forecast a substantial savings of around \$3M for an average cost of \$2.5 per m³.

On top of the sites mentioned above, 174 sites hosting 17,054 individuals report not accessing a source on-site or in its vicinity. It increases to 214 locations and a population of 19,196 people when considering the public networks. Further assessment should be held in those sites, especially once the pilots on wastewater would be successful as reuse of treated wastewater could ease the access to alternative on-site water sources.

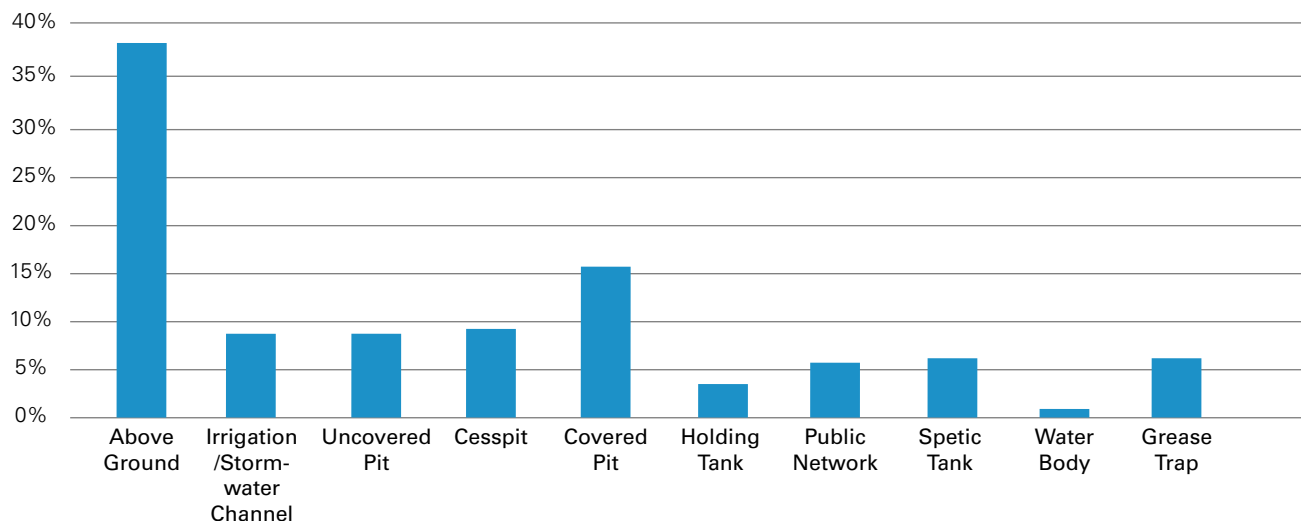
Finally, innovative and low carbon technologies for water pumping and purification needs to be developed in particular to exit totally from water trucking for sites with an existing source on-site and not to have any chemical contamination.

SANITATION



Greywater management

Figure 26: National repartition of greywater disposal



The majority of the shelter (38 percent) are discharging the greywater above ground. The remaining shelters are mostly managing the greywater in a similar type of containment as the blackwater.

The connection to holding tanks remains marginal nationwide, 3 percent (1,614) of the tents as this pratique is increasing the desludging frequency tremendously. The majority of the tents connected to a holding tank for greywater discharge (85 percent or 1,364) are located in the Bekaa governorate.

The pretreatment of the greywater by capturing the oil and fats using grease traps are present for 6 percent of the shelter nationwide. The governorates with the most significant representation of tents connected to such pretreatment are:

- Akkar with 1,519 (15 percent of the tents of the governorate),
- Bekaa with 1,254 grease traps (6 percent of the shelters of the governorate, mostly present in Zahle district with 1,095 dwellings connected to those units).

Some sites have some treatment or pretreatment options for greywater, using some gravels and sand to purify this water.

Blackwater management

User interface

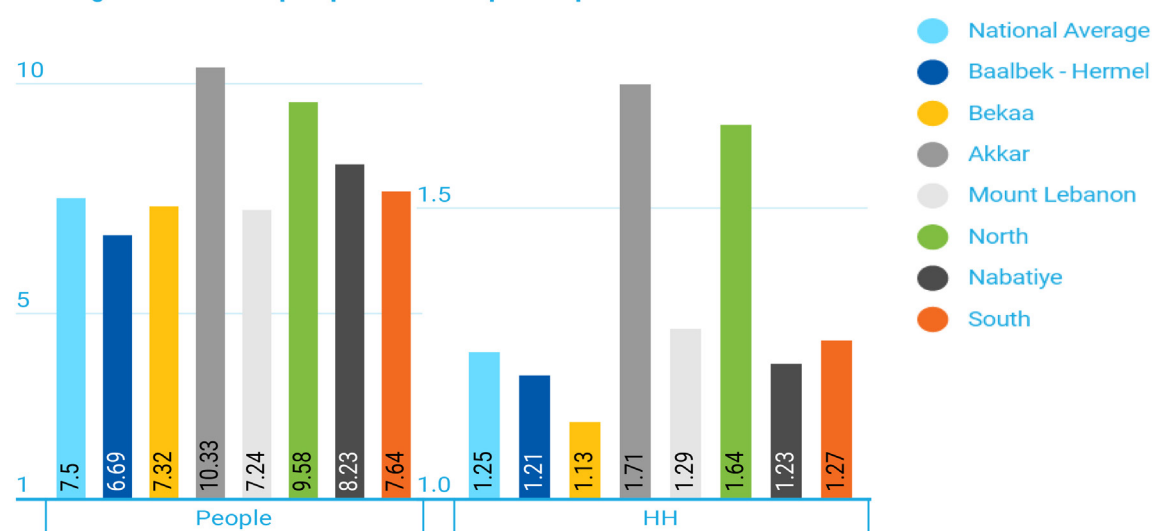
Nine hundred twenty-nine people living in fifty sites across the country still do not have access to any, even unimproved sanitation facilities on their site. It represents a negligible percentage of the population, and it has to be noted that it could also be coming from a misunderstanding of the questionnaire.

In the below graph, we can find the average number of people per latrine or user interface. The governorate of Baalbek Hermel and Bekaa are having the best coverage, respectively, of toilets per person and households. The governorate of Akkar is the one with a higher number of persons and families per latrines having, on average, one improved and useable latrine shared by 10.33 individuals and almost two households (1.71).

Sites with no latrines		
Governorates	# of Sites	# of Ind
Akkar	17	323
Baalbek-Hermel	19	429
Bekaa	8	65
Mount Lebanon	4	35
North	5	32
South	2	45
Nationwide	55	929

Figure 27: Average number of people and households per improved and usable latrines

Average number of people and HH per improved and usable latrines



Even if many efforts have been made to reach the current average number of people per latrines in the country, 488 sites (hosting 31,265) are still in need of 1,025 additional user interface to hit one improved and useable toilet for 15 individuals. This number includes the 55 sites with no toilets (accounting for 90 units required)

Nationwide, 3,092 sites hosting 164,646 individuals are reaching the Sphere standards recommendation one latrine per household. To ensure that, in the remaining 2,415 sites (hosting 156,821 individuals), the same standard is achieved, 9,671 latrines should be additionally constructed.

User interface

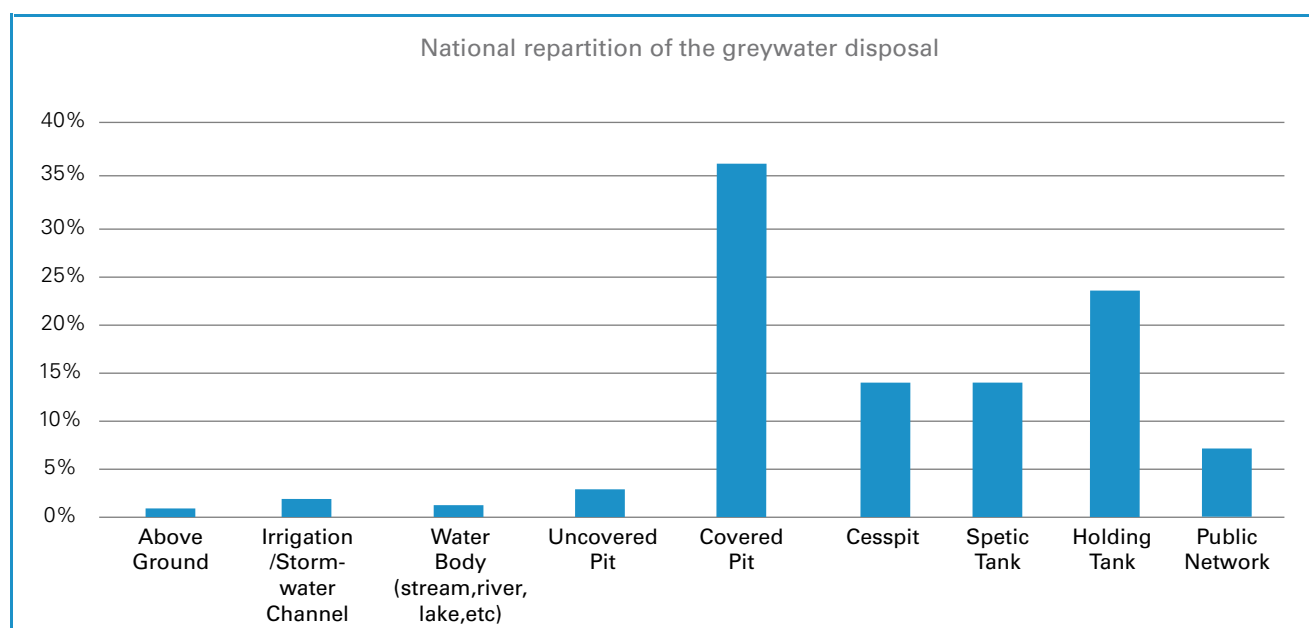
Governorates	Latrines outside shelter		Latrines inside shelter		Total latrines	Total improved and useable	Number of people	Average # of pers/ latrine	Average # of pers/ improved and useable latrine	Number of HH	Number of HH	Average # of HH/ improved and useable latrine
	Total	Improved & useable	Total	Improved & useable								
Akkar	4,344	3,699	1,284	1,201	5,628	4,900	50,606	8.99	10.33	8,394	1.49	1.71
Baalbek-Hermel	9,725	9,193	7,826	7,756	17,572	16,949	113,472	6.46	6.69	20,581	1.17	1.21
Bekaa	14,118	13,480	4,941	4,834	19,061	18,314	133,992	7.03	7.32	20,628	1.08	1.13
Mount Lebanon	274	253	288	271	523	524	3,794	7.25	7.24	675	1.29	1.29
Nabatiye	688	632	47	39	718	671	5,522	7.69	8.23	825	1.15	1.23
North	1,027	921	409	383	1,436	1,304	12,491	8.70	9.58	2,135	1.49	1.64
South	585	547	383	361	943	908	6,935	7.35	7.64	1,150	1.22	1.27
National Average	30,761	28,725	15,178	14,845	45,881	43,570	326,812	7.12	7.50	54,388	1.19	1.25

Containment

5 percent (2,190 units) of the latrines are discharging the blackwater into channels, water bodies, or unsafely in/on the ground. The repartition within the country is relatively homogenous for latrines above ground.

The governorates with the most substantial restrooms connected to stormwater channel or irrigation channels are the Akkar and the Bekaa, respectively, having 316 and 100 bathrooms attached to channels.

The majority (50.2 percent) of the restrooms are connected to a covered pit (35.8 percent) and cesspit (14.4 percent). Those covered pits ensure sanitary containment of the blackwater, but the soil structure, the geology, and level of the water table could lead to a rapid transfer of wastewater. Thus, in such conditions, this containment is a source of pollution for the soil and the groundwater resources.



Containment

14.3 percent of the restrooms are connected to septic tanks in the country. Most of the toilets connected to septic systems are located in Akkar (45 percent), Bekaa (33 percent), and Baalbek Hermel (19 percent).

Latrines connected to holding tanks remain the second-largest type of containment used by WaSH partners in the country, with 23.8 percent of the toilets attached to it. If this type of containment being sealed avoids any environmental contamination, this containment can require a high rate of desludging frequencies.

Finally, 3,171 latrines (6.9 percent) are connected to a sewer network, mostly located in the caza of Zahle (44 percent), Minnie Denieh (17 percent), and Akkar (12 percent). Those three cazas have sewer networks connected to a wastewater treatment plant in working conditions.

UNICEF has presented a prioritization methodology and associated list based on three different criteria:

- Number of not compliant latrines
- Groundwater vulnerability map prepared by Metni et al. using the DRASTIC method
- Proximity to a water body

This methodology has enabled us to classify the 3,564 sites having at least one non-compliant latrine into three different categories. The sites are divided as follows: 1,117 priority one, 24 as priority 2, and 2,507 as priority 3.

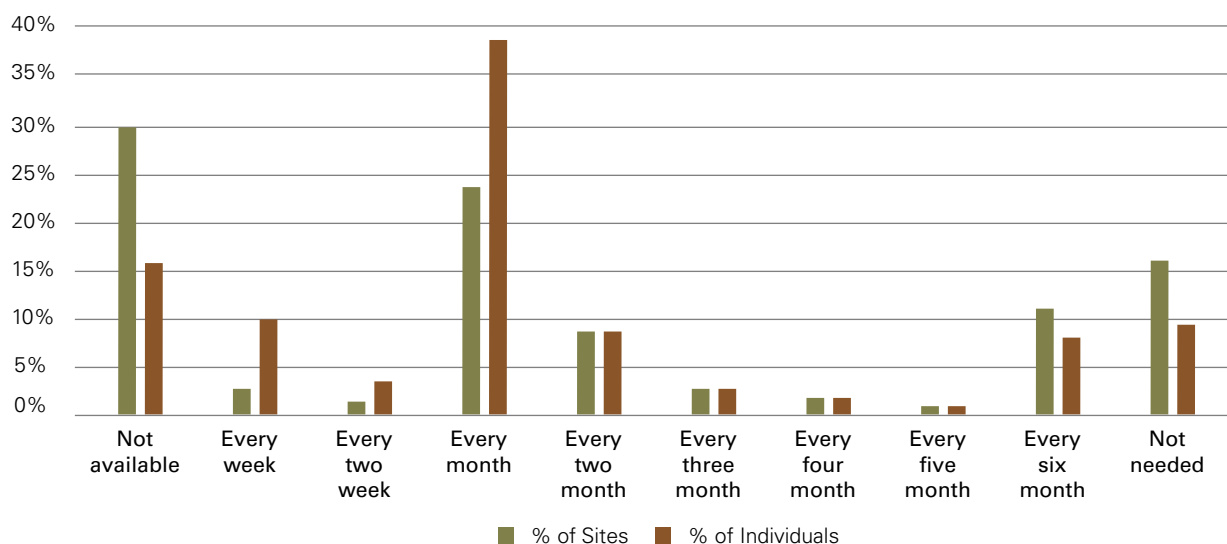
A breakdown of the priority one sites as been done in 7 subgroups to guide agencies.

	Arsal P1a & P1b	P1c	P1d	P1e	P1f	P1g	P2	P3	Total
ACF	116	1	20	3	5	74		74	293
Blank (No coverage)	15				1	3		16	35
DPNA			7	5	13	74		147	246
GVC			10	2	9	4	3	335	363
LOST	14					14	1	125	157
Leb Relief			18	3	22	54		211	308
MC					1	1		4	6
NRC		1	4	1	6	24	2	99	137
OXFAM			2			134		101	237
LRC		2	11	5	21	33	7	155	234
SAWA						27		66	93
SI		4	34	14	52	58	9	762	933
UNICEF			2	2	6	43		106	159
WVL		1	10	3	18	23	2	306	363
Total	148	9	118	38	154	566	24	2507	3564

Desludging

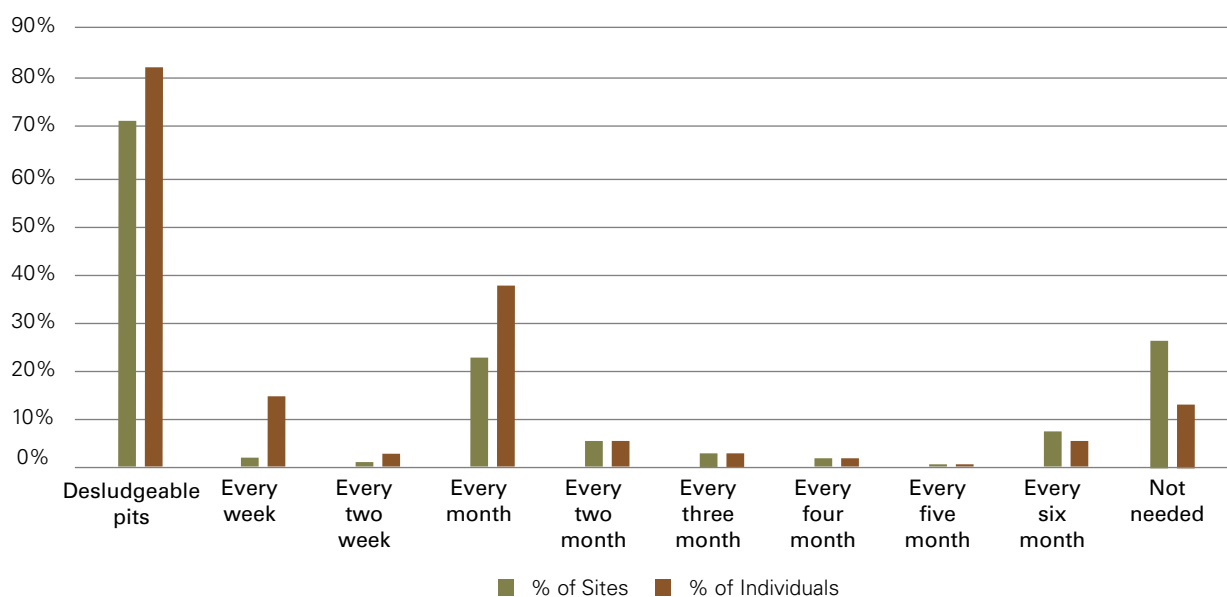
Desludging frequency

Figure 28: % of sites and individuals versus frequency of desludging in 2019



The graph above presents the desludging frequency per site and associated population. The most common desludging rate remains desludging once a month. The desludging once a month is a common practice for 1,315 sites hosting a total of 127,193 individuals. The largest sites (141 sites hosting 34,022 individuals) are requiring desludging once a week. The desludging services are not available in 1,714 sites hosting 50,944 people, those sites being mostly less than four tents sites. Finally, 31,653 individuals (10 percent) reside in 881 places where this service is not needed, mostly because the restrooms are connected to sewer networks.

Figure 29: % of sites and individuals versus frequency of desludging in 2017



Desludging frequency

When comparing the data with a similar graph using the 2017 WAP data, we can notice that the desludging frequency of once every two, three, four, and five months have slightly increased. Still, overall, the desludging rate remains similarly distributed.

Frequency of desludging	Above ground	Irrigation /storm channel	Water body	Uncovered pit	Covered pit	Cesspit	Septic tank	Holding tank	Public network	Total
Not available	-	-	-	1%	6%	2%	2%	2%	1%	14%
Every week	-	-	-	-	10%	5%	1%	-	-	16%
Every two week	-	-	-	-	1%	1%	1%	1%	-	3%
Every month	-	-	-	1%	11%	3%	5%	18%	1%	38%
Every two month	-	-	-	-	3%	2%	1%	2%	-	7%
Every three month	-	-	-	-	1%	-	1%	1%	-	2%
Every four month	-	-	-	-	1%	-	-	-	-	1%
Every five month	-	-	-	-	-	-	-	-	-	-
Every six month	-	-	-	-	2%	1%	3%	-	-	6%
Not needed	-	1%	-	-	2%	1%	1%	-	-	9%
Total	0%	1%	0%	3%	36%	14%	14%	24%	7%	100%

The table above presents the desludging frequency per type of containment. That the containment with higher desludging rates are the covered pits and holding tanks. The covered pit is the containment responsible for the largest share of the weekly desludging. The sites needing weekly desludging are for 90 percent of them present in Baalbek Hermel, mostly Aarsal.

Regarding the monthly desludging, this is due to the significant presence of holding tanks but also covered pits mainly installed in Baalbek-Hermel and the Bekaa. Those two governorates are accounting for 62 and 33 percent of sites and 74 and 22 percent of the population, necessitating this frequent service. It might come from 2 different factors:

- an inappropriate sizing of the containment with possibly mixing of greywater increasing the frequency of desludging and,
- a habit took several years of crisis with this frequency of service, making it difficult to readapt or reduce the desludging rate to an on-call or when needed frequency.

Comments

Greywater

Greywater management has been overlooked and needs to be addressed. It represents still a source of environmental contamination and could lead to being a health hazard when creating flies and mosquitos breeding areas and possibly leading to waterborne diseases.

User interface

People, on average, are sharing one latrine with 7.5 people (1 latrine per 1.25 Household). This ratio is close to the sphere recommended minimum standard of 1 latrine per household. Still, 488 sites are not reaching the emergency sector standards of 1 toilet for 15 people. It includes the 55 sites mentioned not having any latrine on-site.

Containment and risk of pollution

As presented in the containment section, 24,467 latrines in 3,564 sites are connected to a non-compliant containment. UNICEF has proposed to intervene in priority in 1,117 locations, with 148 sites located in Aarsal cadaster.

Desludging

This activity represents a yearly cost of around US\$ 4.6m. In 2019, UNICEF partners disbursed nearly US\$ 1.5m as a direct cost on desludging in Aarsal cadaster solely.

Hight desludging cost is resulting from two different causes :

- too frequent desludging. Sector partners need to address this issue by adapting the type of containment in priority sites hosting the largest population. Also, even if now all the partners are paying the desludging vendors by the cubic meter of sludge removed, the agencies shall continue their effort by shifting to on-call services and not work anymore with plannings. It shall be done while ensuring there is no overflowing systems,
- too costly removal of the cubic meter of sludge. UNICEF and partners are using unregulated vendors to undertake desludging activities, significant unit cost discrepancies between governorates are seen as per the under table. Using solely unregulated vendor is currently reassess, and the Water Sector, with the support of the MoEW shall propose a revised fair cost possibly composed of a minimal fee for emptying and a flat rate per km to enable the trucker to reach a safe emptying location. Possible fees to be collected by the Wastewater treatment plant to treat the sludge could be added.

Comments

Governorates	Average cost per m3 removed	Average cost per m3 removed	Average cost per m3 removed
Akkar	\$ 6.40	\$ 13.50	\$ 6.00
Baalbek-Hermel	\$ 12.22	\$ 17.50	\$ 4.50
Bekaa	\$ 11.17	\$ 16.00	\$ 8.00
El_Nabatiye	\$ 30.00	\$ 30.00	\$ 30.00
North	\$ 7.00	\$ 7.00	\$ 7.00
South	\$ 25.00	\$ 25.00	\$ 25.00
Grand Total	\$ 10.53	\$ 30.00	\$ 4.50

Currently, 17 sites have on-site treatment. Only a few of them are reaching the tertiary treatment, which will possibly enable safely discharging treated wastewater in the environment as per MoE environmental limit values. It is currently assessed.

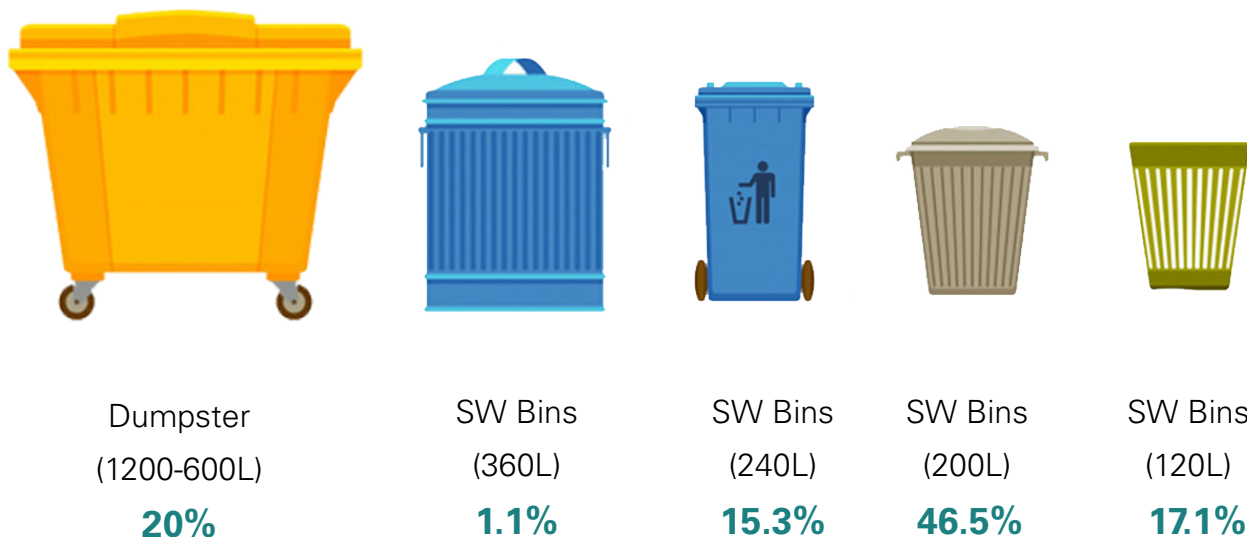
In parallel, the Water Sector is showing significant interest in piloting and when it will be possible putting at scale robust treatment solution enabling to :

- reduce the environmental impact of the wastewater produce by individuals living in ITSs,
- reduce the desludging frequencies
- possibly sustain the domestic or drinking water access by enabling the landlord to reuse the treated wastewater for irrigation.

SOLID WASTE



Solid waste storage volume



All over ITSs, the most common bins available is the 200L metallic bins, often being a repurpose metallic barrel. Overall, ITSs people have access to an average of 10L of storage of refuse per person or 57 liters per household.

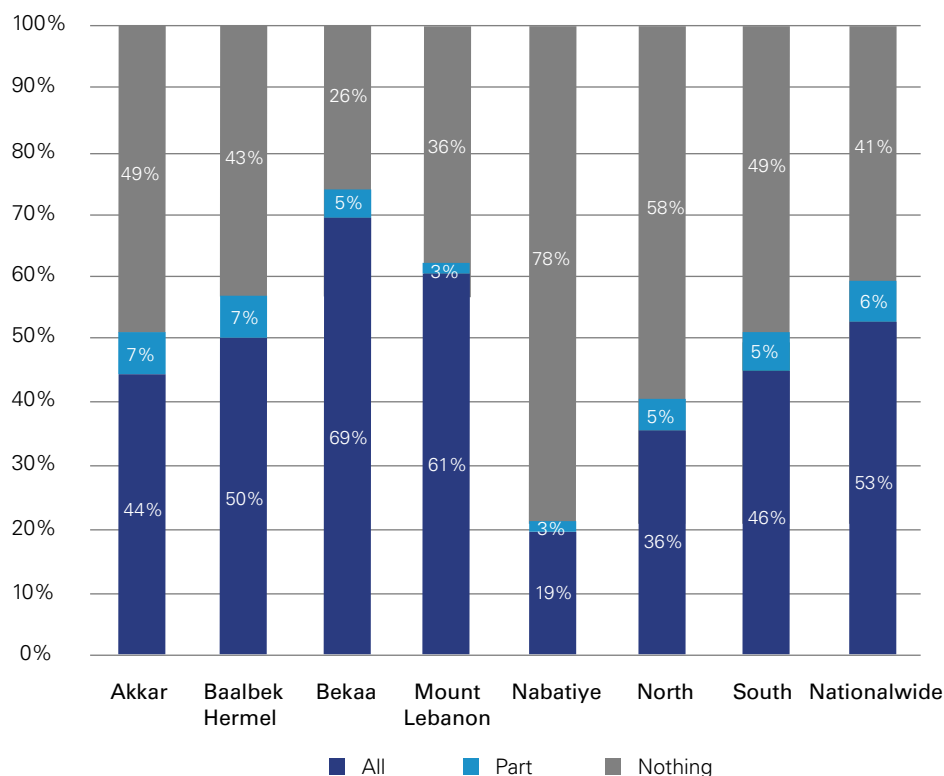
The governorates of Mount Lebanon and North account for the most significant volume available for the disposal of refuse, respectively 242L and 163L per person. On the overhand, Baalbek-Hermel (with 31L per pers.) and Nabatiye (13L/pers) are the governorates with the lowest volume refuse available per person.

Two thousand six hundred forty sites (2,640) (47 percent of the sites hosting 143,713 individuals) are not having enough volume of the waste container to reach the emergency sphere minimum standards of 100L for 10 HH. It has to be noted that the absence of solid waste containers is not affecting the collection of waste. Indeed, most of the municipalities, when collecting the waste from ITSs, are collecting them even if there is no dumpster. The municipalities are agreeing with the ITSs communities to define a location to be used as a dumpsite.

Collection of solid waste

Collection

Figure 30: Collection of solid waste per governorate

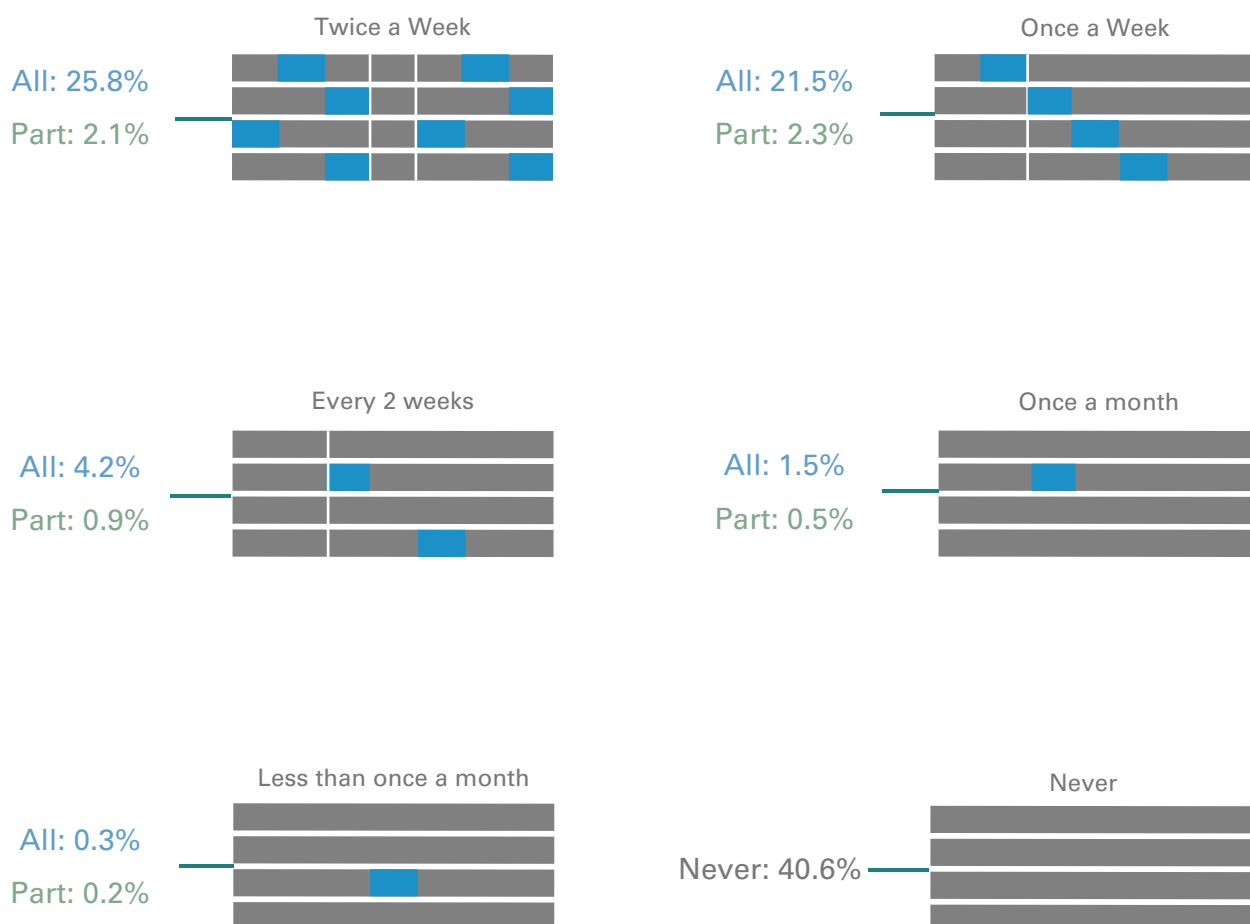


On average, 59 percent of the refuse produce in ITSs are collected (totally or partially). There is a considerable disparity nationwide when it comes to solid waste management (SWM). The Bekaa is the governorate where solid waste is the most collected, with 74 percent of the refuse generated by the people living in ITSs being totally or partially collected. Nabatiye is the governorate with the worst solid waste management for ITSs, as only 22 percent of the refuse is collected.

There are many disparities between governorates countrywide, moreover within cazas, and even within cadasters. This significant heterogeneity is due to the management of the solid waste in Lebanon, being managed at municipal or Union of municipality level. Those refuse are creating an extra burden on municipalities often already stretch to handle the waste produced by Lebanese citizens.

Frequency of collection

Figure 31: Frequency of collection



For 59 percent of the sites in the country where there is a collection of solid waste, the majority (1,566 or 28 percent) have their refuse removed at least twice a week (as per minimum standards). Twenty-four percent of the sites have their waste collected weekly.

Management of the uncollected wastes

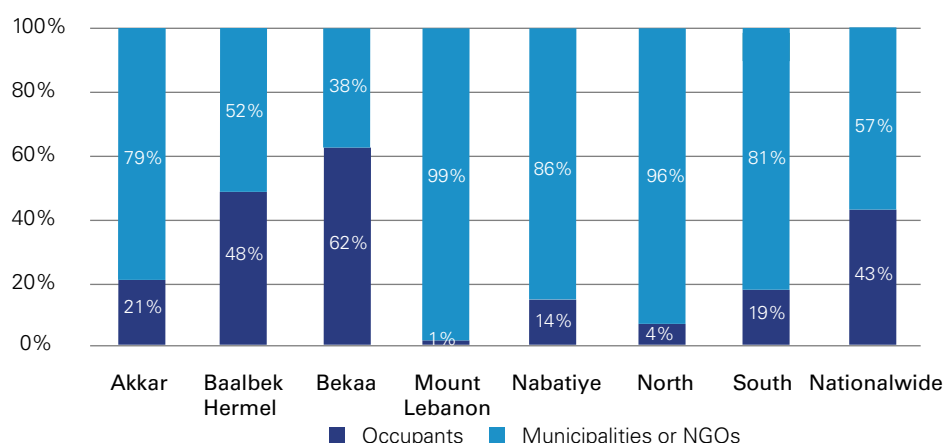
For the people residing in sites where there is no collection of solid waste, they are:

- Collecting it and burning it on-site or far away from the site for 82 percent of them
- Burying, or dumping in channels or near the shelters, the ashes and remaining of wastes
- Dumping the garbage in a location far from the site for 12 percent
- Littering it near the shelters 3 percent
- Dropping it into channels (irrigation/stormwater...) for 2 percent
- Directly burying the wastes for 1 percent

Payment of solid waste collection

For the sites where there is a collection (full or partial) of the waste (59 percent of the sites), 43 percent of the occupants report paying the service. The remaining sites are seeing the waste removal managed or paid by the NGOs or the municipalities.

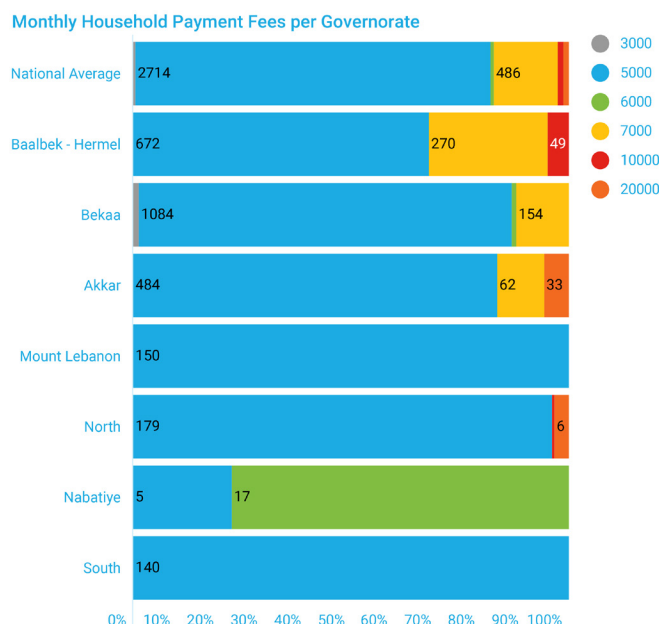
Figure 32: Percentage of payment incurred by occupants and municipalities on solid waste collection per governorate



Paying or not for the service and how much the service cost when you are paying differs widely between cadasters. The fees range between 3,000 LBP and 20,000 LBP per household per month. However, the average cost is 5,000 LBP per household per month. Most of the time, the occupants pay those fees directly to the municipality. However, in some sites, the Shawish or the landlord collects the money from inhabitants to pay the municipality.

Governorates	Less than one year	More than one year
Akkar	5000	20000
Baalbek-Hermel	5000	10000
Bekaa	3000	7000
Mount Lebanon	5000	5000
Nabatiye	5000	6000
North	5000	20000
South	5000	5000
Grand Total	3000	20000

Figure 33: Monthly household payment on solid waste collection per governorate



Comments

The majority of the sites have their waste collected (59 percent), but it is only 28 percent that have a frequency of collection respecting the minimum standard of once every two days. It remains a nuisance and possible health risk for the sites where the waste is not frequently removed.

41 percent of the sites do not have any collection of garbage, letting 107,149 people be obliged to have harmful coping mechanisms leading to health risks and environmental pollution. This challenging situation needs to be addressed by continually assessing the capacities of the municipalities, and identifying the bottleneck and possible lack of resources for further programming.

Even if partners have demonstrated that the collection was not dependant on the availability of bins to the site, an increase in the number of containers could increase the number of locations where the collection of the waste is total.

ENVIRONMENT



Environment

Problems with insects

Insects	Not at all	Negligible	Not so prevalent	Prevalent	Total number of sites
Akkar	2%	25%	51%	23%	1125
Baalbek-Hermel	6%	30%	31%	33%	1723
Bekaa	12%	44%	36%	9%	1699
Mount Lebanon	3%	8%	68%	22%	235
Nabatiye	2%	12%	59%	27%	100
North	4%	59%	34%	2%	444
South	3%	18%	61%	18%	276
Nationwide	6%	33%	40%	20%	5602

The table above is presenting the percentage of sites declaring having issues with insects. Twenty percent of the sites are stating having a problem with insects. The most significant proportion of sites with this problem are present in the governorates of Baalbek-Hermel (571 sites), and Akkar (259 sites).

Problems with rodents

Rodents	Not at all	Negligible	Not so prevalent	Prevalent	Total number of sites
Akkar	4%	27%	45%	24%	1125
Baalbek-Hermel	7%	24%	35%	33%	1723
Bekaa	11%	46%	32%	10%	1699
Mount Lebanon	4%	6%	63%	27%	235
Nabatiye	2%	10%	70%	18%	100
North	5%	59%	34%	2%	444
South	5%	21%	61%	13%	276
Nationwide	7%	33%	39%	20%	5602

Regarding the problem of rodents, the repartition of sites is similar to reporting issues with insects. The governorates with the most significant representation problem of rodent are Baalbek-Hermel (576 sites), and Akkar (272 sites). It also must be noted that the collection of solid waste or its frequency doesn't seem to trigger the prevalence of the issues of rodents (544/1146 sites are prevalent and without or low collection of solid waste). The presence of a nearby source of public health concern is not a trigger neither, with only less than 1/3 of sites in this situation (346/1146).

Littering in the site

Littering	Not at all	Negligible	Not so prevalent	Prevalent	Total number of sites
Akkar	25%	44%	27%	5%	1125
Baalbek-Hermel	51%	30%	17%	2%	1723
Bekaa	48%	38%	12%	2%	1699
Mount Lebanon	91%	2%	4%	3%	235
Nabatiye	49%	18%	22%	11%	100
North	82%	14%	4%	0%	444
South	71%	17%	10%	2%	276
Nationwide	50%	32%	16%	3%	5602

We can see in the overall country that the sites are relatively clean without issues of littering. Eighty-two percent of the sites have no or negligible solid waste littered in the site. The governorate with the most significant problem regarding littering is Nabatiye. This governorate presents the highest proportion of the littering (11 percent prevalent and 22 percent not so prevalent). It is likely to be linked with a low solid waste collection rate.

Open defecation

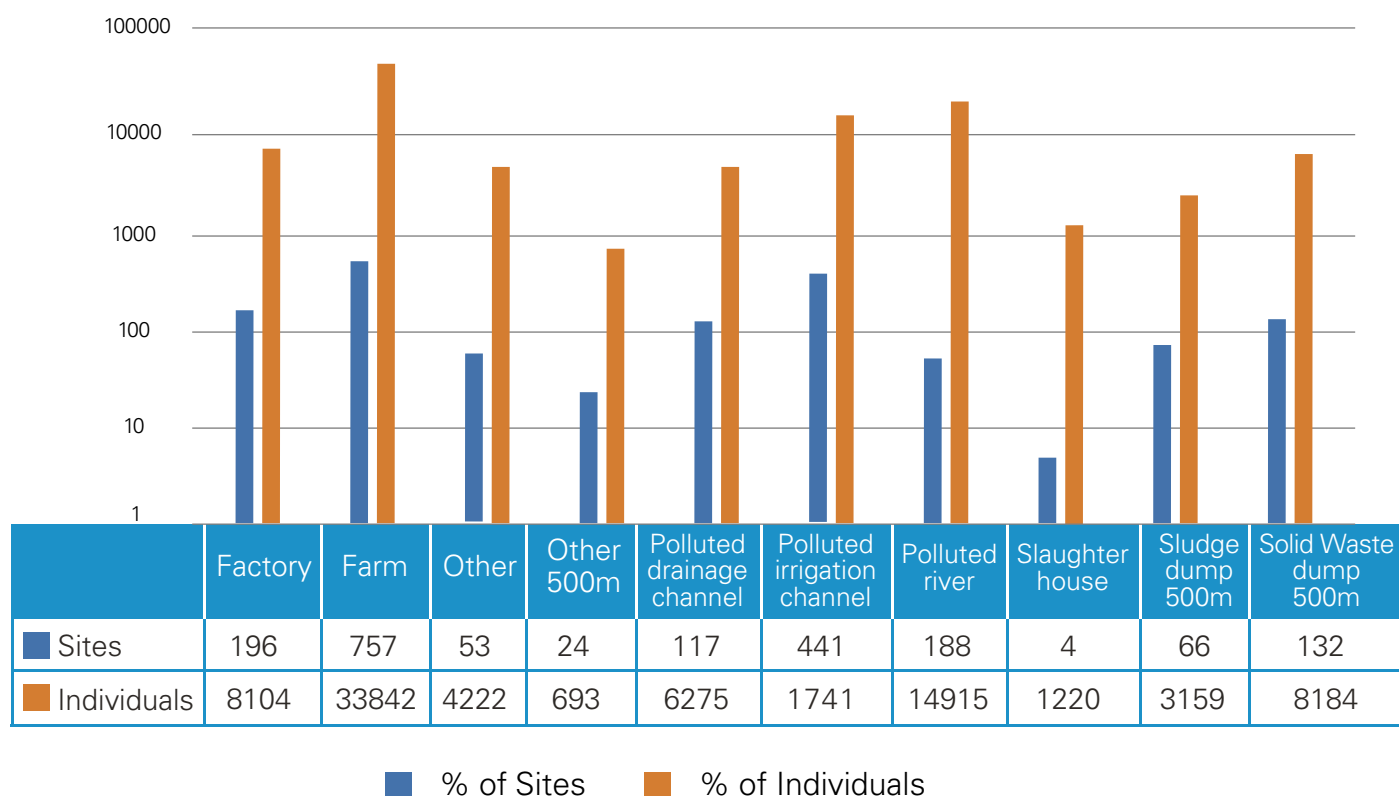
Open defecation	Not at all	Negligible	Not so prevalent	Prevalent	Total number of sites
Akkar	68%	22%	9%	1%	1125
Baalbek-Hermel	71%	18%	9%	2%	1723
Bekaa	75%	21%	3%	0%	1699
Mount Lebanon	96%	1%	1%	2%	235
Nabatiye	74%	17%	6%	3%	100
North	96%	3%	1%	0%	444
South	89%	5%	4%	1%	276
Nationwide	76%	17%	6%	1%	5602

Open defecation is relatively rare across the country. It's prevalent in 55 sites only. It's absent or negligible in 93 percent of the sites. When linking the Open defecation to the availability of toilets on-site, we have identified that seven sites over the fifty-five have no restrooms. For the others, an average of 10.9 people per latrines is existing.

Source of public health concern

One thousand five hundred seventy-eight sites hosting 98,663 individuals report having in the vicinity of their location (less than 500m) hazardous activities or facilities.

Figure 34: Proximity of site to hazardous activities or facilities



A majority of the sites located in the vicinity of a hazardous site are located close to a farm. Also, 746 sites hosting 38,609 individuals are declaring being located close to a polluted river, drainage, or irrigation channel. Finally, 8,184 residing in 132 are stating being located close to a solid waste dumpsite, and more sadly, 3,159 people in 66 sites are claiming to have a sludge dumpsite less than 500m away from their site.

Flood

Number of sites affected by floods

Governorates	# of sites of the governorate affected by a flood event	% of sites of the governorate affected by a flood event
Akkar	833	74%
Baalbek-Hermel	584	34%
Bekaa	709	42%
Mount Lebanon	56	24%
Nabatiye	25	25%
North	169	38%
South	100	36%
Grand total	2,476	44%

Over the year of 2019, 2,476 sites hosting 173,856 people have been affected by a flood event. The governorates of Akkar and the Bekaa, with respectively 833 and 709 sites affected by this hazard, are the most affected. Its respectively amounting for 74 and 42 percent of the places in those governorates.

The surface affected in the site

Governorates	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	Total # of sites affected by flood	Total # of sites
Akkar	31	60	57	44	137	43	61	61	14	325	833	1125
Baalbek-Hermel	43	69	63	59	81	44	30	45	13	138	585	1723
Bekaa	44	80	95	59	122	43	44	42	23	157	709	1699
Mount Lebanon	28	15	6	2	1	0	0	0	0	4	56	235
Nabatiye	6	5	4	4	4	1	1	0	0	0	25	100
North	24	24	17	11	7	8	25	33	12	8	169	444
South	46	15	7	6	11	6	6	1	1	1	100	276
Grand total	222	268	249	185	363	145	167	182	63	633	2476	5602

Over the year of 2019, 2,476 sites hosting 173,856 people have been affected by a flood event. The governorates of Akkar and the Bekaa, with respectively 833 and 709 sites affected by this hazard, are the most affected. Its respectively amounting for 74 and 42 percent of the places in those governorates.

Duration of the floods

The floods tend to last less than five days (94 percent of the sites). Sixty-seven percent of the sites affected by floods have been affected by a flood lasting one or two days. But for a minority of the sites, the flood event can last up to one month (9 sites in Bekaa).

Governorates	# of days of the flood events																			Total
	1	2	3	4	5	6	7	8	10	12	13	14	15	16	18	20	25	26	30	
Akkar	426	282	81	22	7	2	8		5											833
Baalbek-Hermel	56	229	168	54	35	9	28		3	1						1			0	584
Bekaa	205	182	153	52	45	7	36	4	13			2	4	1	2	3	1		9	719
Mount Lebanon	44	4	5		1				1				1							56
Nabatiye	8	10	5		2															25
North	109	40	10	3	3			1	1		1							1		169
South	55	31	7	1	1		1						1			3				100
Nationwide	903	778	429	132	94	18	73	5	23	1	1	2	6	1	2	7	1	1	9	2486

Figure 35: Nationwide duration of floods in relevance to the number of sites

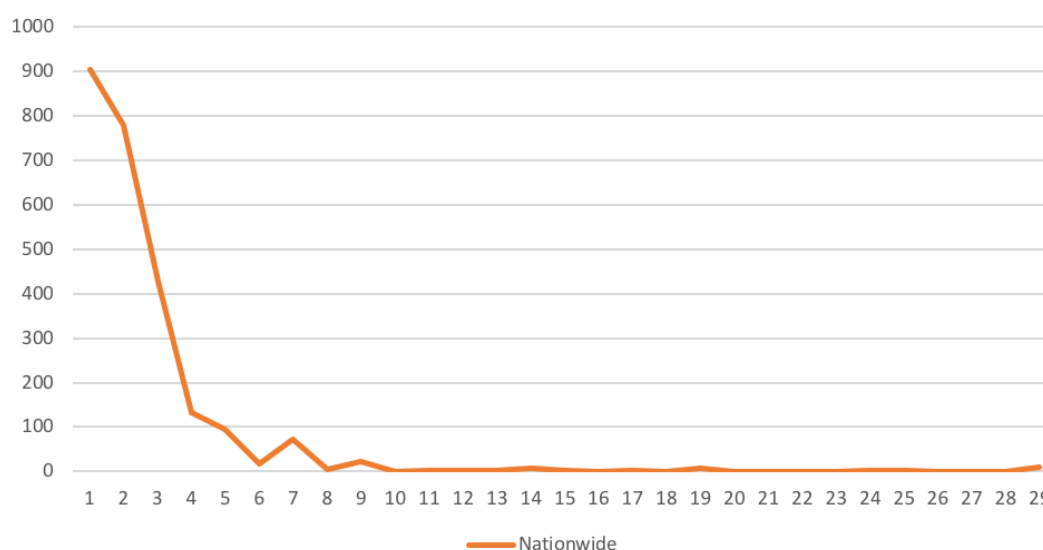
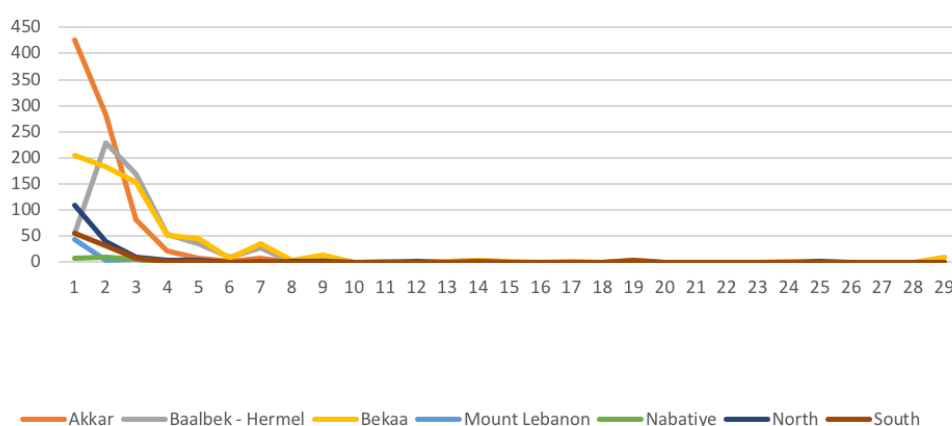
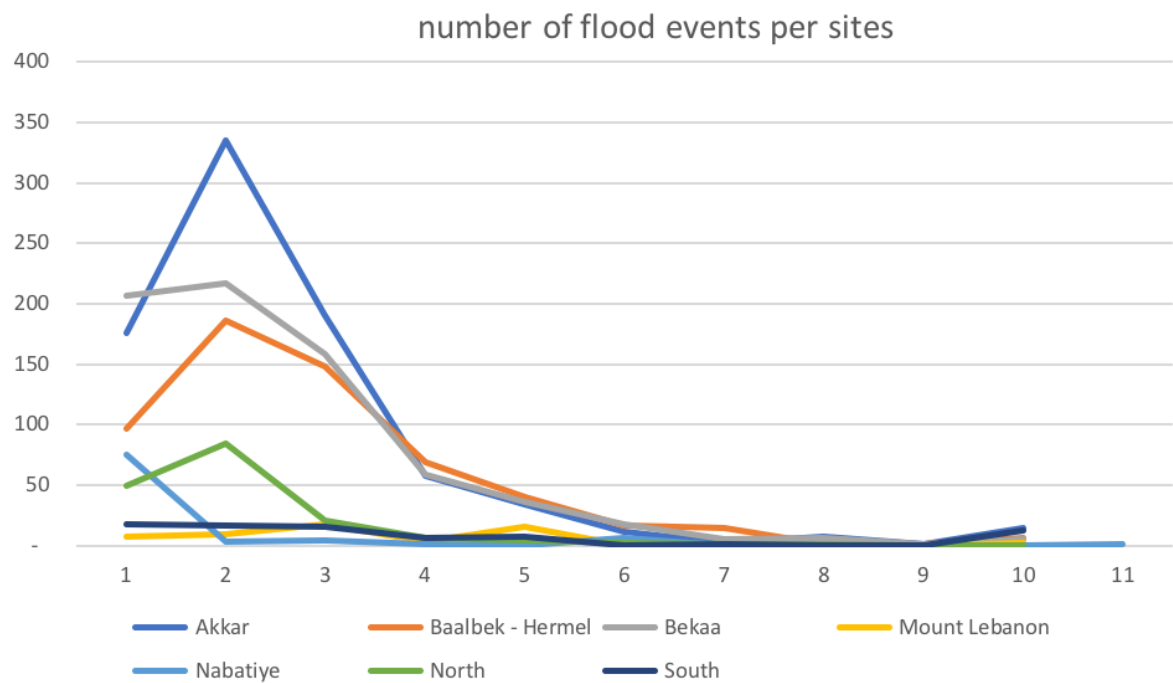


Figure 36: Duration of floods in relevance to the number of sites per governorate



Frequency of the floods

Figure 37: Number of flood events per site per governorate



The graphic above presents the number of flood events per site. The majority of the sites face three or fewer episodes per year (80 percent of the sites). Some sites report up to 50 or 60 flood events a year (8 locations in total).

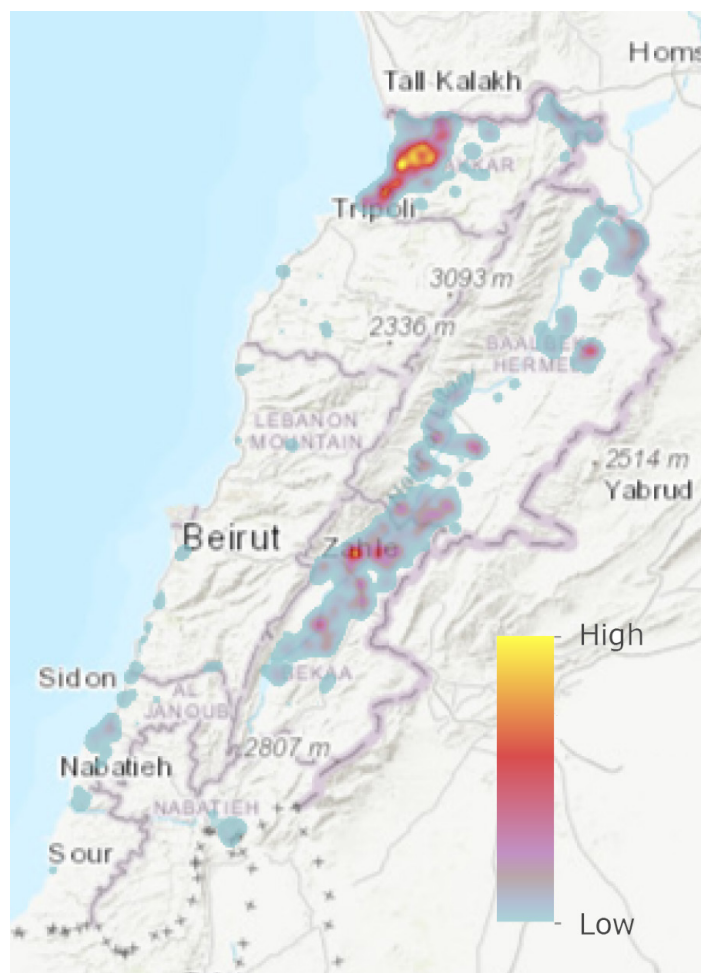
Comments

The environmental vulnerability, even if potentially contributing to a fifth of the total vulnerability, is the sector the less vulnerable and providing the least to the national vulnerability.

The two areas contributing to this sector vulnerability are the proximity to environmental hazards and the floods. For the first one, 30 percent of the population residing in 2,477 ISs live in the vicinity of a source of public health concern, mainly polluted surface water source (river, drainage, irrigation channel) and farms. At site level it is difficult to address the possible nuisance apart by investigating how people can be supported directly to mitigate the nuisance resulting from those potentially harmful activities (as providing mosquito nets to reduce the presence of flies inside dwellings..).

In regards to floods, the map hereafter presents the sites vulnerable to flood and the magnitude of their vulnerability. We can quickly notice that the site prone to flooding are located in the Akkar foothill and on the Bekaa valley. In the Bekaa and Akkar, most sites affected by floods are not situated on river banks. Floods are mainly resulting from really shallow groundwater, overflow of stormwater channels, or non-evacuation of the rain and wastewater discharged on the site because the gutters are blocked, or the site is situated in low lying areas.

Figure 38: Sites vulnerable to flood and the magnitude of their vulnerability



OPPORTUNITIES AND USES OF WAP



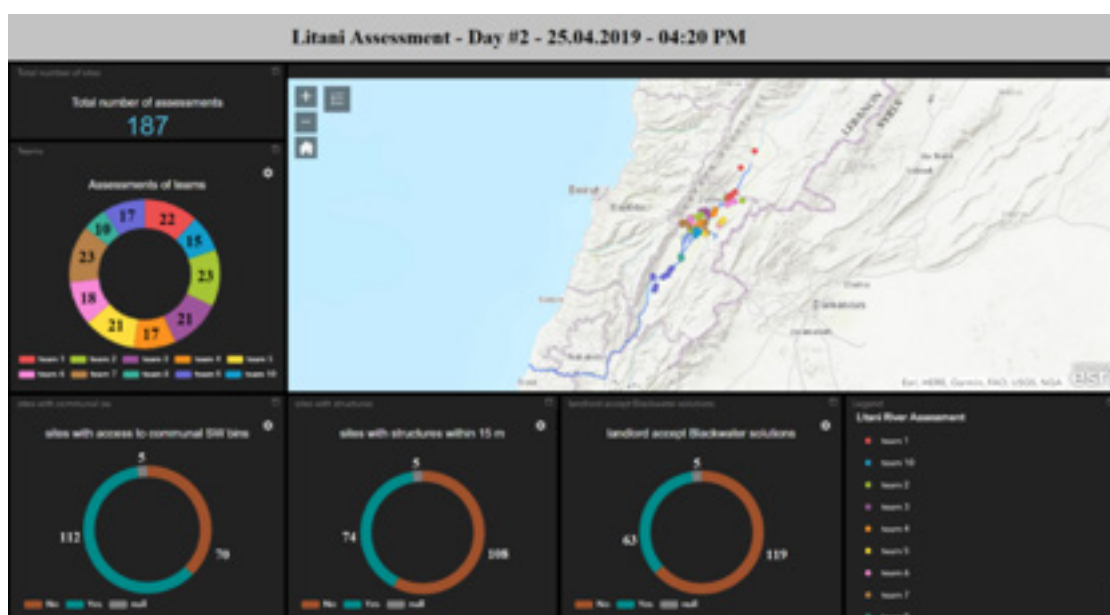
Opportunities and uses of WAP

Since its creation, the WAP being a complete database, it was one of the essential tools to prepare any response to different emergencies. The Water Sector has been using it as a tool to inform decisions. The sector used it to support the Litani river cleaning campaign, floods mapping and prevention, and, more recently, to support the COVID-19 response.

Litani cleaning campaign

The Water Sector, the MoEW, and MoE have been using the WAP to detect and highlight the sites' potentially presenting nuisance for the environment. The sites where non-compliant wastewater infrastructures and harmful solid waste practices were identified and are now prioritized to prevent environmental risk, particularly for groundwater resources and surface water such as the Litani river, the below figure shows a screenshot of the dashboard that has been used during the Litani WAP assessment

Figure 39: Assessment of sites at risk within the Litani river basin



WAP has facilitated the process of the Litani cleaning campaign by detecting the sites that are a risk of pollution for the Litani river. Besides, it helps to prioritize the intervention by starting with the sites presenting the significant pollution risk. Additional data collected in the WAP, such as depth of water table according to nearby boreholes, data on floods, ..., have facilitated the definition of the most suited wastewater system to implement. For example, holding tanks are preferred if the water table is shallow and close to the surface and in areas where a flood can occur. Septic tanks are preferred where the water table is considered low.

Also, the WAP information on the way that people are handling their wastes (for example: burning, dumping,...) has supported the WaSH actors working in ISs for targeting the sites where solid waste awareness sessions shall be prioritized. Besides, this database has enabled the MoE and Social Stability Sector to develop a National SWM action plan. This plan enables the Social Stability Sector to mobilize and sensitize municipalities where the collection was not happening for some or the entire ISs.

Litani cleaning campaign

The WAP supports the agencies in defining and designing a possible on-site solution for the different problems identified.

By compiling different indicators such as:

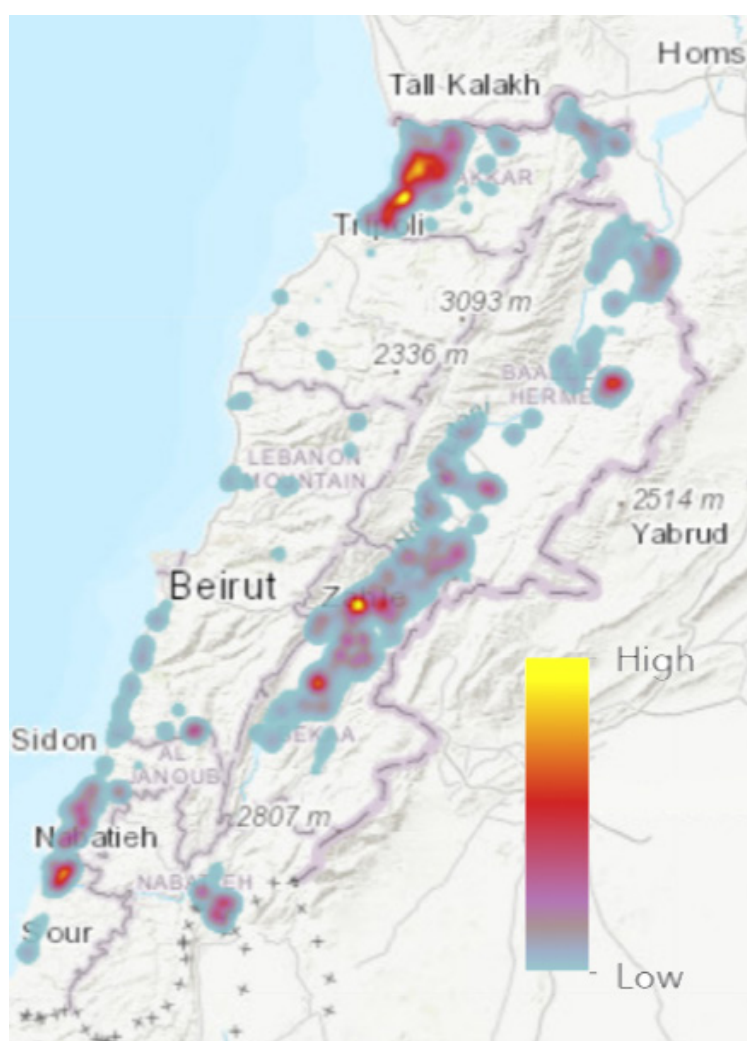
- risk of eviction,
- willingness from landlord to build additional WaSH facilities,
- the density of the site,
- etc...,

The agencies can define and prioritize the sites in need of support in their areas of intervention.

Prevention mitigation measures for floods

The WAP enables us to highlight the sites were having faced flood for the past three years and project the areas that could be affected in the coming years. This site should have mitigation measures before the coming winter.

Figure 40: High flood frequency sites in need of mitigation measures



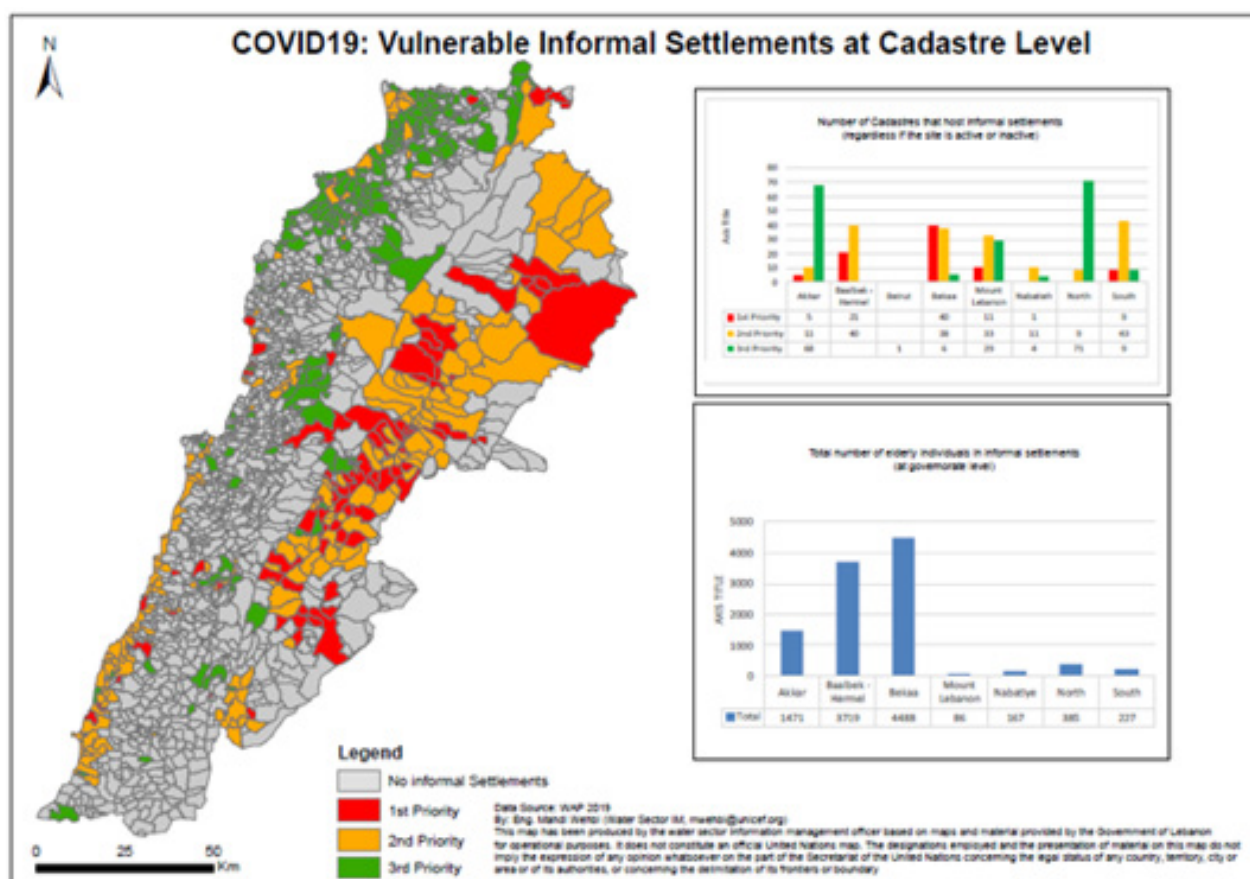
Coronavirus response

A priority map was prepared to help the partners to prioritize support across the country during the first weeks of the COVID-19 pandemic, using WAP updated data to detect the cadasters that host the most vulnerable informal settlements. The map is presenting the sites where COVID-19 cases could have been expected according to the following criteria:

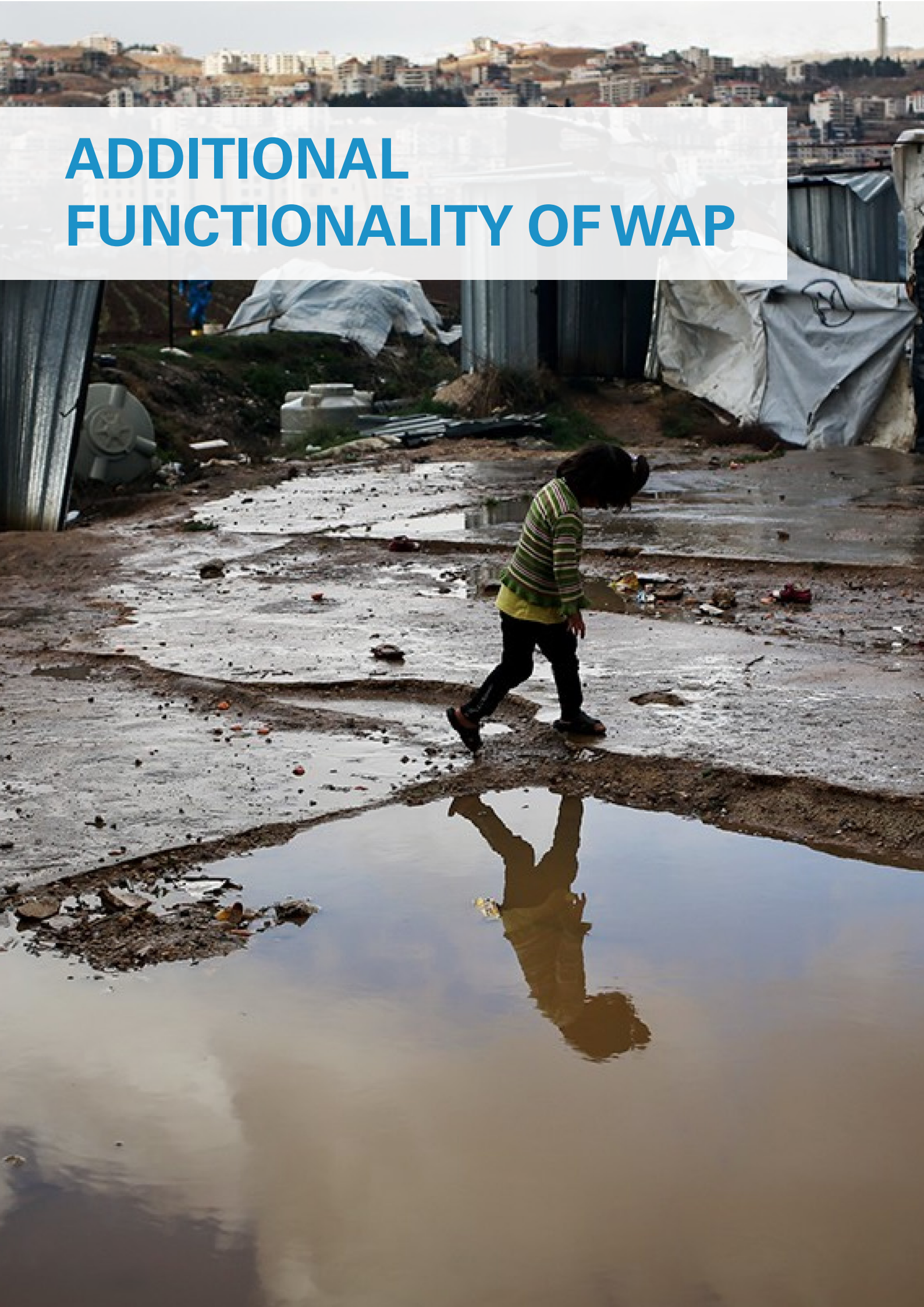
- Number of households in the site,
- Percentage of elderly in the site,
- Water Criteria: a formula combines the type of water source, the quantity of water and frequency/availability of water,
- Density and distance of the site,
- Existence of open defecation and the hygienic status of the site,
- Wastewater disposal score.

The map hereafter enabled partners to prioritize their intervention including the distribution of disinfection kits.

Figure 41: COVID-19: vulnerable informal settlements at cadaster level



ADDITIONAL FUNCTIONALITY OF WAP



Additional functionality of WAP

WAP is also supporting the partners and the sector in its daily operations and interventions. It will be strengthened following the launch of the WAP website: ialebanon.unhcr.org/WAP/

3W and GAP analysis

WAP shows who is doing what and where. "Blank" sites are considered gaps in coverage that no one is intervening in or monitoring the site. Partners can check which sites they are not covering yet, sites they should update, or sites still missing information on water quality data using the live dashboard (GAPs Finder).

Handover of sites

If a specific agency is missing funds, then they can handover their sites to the sector or to another agency that has secured funds to cover the needed interventions. "Handover of sites" is facilitated, systematized, and quickly to be done using the dashboard. The new agency can view and edit the previous assessments done by the previous agency through the inbox in their tablets.

Early Warning System (EWS) for water-borne disease

With the joint effort of UNICEF (Water Sector and Health Section), American University of Beirut (Global Health Initiative), and the surveillance unit (MoPH), the WAP has been improved to identify sites where a waterborne disease could occur based on 27 criteria.

Future opportunities for WAP

To support the standardization effort in ensuring each partner is intervening following the best practices and standards identified in the Water Sector, the WAP will include additional calculations and functionality. Those new features will enable the partners to directly identify if they are respecting the minimum and sector preferred standards and gaps.

ANNEX



Representation of new and old sites per governorates/cazas

Governorates / Cazas	Recent sites (Less than one year)	Older sites (more than one year)	Total number of Sites	Recent sites in %	Older sites in %
Akkar	119	1006	1125	11%	89%
Akkar	119	1006	1125	11%	89%
Baalbek - Hermel	95	1628	1723	6%	94%
Baalbek	90	1557	1647	5%	95%
Hermel	5	71	76	7%	93%
Bekaa	78	1621	1699	5%	95%
Rachiaya	1	17	18	6%	94%
West Bekaa	21	481	502	4%	96%
Zahle	56	1123	1179	5%	95%
Mount Lebanon	25	210	235	11%	89%
Aley	1	26	27	4%	96%
Baabda		4	4	0%	100%
Chouf	14	106	120	12%	88%
El Metn		5	5	0%	100%
Jubail	3	29	32	9%	91%
Kasrouane	7	40	47	15%	85%
Nabatiye	6	94	100	6%	94%
Hasbaiya		29	29	0%	100%
Marjaayoun	6	65	71	8%	92%
North	67	377	444	15%	85%
Batroun	5	29	34	15%	85%
Bcharre		1	1	0%	100%
Koura	5	74	79	6%	94%
Minieh-Danieh	42	223	265	16%	84%
Tripoli	1	5	6	17%	83%
Zgharta	14	45	59	24%	76%
South	27	249	276	10%	90%
Jezzine	3	11	14	21%	79%
Saida	22	197	219	10%	90%
Sour	2	41	43	5%	95%
Grand Total	417	5185	5602	7%	93%

Akkar

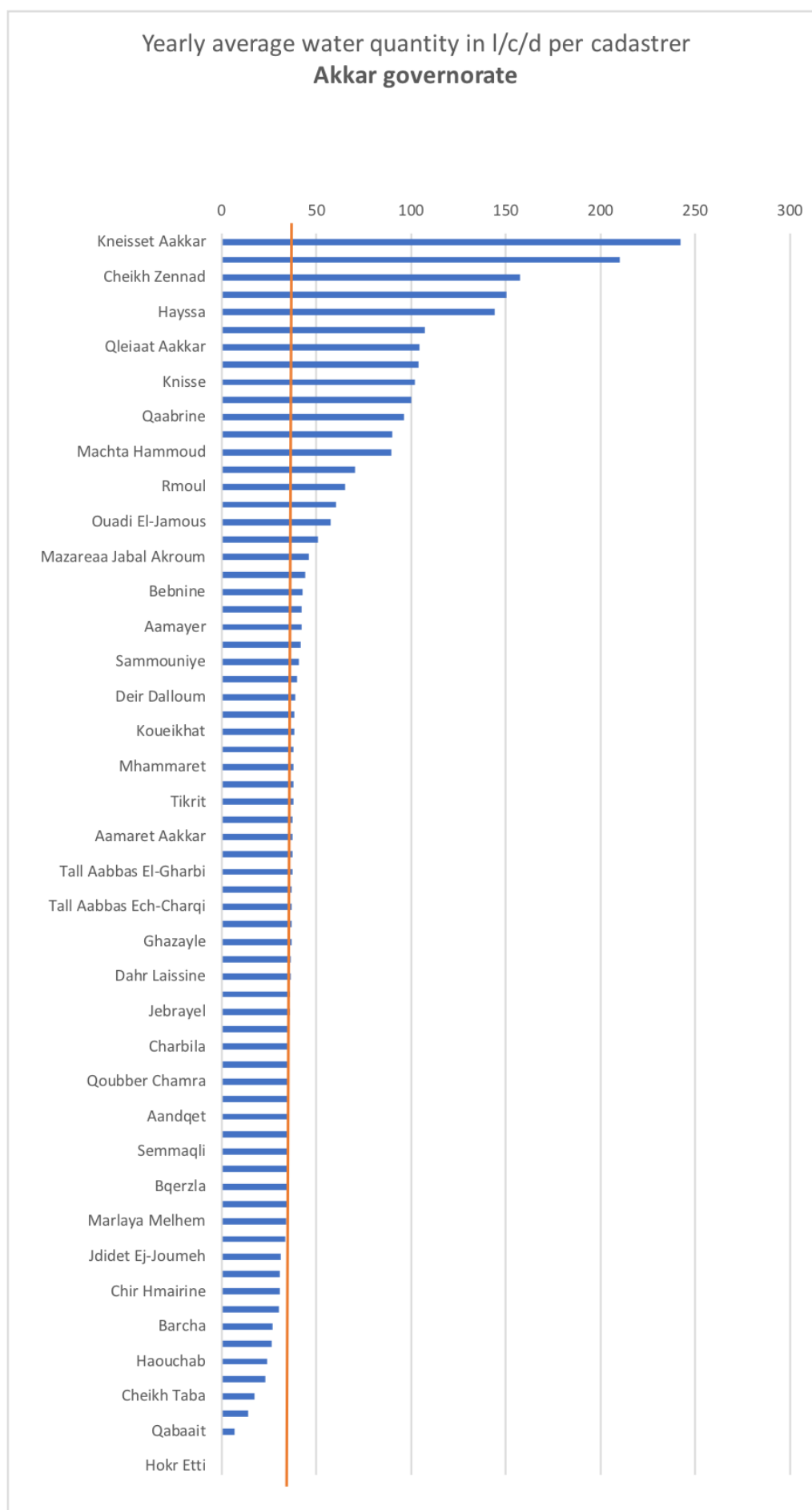
Number of sites, number of people

Governorate / Cazas	Number of sites	Number of individuals
Akkar	1,125	50,606
Akkar	1,125	50,606
Percentage nationwide	20%	15%

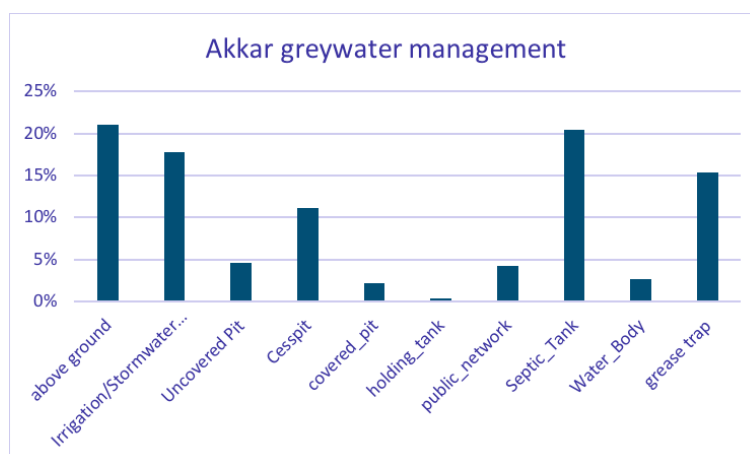
Water source

AKKAR	Total	Primary Water Source	Second Water source	Third Water source	Forth Water Source	FifthWater Source
Bottled water	385	-	358	27	-	-
Irrigation drainage channel	6	2	4	-	-	-
Lake	-	-	-	-	-	-
Protected borehole	855	804	48	3	-	-
Protected spring	12	7	5	-	-	-
Public network reservoir	40	17	22	1	-	-
River	3	2	1	-	-	-
Unprotected borehole	48	47	1	-	-	-
Unprotected spring	2	-	2	-	-	-
Water trucking paid for by ngo	304	216	82	6	-	-
Water trucking paid for by res	126	30	93	3	-	-

Average water quantity per cadaster



Greywater management



Persons per latrines

Governorate/Cazas	# of Sites	% of Individuals	# Latrines outside shelter	# Latrines outside shelter improved and useable	# Latrines inside shelter	# Latrines inside shelter improved and useable	# people per improved and useable latrines
Akkar	1,125	50,606	4,344	3,699	1,284	1,201	10.3

Containment per caza

Governorate/Cazas	Above ground	Irrigation/stormwater channel	Water body	Un-covered pit	Covered pit	Cesspit	Septic tank	Holding tank	Public network	Total latrines
Akkar	39	316	80	128	872	738	2945	122	388	5628
	1%	6%	1%	2%	15%	13%	52%	2%	7%	100%

Desludging frequency in governorate

	# of Sites	% of Individuals
Akkar	1125	50606
Every five month	31	1100
Every four month	40	2244
Every month	35	3323
Every six month	463	18509
Every three month	57	3586
Every two month	35	2306
Every two week	6	1398
Every week or	5	706
Not available	314	11513
Not needed	139	5921

Baalbek-Hermel

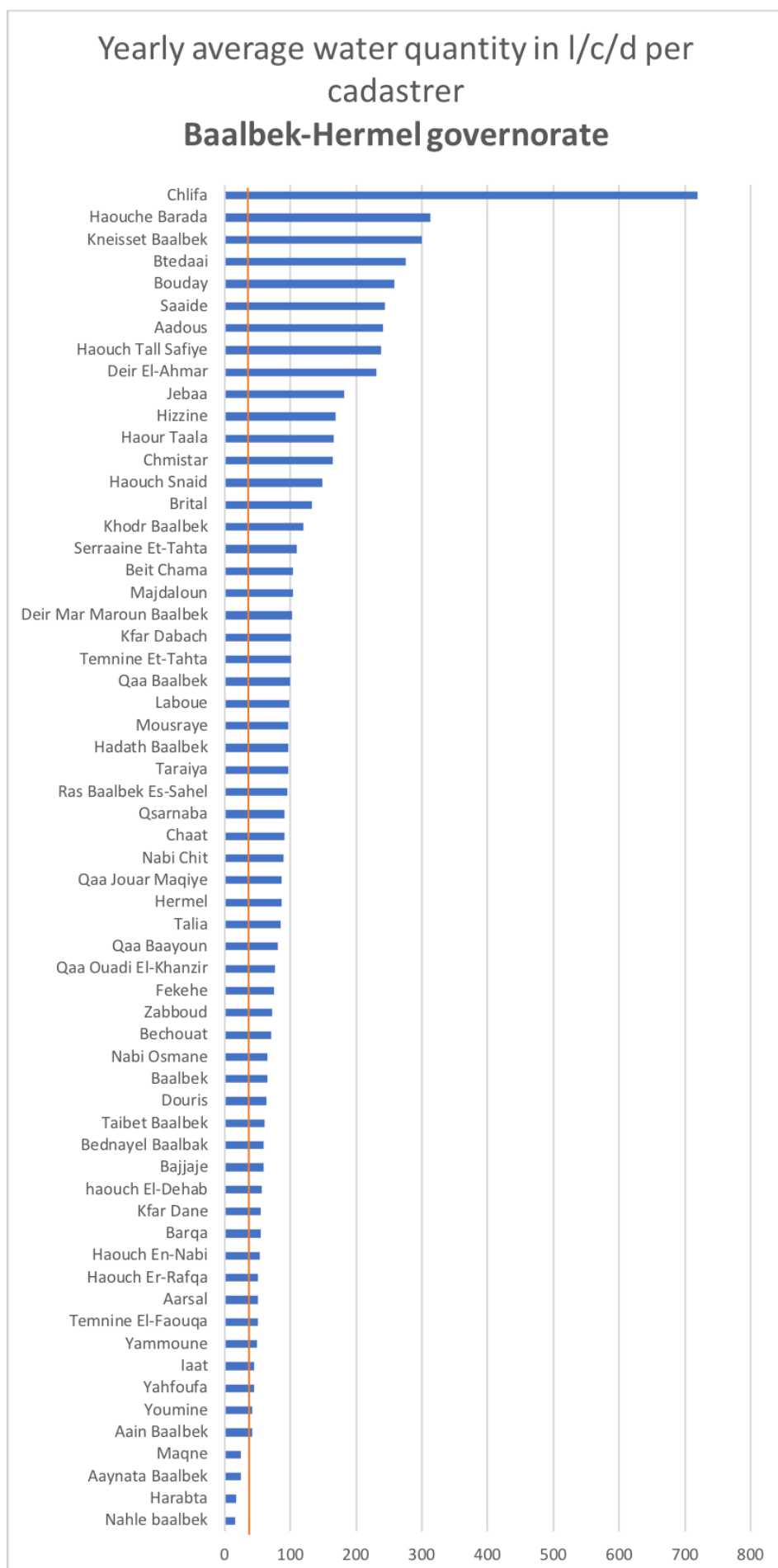
Number of sites, number of people

Governorate / Cazas	Number of Sites	Number of individuals
Baalbek - Hermel	1723	113472
Baalbek	1647	110399
Hermel	76	3073
Percentage nationwide	31%	35%

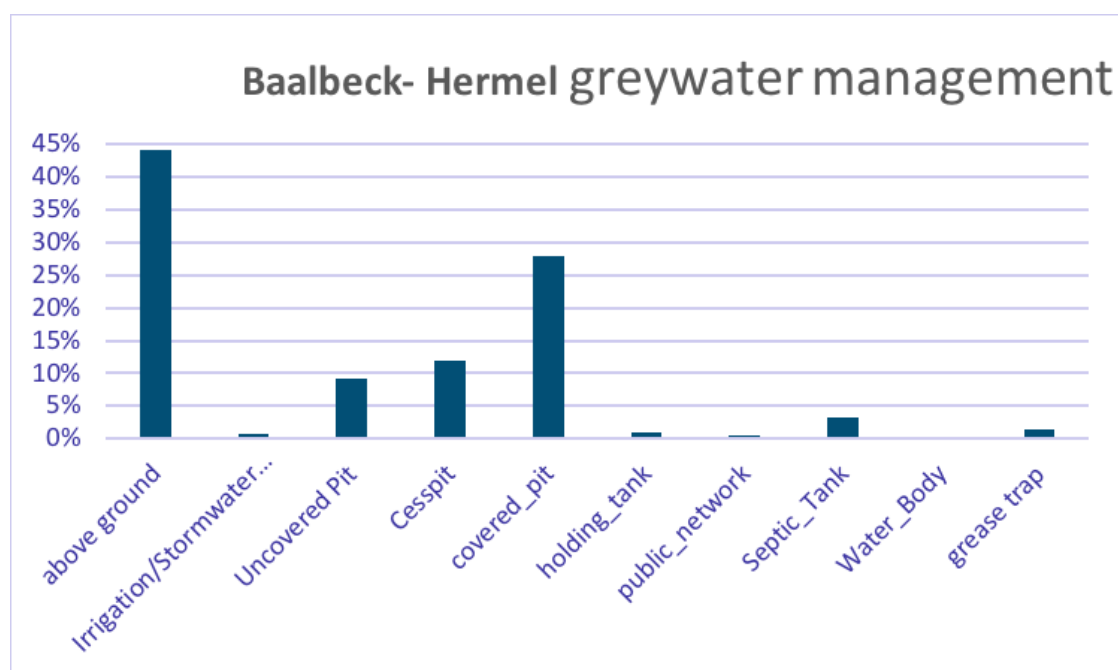
Water source

Baalbek - Hermel	Total	Primary Water Source	Second Water source	Third Water source	Forth Water Source	FifthWater Source
Bottled water	154	-	144	10	-	-
Irrigation drainage channel	8	7	1	-	-	-
Lake	4	4	-	-	-	-
Protected borehole	786	661	124	1	-	-
Protected spring	11	7	3	1	-	-
Public network reservoir	115	48	63	4	-	-
River	3	2	1	-	-	-
Unprotected borehole	39	24	15	-	-	-
Unprotected spring	12	9	3	-	-	-
Water trucking paid for by ngo	762	726	28	8	-	-
Water trucking paid for by res	523	235	278	10	-	-

Average water quantity per cadaster



Greywater management



Persons per latrines

Governorate/Cazas	# of Sites	% of Individuals	# Latrines outside shelter	# Latrines outside shelter improved and useable	# Latrines inside shelter	# Latrines inside shelter improved and useable	# people per improved and useable latrines
Baalbek - Hermel	1723	113472	9725	9193	7826	7756	6.7
Baalbek	1647	110399	9346	8840	7799	7731	6.7
Hermel	76	3073	379	353	27	25	8.1

Containment per caza

Governorate/Cazas	Above ground	Irrigation/ stormwater channel	Water body	Un-cov-ered pit	Covered pit	Cesspit	Septic tank	Holding tank	Public network	Total latrines
Baalbek - Hermel	35	5	10	672	8901	3682	1262	2711	388	5628
	0%	0%	0%	4%	51%	21%	7%	15%	7%	100%
Baalbek	34	5	10	628	8595	3630	1262	2711	291	17166
Hermel	1	0	0	44	306	52	0	0	3	406

Desludging frequency in governorate

	# of Sites	% of Individuals
Baalbek-Hermel	1,723	113,472
Baalbek	1,647	110,399
Every five month	15	571
Every four month	12	570
Every month	433	28298
Every six month	64	5251
Every three month	39	1829
Every two month	269	14208
Every two week	30	1745
Every week or	126	32808
Not available	556	18804
Not needed	103	6315
Hermel	76	3,073
Every five month	1	1100
Every four month	3	2244
Every six month	11	18509
Every three month	2	3586
Every two month	1	2306
Every week or	1	706
Not available	42	1245
Not needed	15	900

Bekaa

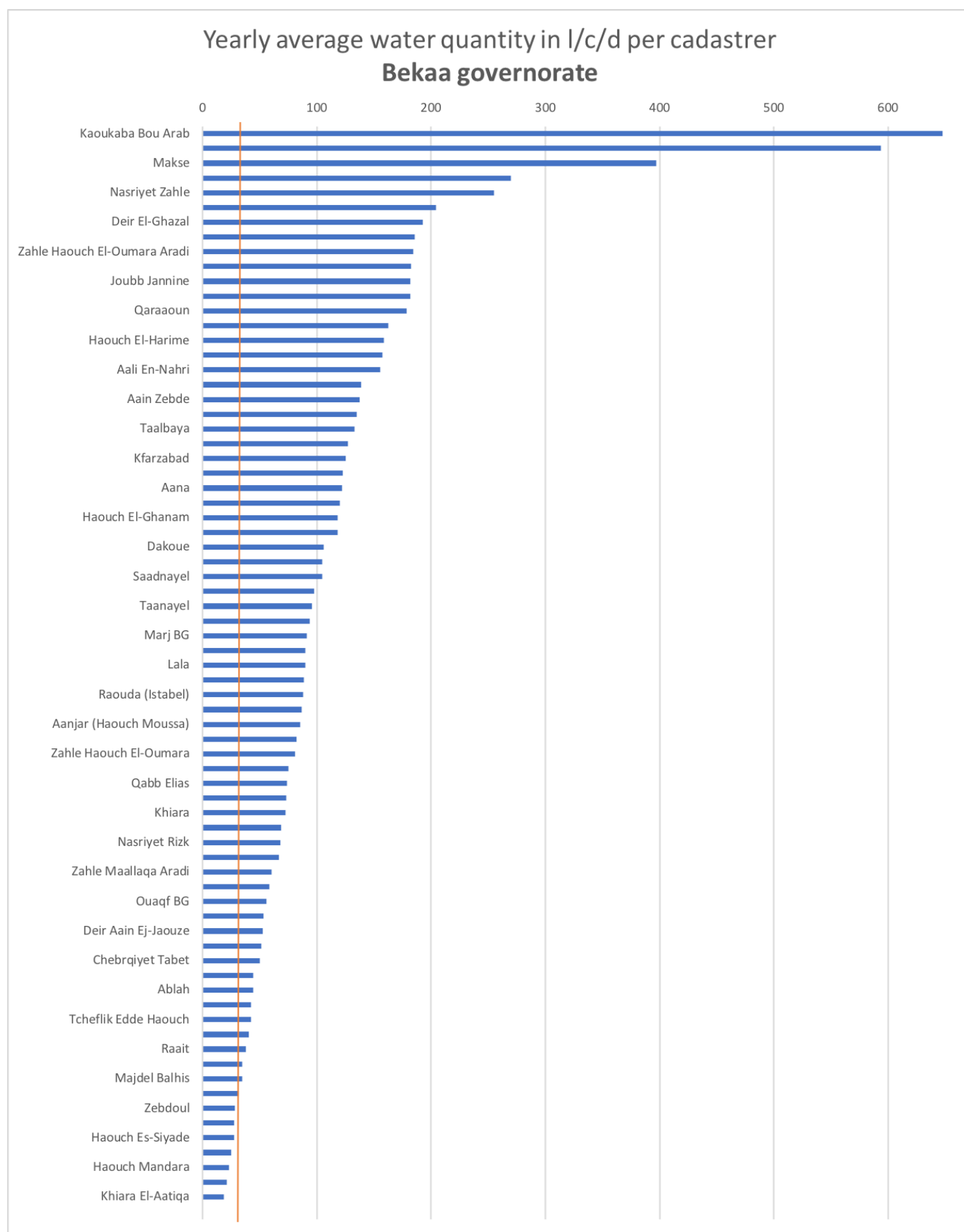
Number of sites, number of people

Governorate / Cazas	Number of sites	Number of individuals
Bekaa	1699	133992
Rachiaya	18	251
West Bekaa	502	37315
Zahle	1179	96426
Percentage nationwide	30%	41%

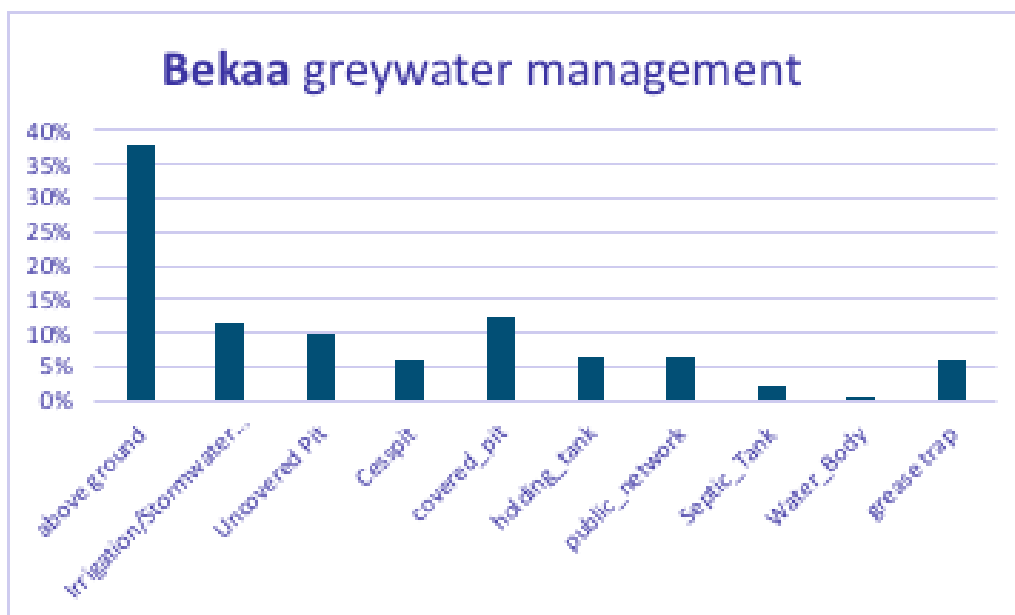
Water source

Bekaa	Total	Primary Water Source	Second Water source	Third Water source	Forth Water Source	FifthWater Source
Bottled water	267	-	217	49	1	-
Irrigation drainage channel	15	8	6	1	-	-
Lake	4	1	3	-	-	-
Protected borehole	637	372	230	35	-	-
Protected spring	34	6	24	4	-	-
Public network reservoir	245	163	67	15	-	-
River	2	1	1	-	-	-
Unprotected borehole	152	86	60	6	-	-
Unprotected spring	13	6	7	-	-	-
Water trucking paid for by ngo	911	773	118	19	1	-
Water trucking paid for by res	649	281	347	20	1	-

Average water quantity per cadaster



Greywater management



Persons per latrines

Governorate/Cazas	# of Sites	% of Individuals	# Latrines outside shelter	# Latrines outside shelter improved and useable	# Latrines inside shelter	# Latrines inside shelter improved and useable	# people per improved and useable latrines
Bekaa	1699	133992	14118	13480	4941	4834	7.3
Rachiaya	18	251	27	26	11	9	7.2
West Bekaa	502	37315	3911	3778	1295	1263	7.4
Zahle	1179	96426	10180	9676	3635	3562	7.3

Containment per caza

Governorate/Cazas	Above ground	Irrigation/stormwater channel	Water body	Un-covered pit	Covered pit	Cesspit	Septic tank	Holding tank	Public network	Total latrines
Bekaa	37	100	76	387	5375	1390	2196	7835	1665	19061
	0%	1%	0%	2%	28%	7%	12%	41%	9%	100%
Rachiaya	0	0	0	19	4	0	16	1	0	40
West Bekaa	21	15	7	139	949	231	924	2636	285	5207
Zahle	16	85	69	229	4422	1159	1256	5198	1380	13814

Desludging frequency in governorate

	# of Sites	% of Individuals
Bekaa	1699	133992
Rachiaya	18	251
Every month	7	130
Every six month	1	5
Every two month	1	15
Not available	9	101
West Bekaa	502	37315
Every five month	1	37
Every week	260	29851
Every six month	5	128
Every three month	4	679
Every two month	10	350
Every two week	7	1284
Every week or	2	25
Not available	171	3952
Not needed	42	1009
Zahle	1179	96426
Every five month	6	596
Every four month	12	1178
Every month	551	63959
Every six month	26	1034
Every three month	31	2759
Every two month	111	8102
Every two week	31	6439
Every week or	2	174
Not available	279	5675
Not needed	130	6510

Mount Lebanon

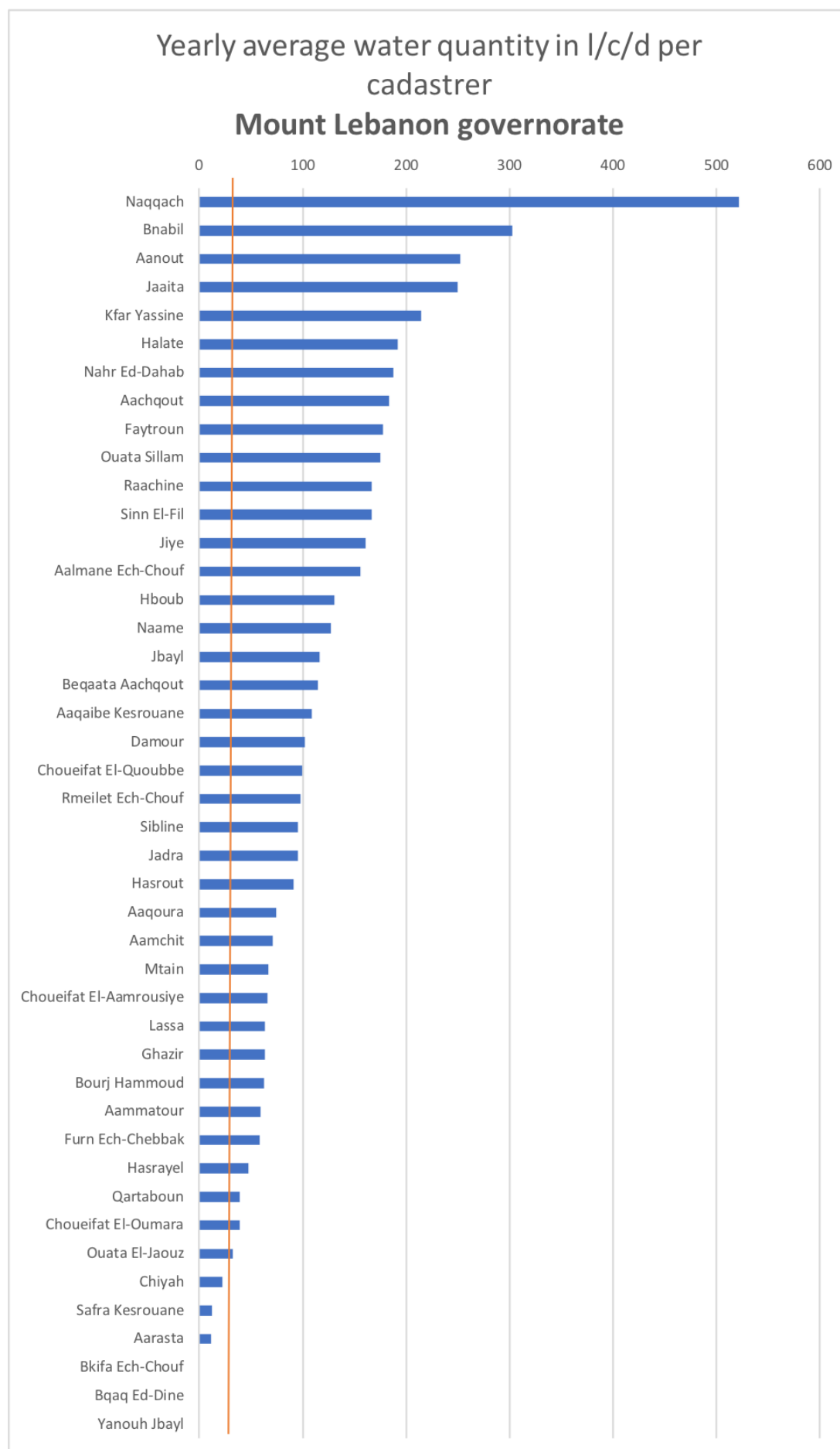
Number of sites, number of people

Governorate / Cazas	Number of sites	Number of individuals
Mount Lebanon	235	3794
Aley	27	812
Baabda	4	48
Chouf	120	1663
El Metn	5	147
Jubail	32	422
Kesrouane	47	702
Percentage nationwide	4%	1%

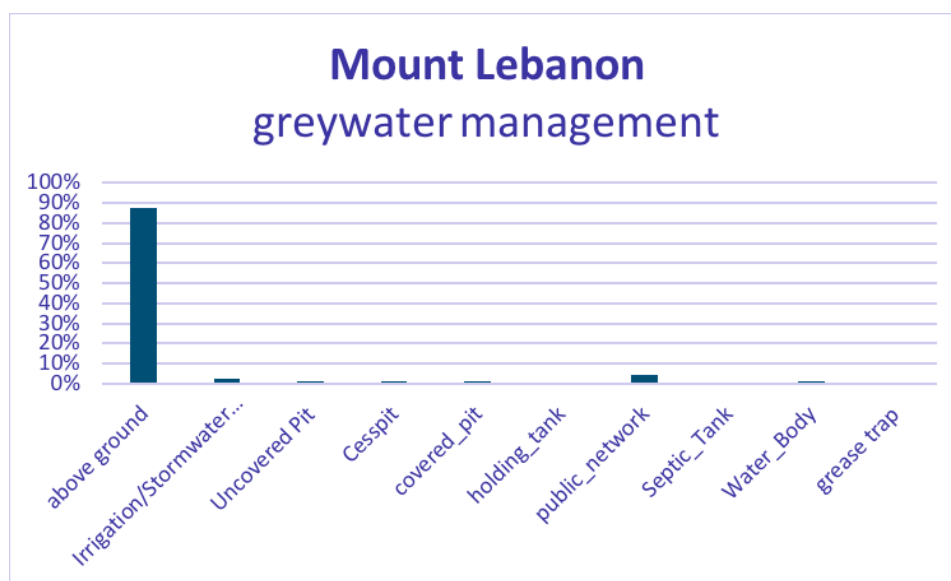
Water source

Mount Lebanon	Total	Primary Water Source	Second Water source	Third Water source	Forth Water Source	FifthWater Source
Bottled water	107	-	104	3	-	-
Irrigation drainage channel	13	13	-	-	-	-
Lake	7	6	1	-	-	-
Protected borehole	123	113	10	-	-	-
Protected spring	28	19	9	-	-	-
Public network reservoir	63	56	7	-	-	-
River	7	6	1	-	-	-
Unprotected borehole	2	2	-	-	-	-
Unprotected spring	1	1	-	-	-	-
Water trucking paid for by ngo	3	2	1	-	-	-
Water trucking paid for by res	27	17	10	-	-	-

Average water quantity per cadaster



Greywater management



Persons per latrines

Governorate/Cazas	# of Sites	% of Individuals	# Latrines outside shelter	# Latrines outside shelter improved and useable	# Latrines inside shelter	# Latrines inside shelter improved and useable	# people per improved and useable latrines
Mount Lebanon	235	3794	274	253	288	271	7.2
Aley	27	812	76	74	57	54	6.3
Baabda	4	48	2	2	13	13	3.2
Chouf	120	1663	121	108	132	120	7.3
El Metn	5	147	5	5	26	26	4.7
Jubail	32	422	32	30	21	21	8.3
Kasrouane	47	702	38	34	39	37	9.9

Containment per caza

Governorate/Cazas	Above ground	Irrigation/stormwater channel	Water body	Un-covered pit	Covered pit	Cesspit	Septic tank	Holding tank	Public network	Total latrines
Mount Lebanon	23	1	8	46	359	21	0	5	60	523
	4%	0%	2%	9%	69%	4%	0%	1%	11%	100%
Aley	1	0	7	10	75	2	0	2	28	125
Baabda	0	0	0	0	10	0	0	0	6	16
Chouf	11	0	1	29	161	16	0	3	8	229
El Metn	0	0	0	0	12	0	0	0	18	30
Jubail	4	0	0	0	45	0	0	0	0	49
Kasrouane	7	1	0	7	56	3	0	0	0	74

Desludging frequency in governorate

	# of Sites	% of Individuals
Mount Lebanon	235	3794
Aley	27	812
Every month	2	58
Every two week	1	20
Not available	15	443
Not needed	9	291
Baabda	4	48
Not available	1	23
Not needed	3	25
Chouf	120	1663
Every five month	1	5
Every month	1	17
Every three month	5	44
Every two month	2	36
Every two week	4	56
Every week or	1	17
Not available	66	997
Not needed	40	491
El Metn	5	147
Not available	2	58
Not needed	3	89
Jubail	32	422
Every two month	1	19
Every week or	1	6
Not available	24	284
Not needed	6	113
Kasrouane	47	702
Every five month	1	10
Every six month	2	16
Not available	31	544
Not needed	13	132

Nabatiye

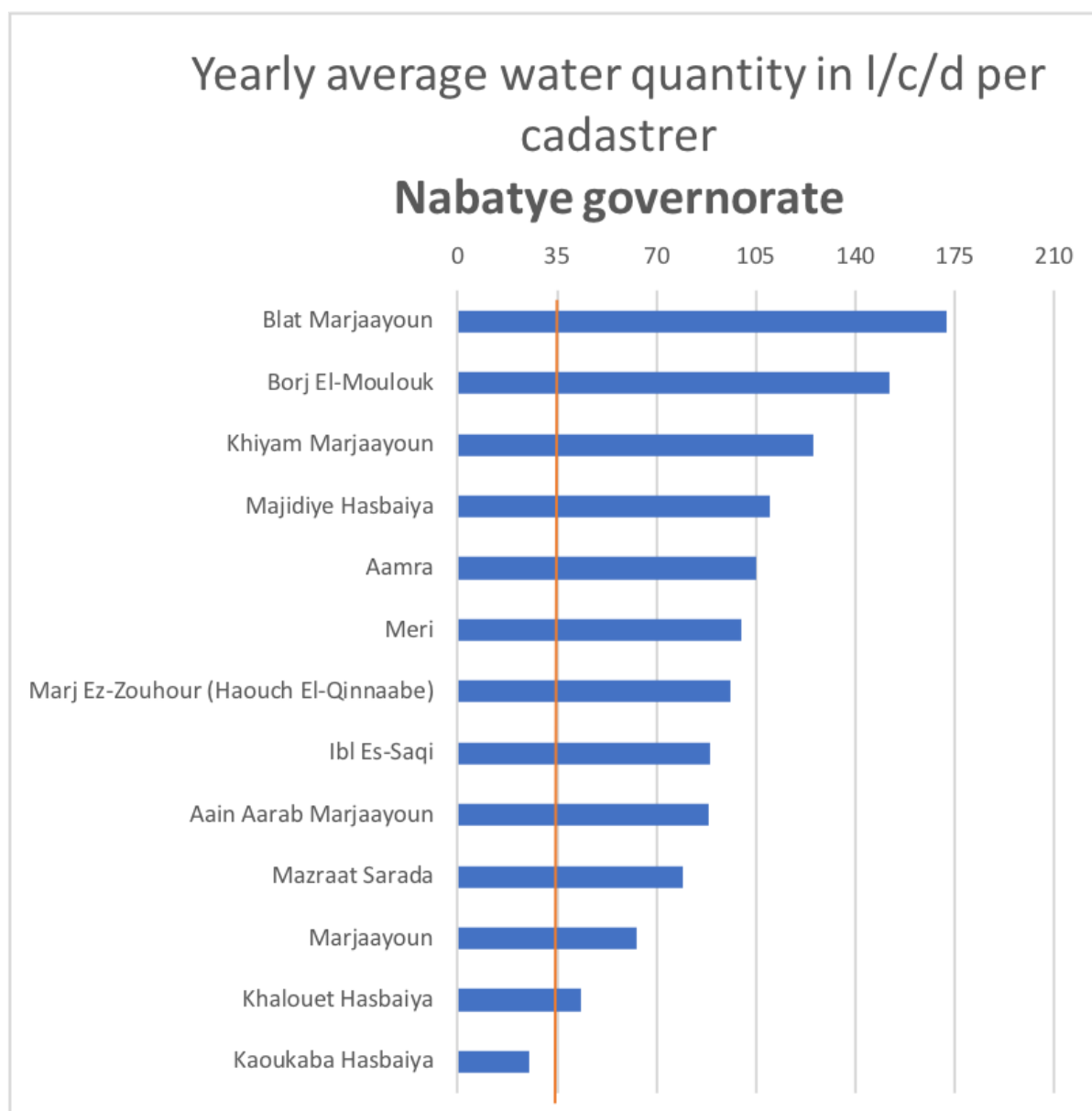
Number of sites, number of people

Governorate / Cazas	Number of sites	Number of individuals
Nabatiye	100	5522
Hasbaiya	29	1670
Marjaayoun	71	3852
Percentage nationwide	2%	2%

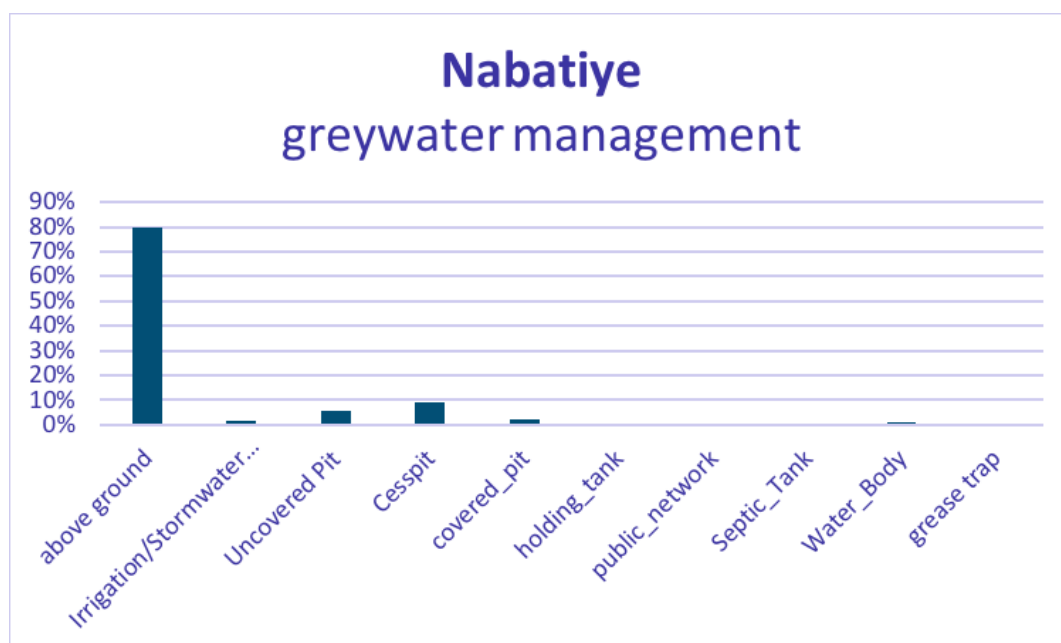
Water source

Nabatiye	Total	Primary Water Source	Second Water source	Third Water source	Forth Water Source	FifthWater Source
Bottled water	10	-	10	-	-	-
Irrigation drainage channel	1	1	-	-	-	-
Lake	-	-	-	-	-	-
Protected borehole	40	38	2	-	-	-
Protected spring	2	1	1	-	-	-
Public network reservoir	57	54	3	-	-	-
River	-	-	-	-	-	-
Unprotected borehole	3	2	1	-	-	-
Unprotected spring	1	1	-	-	-	-
Water trucking paid for by ngo	-	-	-	-	-	-
Water trucking paid for by res	6	3	3	-	-	-

Average water quantity per cadaster



Greywater management



Persons per latrines

Governorate/Cazas	# of sites	% of individuals	# Latrines outside shelter	# Latrines outside shelter improved and useable	# Latrines inside shelter	# Latrines inside shelter improved and useable	# people per improved and useable latrines
Nabatiye	100	5522	688	632	47	39	8.2
Hasbaiya	29	1670	204	180	1	1	9.2
Marjaayoun	71	3852	484	452	46	38	7.9

Containment per caza

Governorate/Cazas	Above ground	Irrigation/stormwater channel	Water body	Un-covered pit	Covered pit	Cesspit	Septic tank	Holding tank	Public network	Total latrines
Nabatiye	1	0	1	16	379	117	0	187	17	718
	0%	0%	0%	2%	53%	16%	0%	26%	2%	100%
Hasbaiya	1	0	0	14	91	52	0	33	0	191
Marjaayoun	0	0	1	2	288	65	0	154	17	527

Desludging frequency in governorate

	# of Sites	% of Individuals
Nabatiye	100	5522
Hasbaiya	29	1670
Every five month	1	205
Every four month	1	41
Every six month	2	149
Every three month	1	99
Not available	19	1049
Not needed	5	127
Marjaayoun	71	3852
Every five month	1	39
Every four month	1	66
Every six month	3	85
Every three month	7	188
Every two month	6	445
Not available	47	2895
Not needed	6	134

North

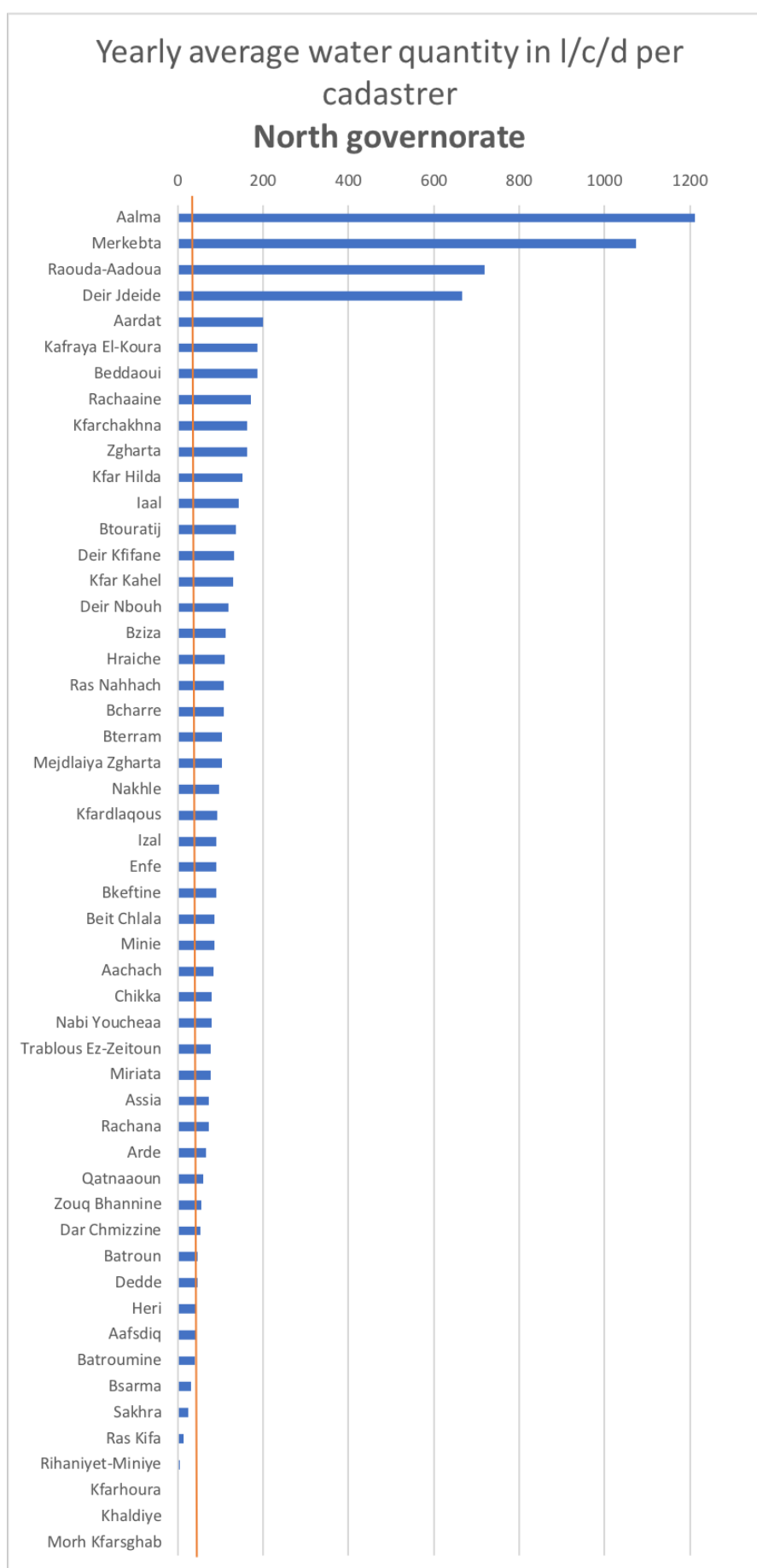
Number of sites, number of people

Governorate / Cazas	Number of sites	Number of individuals
North	444	12491
Batroun	34	481
Bcharre	1	7
Koura	79	2040
Menieh-Danieh	265	8873
Tripoli	6	105
Zgharta	56	985
Percentage nationwide	8%	4%

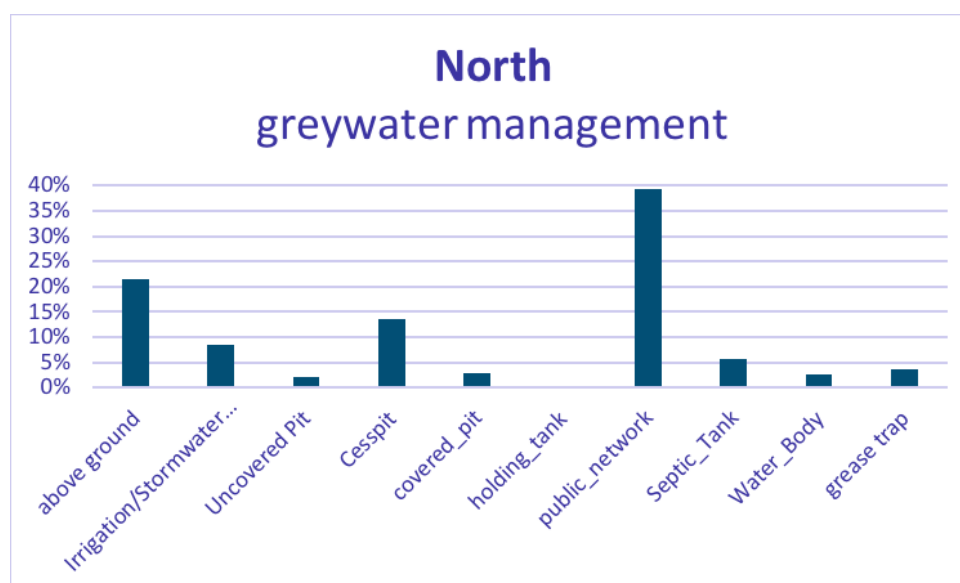
Water source

North	Total	Primary Water Source	Second Water source	Third Water source	Forth Water Source	FifthWater Source
Bottled water	172	-	166	6	-	-
Irrigation drainage channel	14	6	8	-	-	-
Lake	-	-	-	-	-	-
Protected borehole	125	113	11	1	-	-
Protected spring	13	9	4	-	-	-
Public network reservoir	176	164	11	1	-	-
River	-	-	-	-	-	-
Unprotected borehole	44	38	6	-	-	-
Unprotected spring	4	4	-	-	-	-
Water trucking paid for by ngo	96	87	4	5	-	-
Water trucking paid for by res	27	23	3	1	-	-

Average water quantity per cadaster



Greywater management



Persons per latrines

Governorate/Cazas	# of Sites	% of Individuals	# Latrines outside shelter	# Latrines outside shelter improved and useable	# Latrines inside shelter	# Latrines inside shelter improved and useable	# people per improved and useable latrines
North	444	12491	1027	921	409	383	9.6
Batroun	34	481	33	30	49	48	6.2
Bcharre	1	7	1	1	0	0	7.0
Koura	79	2040	136	110	140	140	8.2
Minieh-Danieh	265	8873	752	692	197	173	10.3
Tripoli	6	105	11	11	4	4	7.0
Zgharta	59	985	94	77	19	18	10.4

Containment per caza

Governorate/Cazas	Above ground	Irrigation/ stormwater channel	Water body	Un-cov-ered pit	Covered pit	Cesspit	Septic tank	Holding tank	Public network	Total latrines
North	4	12	25	13	213	381	169	14	605	1436
	0%	1%	2%	1%	15%	27%	12%	1%	42%	100%
Batroun	0	0	0	0	37	40	4	1	0	82
Bcharre	0	0	0	0	0	1	0	0	0	1
Koura	1	0	0	0	84	176	1	3	11	276
Minieh-Danieh	3	9	23	11	45	153	152	9	544	949
Tripoli	0	0	0	0	1	2	8	0	4	15
Zgharta	0	3	2	2	46	9	4	1	46	113

Desludging frequency in governorate

	# of Sites	% of Individuals
North	444	12491
Batroun	34	481
Every four month	2	58
Every month	1	20
Every six month	15	443
Every three month	9	291
Every two weeks	1	23
Not needed	3	25
Bcharre	1	7
Every four month	1	7
Koura	79	2040
Every five month	1	5
Every four month	5	137
Every month	9	505
Every three month	2	35
Every two month	6	247
Every two week	5	292
Not available	13	202
Not needed	38	617
Minieh-Danieh	265	8873
Every five month	4	113
Every four month	18	595
Every month	6	247
Every six month	19	684
Every three month	17	501
Every two month	14	265
Every two week	3	25
Every week or	1	158
Not available	37	1108
Not needed	146	5177
Tripoli	6	105
Every six month	1	17
Not available	1	54
Not needed	4	34
Zgharta	59	985
Every four month	1	6
Every month	1	6
Every sixmonth	6	198
Every three month	3	45
Every two month	4	102
Every week or	1	3
Not available	2	26
Not needed	41	599

South

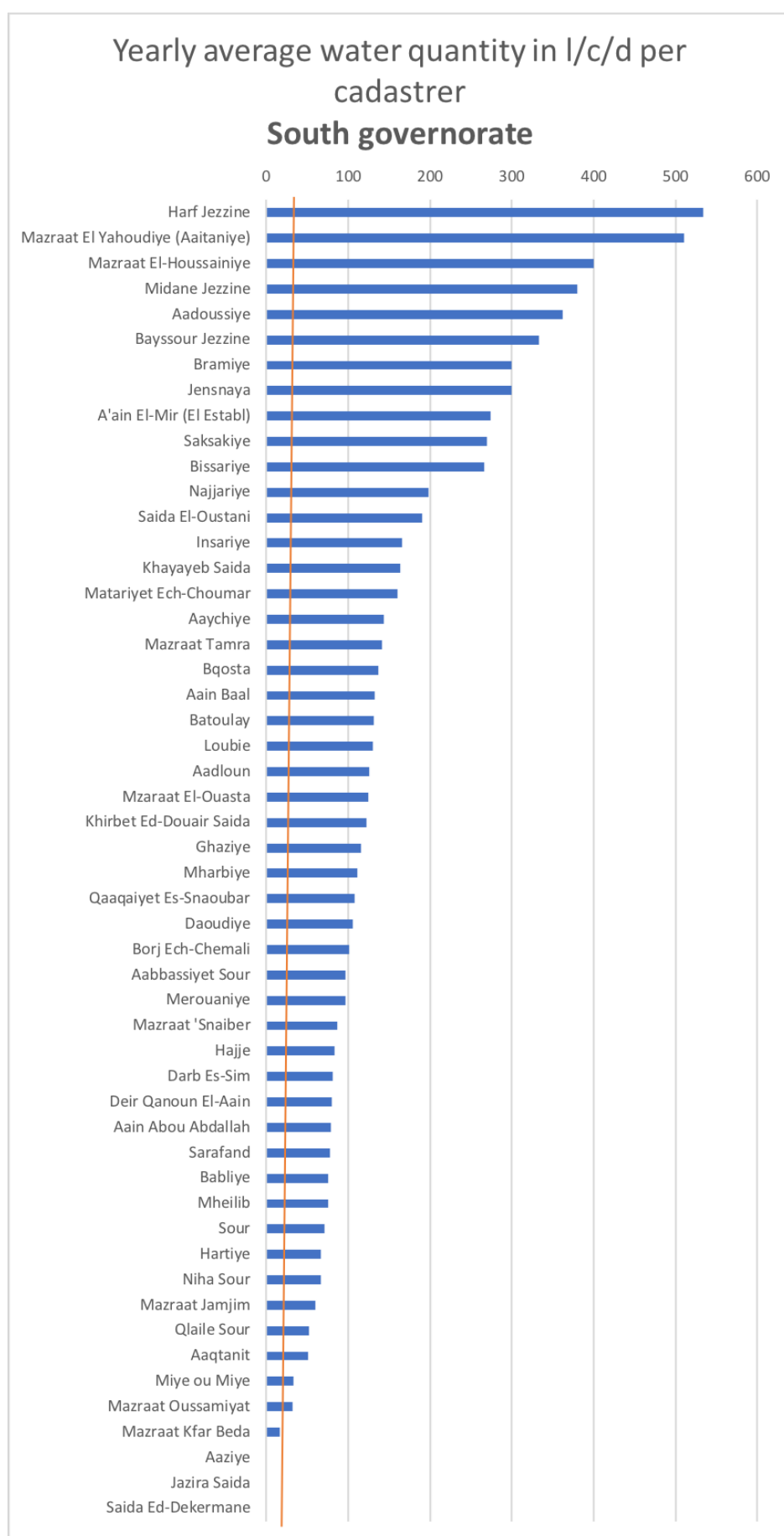
Number of sites, number of people

Governorate / Cazas	Number of Sites	Number of individuals
South	276	6935
Jezzine	14	146
Saida	219	5693
Sour	43	1096
Percentage nationwide	5%	2%

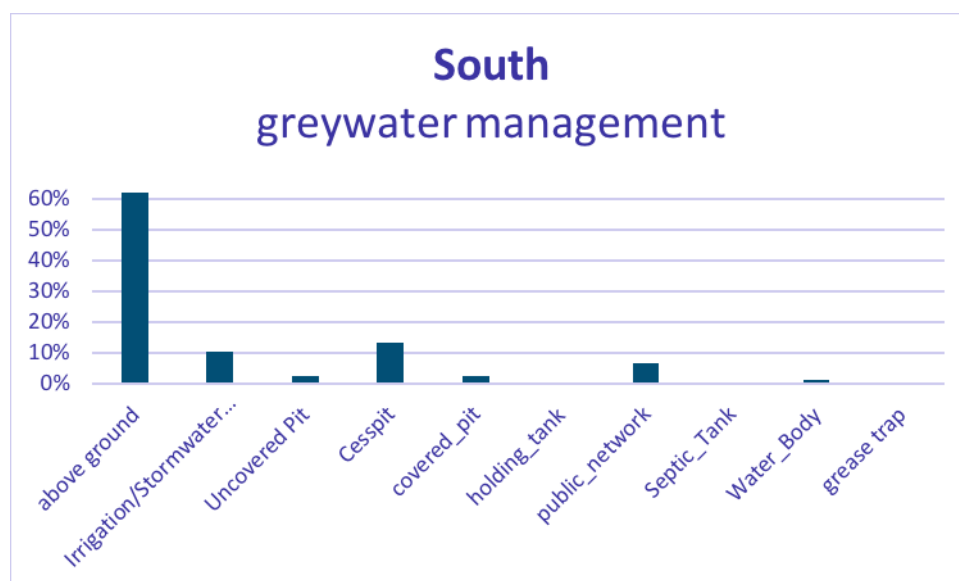
Water source

South	Total	Primary Water Source	Second Water source	Third Water source	Forth Water Source	Fifth Water Source
Bottled water	88	-	85	3	-	-
Irrigation drainage channel	1	1	-	-	-	-
Lake	1	1	-	-	-	-
Protected borehole	214	185	28	1	-	-
Protected spring	27	11	16	-	-	-
Public network reservoir	62	51	11	-	-	-
River	4	3	1	-	-	-
Unprotected borehole	8	8	-	-	-	-
Unprotected spring	10	6	4	-	-	-
Water trucking paid for by ngo	-	-	-	-	-	-
Water trucking paid for by res	15	10	5	-	-	-

Average water quantity per cadaster



Greywater management



Persons per latrines

Governorate/Cazas	# of Sites	% of Individuals	# Latrines outside shelter	# Latrines outside shelter improved and useable	# Latrines inside shelter	# Latrines inside shelter improved and useable	# people per improved and useable latrines
South	276	6935	585	547	383	361	7.6
Jezzine	14	146	16	16	5	5	7.0
Saida	219	5693	449	429	353	342	7.4
Sour	43	1096	120	102	25	14	9.4

Containment per caza

Governorate/Cazas	Above ground	Irrigation/ stormwater channel	Water body	Un-cov-ered pit	Covered pit	Cesspit	Septic tank	Holding tank	Public network	Total latrines
South	13	76	30	36	309	288	6	43	142	943
	1%	8%	3%	4%	33%	31%	1%	5%	15%	100%
Jezzine	1	0	0	0	11	10	0	0	1	23
Saida	12	76	30	36	206	273	0	14	132	779
Sour	0	0	0	0	92	5	6	29	9	141

Desludging frequency in governorate

	# of Sites	% of Individuals
South	276	6935
Jezzine	14	146
Every five month	4	39
Every three month	1	7
Every two week	1	15
Not available	2	12
Not needed	6	73
Saida	219	5693
Every five month	3	91
Every four month	1	18
Every month	8	611
Every six month	26	433
Every three month	7	111
Every two month	5	83
Not available	74	1752
Not needed	95	2594
Sour	43	1096
Every month	1	75
Every six month	7	87
Every three month	4	100
Every two month	5	253
Every week or	1	71
Not available	10	261
Not needed	15	249

