



WATER SECTOR

PEOPLE IN NEED

2,688,072

PEOPLE TARGETED

1,388,450

REQUIREMENTS(US\$)

2019	214 million
2020	191 million

PARTNERS

37

GENDER MARKER

2a

CONTACTS

LEAD MINISTRY
 Ministry of Energy & Water (MoEW)
 Randa Nemer
 rnemer@cyberia.net.lb

COORDINATING AGENCY
 UNICEF
 Olivier Thonet
 othonet@unicef.org

SECTOR OUTCOMES

Outcome #1 \$214 m

More vulnerable people in Lebanon are using safely managed drinking water and sanitation services whilst reducing health and environmental risks and improving water quality by increasing the proportion of wastewater that is safely treated.

Indicators

Percentage increase in proportion of population using safely managed drinking water services.

Percentage increase of boys, girls, women and men with appropriate hygiene knowledge, attitudes and practices.

Percentage increase in proportion of wastewater safely treated.

POPULATION BREAKDOWN

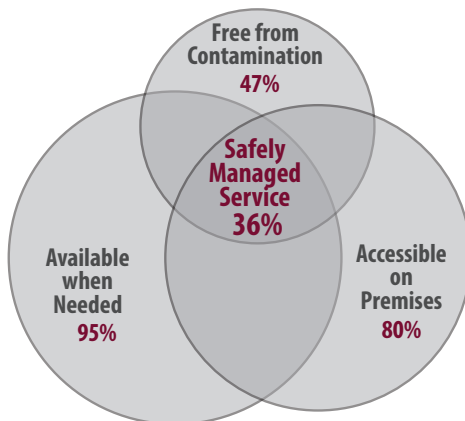
POPULATION COHORT	PEOPLE IN NEED	PEOPLE TARGETED	51% Female	49% Male
Lebanese	1,500,000	696,400	355,164	341,236
Displaced Syrians	990,000	544,300	277,593	266,707
Palestinian Refugees from Syria	20,161	17,300	8,823	8,477
Palestinian Refugees from Lebanon	177,910	130,450	66,530	63,921

Situation analysis and context

Overview

The Water sector is unable to meet all the needs of the Lebanese and Palestinian populations in addition to the 1,500,000 displaced persons from Syria.¹ After seven years of bearing the unparalleled impact of the Syria crisis, preceded by decades of under-investment and civil war, the water and wastewater service systems are in a state of severe disrepair.

The pre-crisis level of service for wastewater management was dismal; only 8 per cent of all water consumed was treated before reaching the environment, well below the Middle East and North Africa (MENA) regional average of 32 per cent.² A more recent study highlighted that only three per cent of all Lebanon's sewage receives secondary (biological) treatment before finding its way into the local environment, including groundwater, streams and the coastline.³



Percentage of population in Lebanon using safely managed water with disaggregation by criteria (baseline for SDG 6.1 at a national level for Lebanon). The results clearly demonstrate that although supply is generally accessible (80 per cent) and available (95 per cent), the high faecal contamination levels (47 per cent free from contamination) make the water unsafe to drink and therefore compromise accessibility to safely managed drinking water supply. - WHO/UNICEF (2016), Joint Monitoring Programme Lebanon water quality survey.

Before the Syria crisis surface water resources were already largely exploited, groundwater resources were stressed mainly through private wells and over 50 per cent of networks were past their useful life leading to unaccounted-for water levels 13 per cent higher than world average.⁴ The agriculture sector is a particularly important stressor, as it accounts for 61 per cent of total demand and is marked by outdated practices and inefficient systems.¹ Efforts to improve this situation by

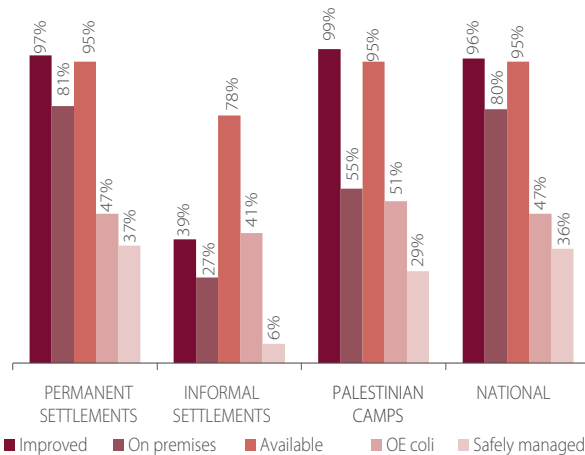
(1) Lebanon's 2011 population growth was assessed by the World Bank at a 1 per cent annual rate. From 2011 to 2016 Lebanon has experienced the equivalent of an annual population growth rate of 6 per cent, <http://data.un.org/CountryProfile.aspx?crName=LEBANON>. The Government of Lebanon estimates that between 2011 and 2015, the number of people inside Lebanon grew by 30 per cent.

(2) Ministry of Energy and Water (MoEW), National Water Sector Strategy (NWSS), (2010), Resolution No.2, date 09/03/2012

(3) UNICEF (2016), Rapid Assessment for Large & Medium Scale Waste Water Treatment Plants across the Lebanese Territory

(4) Unaccounted-for water (UFW) represents the difference between "net production" (the volume of water delivered into a network) and "consumption" (the volume of water that can be accounted for by legitimate consumption, whether metered or not). Lebanon's national average was 48 per cent against world average of 35 per cent. Ministry of Energy and Water (MoEW), National Water Sector Strategy (NWSS), (2010), Resolution No.2, date 09/03/2012

reducing system losses, to more efficiently meet the demands of the Lebanese population, have certainly been overshadowed by an almost 30 per cent increase in the total population due to the crisis. Only 36 per cent of this population, irrespective of nationality, is using safely managed drinking water services.ⁱⁱ



Percentage of population in Lebanon using safely managed water disaggregated by settlement (baseline for SDG 6.1 at a national level for Lebanon). The results clearly demonstrate that although Lebanon has a high proportion (96 per cent) of households accessing an improved water supply (except in informal settlements), and that supply is generally accessible (80 per cent) and available (95 per cent), the high faecal contamination levels (47 per cent free from contamination) make the water unsafe to drink and therefore compromise accessibility to safely managed drinking water supply. - WHO/UNICEF (2016), Joint Monitoring Programme Lebanon water quality survey.

This alarming water and sanitation situation is especially dangerous when compounded by poor hygiene knowledge, attitudes and practices (KAP) and vulnerable population groups are particularly at risk. A recently published national knowledge, attitudes and practices survey highlighted a mixed understanding of the most important ways to prevent disease transmissions and the most important times to wash hands during the day. Handwashing before eating is considered the most important whilst other practices, such as washing hands after going to the bathroom or after cleaning children disposal of diapers were not considered as important.⁵ Hygiene promotion projects have been implemented since the beginning of the response but there is clearly still more work to do.

In 2010, the Government developed a national water sector strategy including an investment plan and strategic roadmap that set out necessary initiatives to improve the management of the sector, enhance the enabling environment and bring services to acceptable levels for a growing Lebanese population. Unfortunately, in the wake of the crisis, the focus necessarily switched from systems upgrading to addressing the emergency needs of the displaced persons and host communities.

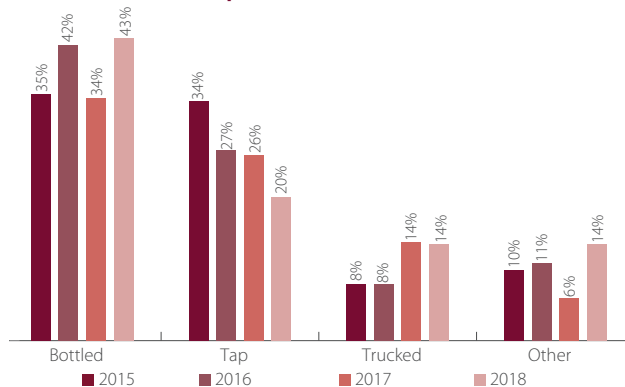
Since 2013, after a large influx of refugees, successive Water sector response plans have aimed to avert

(5) UNICEF (2017), Cross Sectoral Formative Research Knowledge, Attitude and Practice (KAP) Study. Hand washing before eating was the most stated response to prevent disease transmissions at 69 per cent and the most important time to wash hands during the day at 73 per cent. Other practices received lower scores such as washing hands after going to the bathroom at 48 per cent and hand-washing after cleaning children/disposal of diapers to prevent disease transmission at 42 per cent.

WASH related disease outbreak, relieve degrading living conditions, mitigate the negative impact on the environment, alleviate social tensions, and support livelihoods of the affected population.

Supporting the most vulnerable who have no, or limited, access to basic water supply and sanitation continues to be a daily and costly challenge. An unintended side effect is the encouragement of more expensive parallel markets as opposed to supporting the cheaper public service systems. More critically, 63 per cent of the 291,163 people residing in informal settlements still rely on trucked water that is unregulated and often from illegal sources, while the rest meet needs from mostly unsafe wells or illegal network tapping.⁶ The high cost of transporting water in trucks continues to consume a significant portion of diminishing funds such that in the last 12 months, approximately US\$12.1 million was spent.⁷ This is less than the previous year resulting in minimum standards of water quantities for an individuals' basic needs not being met as partners have had to stretch their resources to ensure drinking and cooking needs and to shore up the increasing number of service gaps leaving households to use unsafe sources for domestic purposes.

Households main source of drinking water from 2015 to 2018 (Improved Water Sources)



There is a notable decrease in the reliance of public tap water by Syrian refugee households according to the VASyR data of the last four years. Use of bottled water, trucked water and boreholes (majority of 'Other') as main sources of drinking water is unfortunately increasing.

Wastewater is collected in informal settlements primarily in pits, holding tanks and septic tanks which require frequent desludging and trucking to the very limited number of wastewater treatment plants that can process it.⁸ 69 per cent of people in informal settlements benefit from regular desludging services which, in the last 12 months, has cost approximately \$6.9 million.⁹ Due to

funding constraints, approximately 13 per cent of the population in informal settlements is not benefiting from any desludging services which is leading to the contamination of lands and water bodies close to these settlements, creating major health risks for those living in informal settlements and host communities.¹⁰ It should also be noted that a significant proportion of the collection facilities are pits which are either perforated and/or bottomless and therefore the wastewater infiltrates into the soil and can potentially contaminate the groundwater.¹¹

As a consequence of dwindling family resources, the demand for humanitarian services continues to grow each year.¹² The poorest families that can no longer afford rent are moving into informal settlements which in turn increases the demand and the number of locations requiring support. The number of individuals residing in informal settlements has increased by 7 per cent since the same time last year and now consists of 19 per cent of all Syrian refugees.¹³ The number of sites has increased by 13 per cent and the ongoing growth of informal settlements is significantly affecting ecosystems as well as agricultural and other non-residential land uses.¹⁴

Poor families are also moving out of residential buildings into non-residential shelters where 15 per cent of Syrian refugees now live, an increase of six per cent since the same time last year.¹⁵ These shelters are often overcrowded and lack basic water and sanitation services. Only 63 per cent of Syrian refugees living in non-residential shelters have access to basic sanitation services, compared to 77 per cent in residential and 44 per cent in non-permanent shelters.¹⁶

The majority of the population live in residential buildings where many vulnerable households live in poor urban settlements, a high proportion being affected by intermittent and poor water and wastewater services, which has consequences for Lebanon's environmental health, economic wellbeing and stability.¹⁷

The ongoing presence of Syrian refugees and Palestinian refugees from Syria in the Palestine refugee camps and

(6) 53 per cent of individuals rely on trucked water provided by NGOs and 10 per cent purchase trucked water directly as a first source. Furthermore, only 7 per cent of all individuals, residing in 10 per cent of all informal settlements, benefit from safe on-site boreholes, wells, springs or networks. To be considered 'safe' requires that water meets the minimum drinking water standards of the water sector: <1cfu/100mL FC, <5 NTU Turbidity, <45mg/L Nitrate (WASH Assessment Platform (WAP) baseline, 2017). There are 291,163 individuals living in informal settlements (IAMP 55, September 2018).

(7) \$17 million was spent in 2017 on water trucking. The reduced amount is mainly attributed to lower levels of service provision but also increased cost efficiencies.

(8) Covered pits, cesspits, septic tanks and holding tanks make up 87 per cent of the facilities for discharging black water from 36,921 latrines (WAP Baseline).

(9) Desludging occurs at various frequencies in 45 per cent of all sites, accounting for 69 per cent of all individuals. The most common desludging frequency is monthly (WAP Baseline). \$8.6 million was spent in 2017 on desludging. The reduced amount can be attributed to lower desludging coverage as well as increased on-site treatment requiring less desludging.

(10) 13.3 per cent do not benefit from any desludging services and 12.9 per cent don't require desludging services, whilst for 4.9 per cent it is unknown (WAP Baseline).

(11) 29 per cent of latrines in informal settlements are connected to covered pits, 23 per cent to cesspits and 4 per cent to uncovered pits (WAP Baseline). Wastewater leaches into the soil from such pits even if they are regularly dislodged.

(12) 51 per cent of refugee households are below SMEB, a decrease of 7 per cent from last year. But debt per capita has increased to \$250 from \$227 last year (VASyR 2018); Incidence of poverty has risen by 6 per cent between 2011 and 2015, resulting in an additional number of households not being able to afford the minimum standards of living per month (Lebanon, Ministry of Social Affairs, NPTP, World Bank 2015).

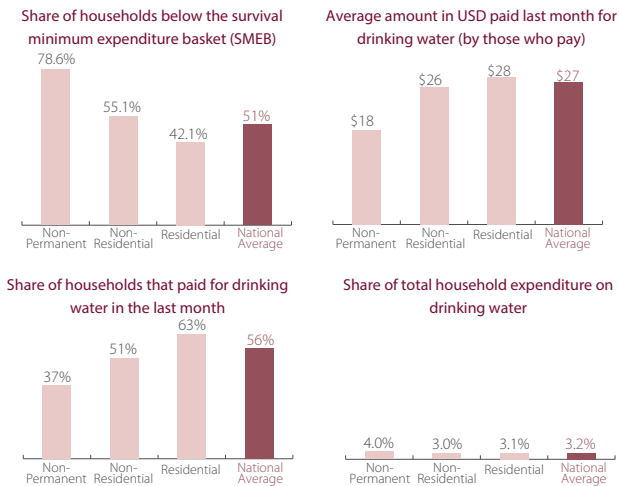
(13) 19 per cent of refugees living in non-permanent structures compared to 17 per cent last year (VASyR 2018).

(14) In September 2017, there were 272,000 individuals in 4,881 sites (IAMP43). In September 2018, there are now 291,163 individuals in 5,531 sites (IAMP55). A 13 per cent increase in the number of sites and a 7 per cent increase in the number of individuals.

(15) The non-residential shelter categories that house 15 per cent of Syrian refugees are: Factory, Workshop, Farm, Active construction site, Shop, Agricultural/engine/pump room, Warehouse, Hotel room, School (VASyR 2018).

(16) Basic sanitation service is considered as: an improved sanitation facility (flush toilets or improved pit latrines with cement slabs) not shared with another household. Non-permanent structures are tents and pre-fab units (VASyR 2018).

(17) A national exercise in 2015 correlating poverty data and UNHCR registration data identified 251 cadastres as particularly vulnerable – home to 87 per cent of displaced Syrians and Palestinian refugees, and 67 per cent of deprived Lebanese.



Syrian refugee households in Non-Permanent shelters spend the highest proportion of their income on drinking water at 4 per cent, whilst the average is 3.2 per cent (global norms are 2-4 per cent). 79 per cent of these households are living below SMEB (<\$2.9/p/d) and 37 per cent reported paying an average of \$18/month for drinking water. A similar trend is observed for hygiene items; Syrian refugee households in non-permanent shelters spend the highest proportion of their income on hygiene items at 5.6 per cent, whilst the average is 3.3 per cent (VASyR 2018).

Palestinian gatherings has drastically increased the stress on the water supply and wastewater systems.¹⁸ Although several functioning water sources exist in the camps, the quantity of water provided is insufficient to meet the daily domestic requirements and, in some, is not potable due to high salinity, forcing residents to purchase water from private water suppliers within or near the camps. Wells are progressively drying up as seawater intrusion increases in coastal aquifers.¹⁹ In gatherings access to water networks has improved during the past years but quality and continuity of water supply remain a challenge whilst 64 per cent of households are still reliant on bottled water.²⁰

Challenges and opportunities

Enabling environment: The Government of Lebanon's (GoL) water sector is undermined by a lack of resources, both financial and human. Regulatory, legislative and management initiatives set in the 2010 National Water Sector Strategy have not been realized, hampering the effectiveness of service delivery. Roles are unable to be assumed in accordance with the intended water sector reform with the consequence that investment planning, capital spending and service provision responsibilities are scattered among various Government authorities, notably the Ministry of Energy and Water and Water Establishments.ⁱⁱⁱ In many cases unions of municipalities continue to invest in and manage water and wastewater systems as the water sector reform has not been fully realised.

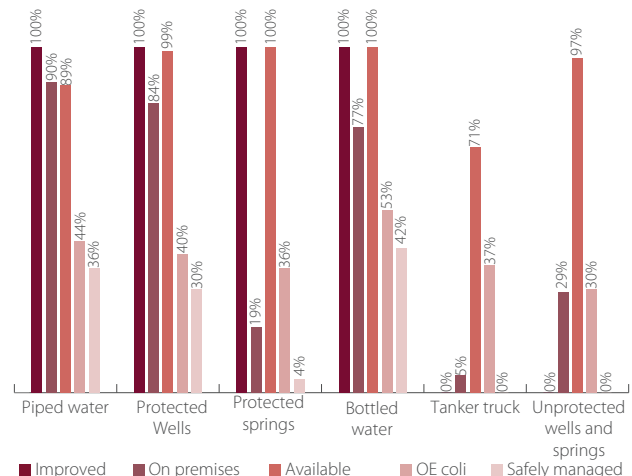
(18) Eight per cent of the total population of Palestine refugee camps and Palestinian gatherings is Palestinian refugees from Syria and 13 per cent are Syrian according to the Lebanese-Palestinian Dialogue Committee (2017), Census in Palestinian Camps and Gatherings.

(19) UNRWA has had to increase the pumping hours of the water wells inside camps, and as a consequence some wells having dried up in Beddawi, and Burj Shemali. Salinity has increased in Naher El Bared and Beirut camps, for instance, the R.O. system in Mar Elias camp is no longer providing the designed quantity and quality of water.

(20) 25 per cent of households use tap water for drinking and 64 per cent of households periodically purchase potable water according to the results of a household survey carried out by UNDP in Palestinian Gatherings in 2017.

The lack of comprehensive quantifiable data on water and wastewater service deficiencies, as well as environmental health impact data, make it hard to prioritize and target, in line with the masterplans, the limited funds to ensure those who are most in need are benefiting. Finally, ensuring the interests are met of all stakeholders in the water sector requires that users assume their responsibility, such as paying for and not wasting water, which will not happen without good governance and systems to incentivize sustainable water resource management by all.

Service delivery: The water sector value chain is deficient in every stage: from water production (including protection and treatment) – where 70 per cent of Lebanon's natural water sources are bacteriologically contaminated (up to 90 per cent in urban areas);²¹ to transmission, storage and distribution – where even pre-crisis on average for two-thirds of a day water did not flow to households in summer time and tank storage was half what is considered standard;²² to collection, treatment and safe disposal of the wastewater, – where many existing wastewater treatment plants lie dormant due to lack of connection to sewer networks, in addition to the lack of Water Establishment capacity to maintain and operate wastewater systems.



Percentage of Population in Lebanon using safely managed water disaggregated by supply mode (baseline for SDG 6.1 at a national level for Lebanon). High faecal contamination levels, across all supply modes, makes water unsafe to drink and therefore compromising accessibility to safely managed drinking water supply. The results clearly demonstrate the need to improve water quality for all supply modes. WHO/UNICEF (2016), Joint Monitoring Programme Lebanon Water Quality Survey.

Making improvements to services that benefit the end user in a meaningful and sustainable way requires a holistic approach to the implementation of new projects, ensuring strengthened governance alongside investment in water infrastructure, incorporating improved monitoring of water quality and quantity, and acknowledging interactions between surface and groundwater resources. It should be noted that the level of (secondary) treatment capacity in Lebanon could be increased from 3 per cent up to 75 per cent, if

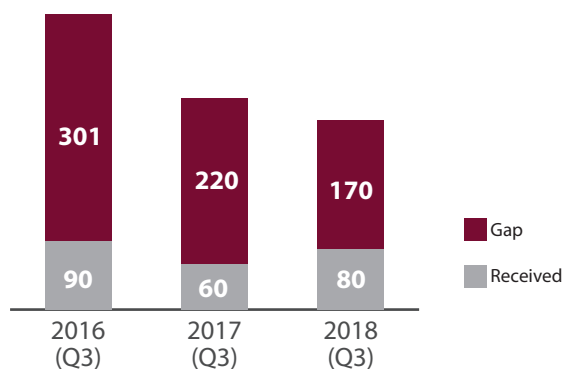
(21) 2010 NWSS

(22) Continuity of Water Supply Service, in 2009, was 7.6 hrs/day in high season and 13 hrs/day in low season. Average national tank storage time, in 2010, was 9.33 hrs, whilst standard practice is 12-24 hrs. 2010 NWSS

all existing wastewater treatment plants are upgraded, connected, powered and Water Establishment operation and maintenance capacity are provided.²³ However, connecting to treatment plants and ensuring their operation and maintenance requires significant financial resources.

By the end of September, the sector received \$80 million, only 32 per cent of the 2018 appeal, most of it coming in the third quarter. For the majority of the year, the sector has been severely underfunded and projects providing sustainable solutions and addressing stabilisation requirements have been deprioritised in favour of ensuring humanitarian needs are met which currently involves wasteful trucking operations.

Water sector funding (in million US\$)



Source: Inter-Agency Financial Tracking

Funding trend for the water sector from 2016-2018. 2016 appeal includes energy and environment. Data as at end of September (3rd quarter) for each year.

Hygiene, awareness and responsible use of water services: Promoting ownership and stewardship in water management is essential alongside principles of user-pays to encourage better behaviours and practices. This assumes and requires a reciprocal level of service delivery from the responsible authorities to provide access to safely managed water and sanitation, mitigating WASH related diseases whilst protecting the environment and safeguarding resources. A practical application of this principle is the promotion of water demand management measures through the installation of water meters and application of a volumetric water tariff, which the relevant authorities have begun to implement, often with support from Water sector partners.

However, with long-standing and severe shortcomings in public service provision, particularly in coverage and reliability of service, much of Lebanon's population (and humanitarian agencies) have adopted coping mechanisms which are unsustainable and damaging. The Ministry of Energy and Water estimates that at least 55,000 - 60,000 unlicensed wells have been dug over the past few decades. Furthermore, with urban sprawl unchecked, up to 40 per cent of untreated wastewater is disposed of through makeshift, unregulated cesspits or perforated tanks, while piped sewage is predominately

disposed of in waterbodies. Similarly, displaced persons from Syria as well as vulnerable Lebanese living in informal settlements, both tented and (peri-) urban, have become dependent on relatively expensive bottled water, water trucking and desludging services.²⁴

Due to a lack of access to safe sanitation and means for personal hygiene, women and adolescent girls face risks to health, protection and dignity, especially when living in informal settlements or substandard shelters. Increasing access to appropriate hygiene items remains important but more critical is elevating the knowledge on appropriate hygiene practices, particularly around menstrual hygiene management.²⁵

Vicious cycle: Humanitarian agencies have largely subsidized unsustainable services, especially in informal settlements, in hope of mitigating the likely impacts of unsafe water and wastewater management. While this may help mitigate risks in public health, social tension, and economic security, it has had the unintended consequence of further expanding (both in size and cost of service) parallel markets, as well as creating dependencies which strain aid budgets, limiting, in turn, the realization of investments in stabilization. Efforts to introduce more sustainable solutions to water and wastewater management in informal settlements have so far been limited, curtailed by chronic underfunding. As a result, the sector is far behind schedule on transitioning from emergency humanitarian response to stabilization and recovery, leaving a visible gap in achievement of intended outcomes for the wider vulnerable population, both refugee and host.

Progress in 2018:

Governance: Through a collaborative effort between the Ministries of Education and Higher Education, Public Health, Social Affairs, the World Health Organization (WHO), the United Nations Children's Fund (UNICEF) and the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), a national water quality and WASH census was completed for 2,035 public institutions. This involved measuring the level of WASH services against the 2030 Sustainable Development Goals for Public schools, Primary Healthcare Centres (PHCs), Social Development Centres (SDCs), Childcare centres and UNRWA schools and clinics. The resulting data allows prioritisation and targeting of WASH rehabilitation works in these institutions as well as the integration of WASH parameters in national accreditation and standards and the development of monitoring tools and cost estimates per cohort.^{iv}

Furthermore, in cooperation with the Ministry of Education and Higher Education a national health education package for schools was developed. This

(24) The reliance on bottled mineral water as a drinking water source increased 9 per cent since 2017 to 43 per cent of all Syrian refugees, whilst there was a 6 per cent decrease to 21 per cent of all household members who are accessing water from the public network (VASyR 2018).

(25) In all domains, female respondents report that they abstain from showering and bathing during the first days of menstruation. Some even refrain from showering and bathing for the entire period. The recommendation is to conduct an awareness campaign that demystifies what menstruation is and debunks myths surrounding the period (UNICEF KAP Study, 2017).

(23) UNICEF (2016), *Rapid Assessment for Large & Medium Scale Waste Water Treatment Plants across the Lebanese Territory*.

will sensitize future generations on adequate WASH practices, contributing to the sustainability of today's interventions and adoption of responsible behaviour, while asserting the role of education in improving social norms and practices.

The Ministry of Energy and Water launched the "National Guideline for Rainwater Harvesting Systems" which is a part of the 2010 National Water Sector Strategy. The guideline aims to improve water governance in Lebanon as a means of preserving the country's water resources and contributing to the UN 2030 agenda of the Sustainable Development Goals, mainly Goal number 6 which commits the world to ensuring that everyone has access to safe water by 2030.

Parliament has finally ratified Law 77, the new Water Code, that allows the private sector to build and run public water utilities. Public utilities for potable water, wastewater, and irrigation can now be run through Build-Operate-Transfer or Design-Build-Operate-Transfer contracts that have a maximum period of 30 years. Law 77 also establishes a 'water registry' (an inventory of all water input and output), calls for the development of a national water authority (to play a consultative role in establishing national policy for water projects, guidelines, and reports about work progress) and sets out guidelines for the establishment of a 'water police' that monitors violations, protects resources, and keeps factories and companies in check.

Other key initiatives have been delayed due to limited capacity, including; reviewing and updating the National Water Sector Strategy (NWSS),²⁶ designing and implementing a comprehensive surface and groundwater quality monitoring plan, and developing action plans for implementation of immediate priority needs of each of the four Water Establishments based on the various water and wastewater masterplans and in accordance with the updated National Water Sector Strategy.

Service delivery: Thus far in 2018, over 23 organizations have collectively contributed and undertaken projects benefiting 456,627 people, 29 per cent of the overall target, of which 39 per cent were Lebanese, with some improvements in water and sanitation services.²⁷ The outcome for the end user of these improvements to service delivery has been an increase to their daily water quantity or improvement to the quality of water or a more continuous and reliable flow of water to their premises. However, these same people still lack, in most cases, access to safely managed water since this requires the water to not only be accessible, but also safe and available when needed. Furthermore, the stabilization interventions that predominately focused on improving water supply systems, from production to storage and distribution, as well as supporting resource and service management have been, in 2018, partly through funds carried over from previous years. The capacity to scale-up

stabilization efforts has been limited by the prioritization of critical humanitarian activities, particularly due to the challenges in securing funds over the last year.

With regards to Palestinian refugee camps, several major infrastructure projects improving and rehabilitating water supply (water wells, tanks, extension of networks) and wastewater networks were completed to improve access to key services. A comprehensive Response Plan was also developed to implement UNRWA's Environmental Health Strategy and consists of the recommended technical interventions, new construction projects, rehabilitation of initiatives and all required resources to improve the environmental infrastructure and environmental health of the Palestinian refugees and others living inside the camps.²⁸

Partners provided some level of WASH support to 79 per cent²⁹ of people residing in informal settlements; this includes the provision of water storage containers and water points, delivery of trucked potable water, installation of latrines, implementation and desludging of wastewater systems, and hygiene promotion.

With respect to reducing the overall water trucking costs in informal settlements, a feasibility study was completed targeting 20 municipalities where the most amount of funds are spent to deliver trucked water. Analysis was conducted to determine whether ground water resources could and should be further exploited to provide for the additional demands of Syrian refugees. As a consequence, four projects were initiated to augment the water supply systems for a number of municipalities. It is anticipated that public water points would then be established that could be used by both Lebanese and Syrian refugees in informal settlements without compromising the host community needs now and in the future. Further to this, partners have, through collective bargaining, lowered trucking rates in certain areas,³⁰ trialled water treatment units for water sources that are on or adjacent to highly populated sites, and piloted the provision of unconditional cash assistance in other areas. Each of these initiatives have reduced overall costs of water service provision in informal settlements with the potential for application in other suitable sites.

Slow progress has been made to increase the number of latrines so that households do not have to share, which is essential to achieving a basic sanitation service level and improving refugees' health and dignity.³¹ To mitigate environmental health concerns of those inside informal settlements and surrounding host communities, a few temporary multi-stage onsite wastewater treatment systems have been piloted in specific suitable sites so far, and several partners have completed the planning and design phases to be able to implement such systems in

(28) UNRWA's Response Plan for 2018-2021 is based on a detailed inventory and needs assessment covering the sectors of land, habitat, water, sanitation, energy and air. It follows on from the five-year Environmental Health Strategy for Palestinian camps (2016-2021).

(29) 229,681 out of 291,163 are benefiting from regular WASH activities in Informal Settlements (WAP 3W October 2018).

(30) The average unit water trucking rate has been reduced from \$4.66/m³ in 2016 to \$3.98/m³ in 2018.

(31) Total average of individuals per latrine = 7.7 individuals/latrine (WAP Baseline and IAMP data), the sector minimum standard has been maximum of 15 individuals/latrine.

(26) The National Water Sector Strategy is intended to be reviewed and updated to reflect any progress in accordance with its strategic roadmap whilst accounting for the additional load on systems from a 30 per cent increase in population due to the Syria crisis.

(27) Activity Info reporting against Water sector results framework as at 30 September 2018.

many more sites. These initiatives follow the approval, in the first quarter of 2017, by the Ministry of Energy and Water, to implement such temporary and removable systems in suitable informal settlements in accordance with findings of the strategic study conducted in December 2016 for providing wastewater services.³² These advances are also critical in reducing tensions with hosting communities, however their implementation requires significant capital investment, financial visibility, and time to plan, design and construct. One pilot project benefiting 700 people is on track to return the initial investment in less than two years.³³ Unfortunately, with the serious lack of funding and visibility over the last year, most on-site treatment initiatives remain on paper. Partners instead have had to direct the limited available funds to essential desludging services to mitigate environmental health risks. Gaps have been inevitable and numerous complaints have been raised to the Ministry of Environment by municipalities.^v

At the end of 2017, an intensive assessment exercise was completed by sector partners through the WASH Assessment Platform (WAP) providing a detailed baseline of WASH data of all Informal Settlements.³⁴ During the last year, this WASH Assessment Platform tool has been further refined and an end-line WASH Assessment Platform assessment will be completed before the end of 2018 providing even more accurate data of 5,500 sites for all partners. The WASH Assessment Platform tool enables sector partners to ensure that the most critical and urgent WASH needs are met, reducing the risk of WASH related disease and negative environmental impact, by prioritising the most vulnerable sites and tailoring their WASH response in any site in a more systematic and harmonised manner.

Hygiene, awareness and responsible use of water services: Hygiene and awareness promotion programmes aimed to incentivize health protection and environmentally-friendly resource management have reached about a quarter of the sector targets: at the end of September 2018, 44 per cent of targeted individuals had benefited from WASH behaviour change sessions and 66 per cent of those targeted had adopted three key safe WASH practices.³⁵ A key part of this programme targeted Lebanese citizens as well, to boost acceptance of water metering, promote water conservation and encourage them to engage more actively with service providers. However, so far only 150 additional households were connected and paying for their subscriptions to Water Establishments (WEs) service by the end of August but

(32) Gert de Bruijine, Ghada Zeidan and Jan Spit Haastrecht and Delft, December 2016, *Provision of wastewater services at Informal Settlements in Lebanon*.

(33) To avoid further risk of groundwater contamination an on-site treatment system was implemented in a large informal settlement in Marj El Koch. Similar systems have been piloted in a few other large sites.

(34) In 2017 the sector developed a prioritisation and targeting approach built around an online, interactive live GIS database called the WASH Assessment Platform (WAP). Using an agreed set of criteria, across five priority domains; water, sanitation, solid waste, social and environment and including cross-cutting protection, economic and social stability proxy indicators, the system determines, through a weighted scoring system, which informal settlements are the most WASH vulnerable and what specific factors contribute to this vulnerability, enabling sector partners to meet the most critical and urgent WASH needs. Data is collected through 100+ questions and observations, as well as water quality testing of sources on all sites.

(35) Three key safe WASH practices: 1) using hygienic latrine, 2) drinking safe water, and 3) knowing 3 out of 5 critical times for hand washing.

this number is expected to increase significantly at end of year.

The recently published national Knowledge, Attitudes and Practices study has increased the attention on the software side of WASH programming and should facilitate better targeting of investments to promote responsible practices and behaviours whilst providing a baseline for monitoring change over the next few years. Of particular note, is the focus on awareness campaigns that demystify what menstruation is and promote menstrual hygiene management.^{vi}

The communications strategy is in its second year of implementation to help transform the water establishments of Bekaa, South and North into 'customer-centric' public establishments.³⁶ Developed with and for them, it is fostering trust between the customers and the service provider, supporting and strengthening the participation of local communities in improving water and sanitation management and building permanent, efficient and well-functioning communications and customer relations systems within each establishment.

Sector partners are also increasing their engagement in social or community related initiatives, including: Knowledge, Attitudes and Practices surveys on public service usage, expenditure and willingness to pay, supporting water establishment updating and geo-reference of their customers, undertaking subscription campaigns to promote renewal or new subscriptions, and conducting awareness campaigns on water conservation, water meters, right to service and duty to pay.³⁷

Contribution to LCRP objectives:

The Water sector contributes to **protection of vulnerable populations** through tailored WASH services for people with specific needs, such as persons with disabilities, elderly persons and women and children.

The Water sector has provided **immediate assistance to vulnerable populations** through humanitarian WASH activities during evictions, influxes and other emergencies of displaced persons from Syria. Its activities mitigate WASH related disease outbreaks and ensure immediate and temporary service delivery in informal settlements, collective shelters, substandard dwellings, and Palestinian camps and gatherings.

The Water sector **supports service provision through national** improvements to water and wastewater **systems** that are primarily managed by the water establishments. It also supports the Ministry of Energy and Water's planning and implementation, monitoring and management processes.

(36) Commenced in 2017 this initiative is supporting the development of customer-centric public water authorities by building permanent, efficient and well-functioning communications and customer relations systems within these sub-national establishments. Through applying industry standards and best practices this initiative aims to transform water establishments from being conservative, silent and reactive to become pro-active, open, and transparent in dealing with their stakeholders, whilst at the same time, increasing the level of stakeholders' knowledge about their rights and duties.

(37) Customer geo-reference, subscriptions and payments remain major challenges for water establishments in the North, Bekaa and South due to lack of capacity, thus support of sector partners has been welcomed.

The Water sector is **reinforcing Lebanon's economic, social and environmental stability** through projects that: 1) support livelihoods by generating construction related jobs for displaced Syrians as well as the host community, benefiting the most affected communities and boosting their economy by engaging the private sector; 2) increase service levels for all in underserved communities where conflict has flared over scarce resources, thus alleviating social tensions, and 3) mitigating negative environmental consequences through improvements to the management of wastewater, protection of water sources, and treatment of water supply.

Overall sector strategy

Lebanon's pre-crisis National Water Sector Strategy is seven years behind schedule. Instead of making measurable progress on reforms to management and infrastructure, or rolling out nationwide incentives for responsible use, this sector has had to run merely to keep pace with growing needs.

A four-year vision

This is an opportunity to balance and reconfigure a sector so vital to Lebanon's social wellbeing and economic stability. By 2020, vulnerable people in Lebanon - irrespective of their shelter type - should be able to access safe water for drinking that is sufficiently and sustainably supplied. At the same time, the health and economic costs of environmental degradation from unsafe wastewater management should also be significantly reduced.

This goal can only be reached through three complementary and equally critical measures:

1. Implementing approved national solutions for cost-effective servicing of informal settlements;
2. Enhancing Lebanon's capacities to deliver reliable water quality as well as quantity, nationwide and in areas of greatest vulnerability; and
3. Investing heavily in wastewater management, to mitigate health and environmental risks.

To achieve this, the sector response aims to drive measurable changes on three key levels.

At the institutional and policy level, the sector will aim to fill policy and legislative gaps, empowering the water establishments and enabling the Ministry of Energy and Water to launch a long-delayed strategy to monitor water quality. This is the first step to helping the Government and communities make better use of resources. The sector will continue to develop a stronger evidence base for water investments, to be able to address more effectively WASH-related vulnerabilities of displaced Syrians, host communities and Palestinian refugees, whilst accounting for related social, economic and environmental health vulnerabilities and aligning

with developments of an LCRP vulnerability framework.

At the service delivery level, the response will increase the efficiency in supporting humanitarian water and sanitation needs of displaced persons from Syria without access to public systems and rehabilitate and extend the outdated water infrastructure that serves host communities. As part of the support programme for host communities, the response will aim to build the capacity of water establishments to recover costs through appropriate tariff systems and deliver a higher standard of service that ensures better quality, quantity and improved operation and maintenance.

At the community level, the response will aim to empower displaced Syrians and vulnerable host communities to change behaviours that damage their health, their environment and undermine water security, and participate more actively in planning to identify solutions for their water and wastewater needs.

Overarching objective

The main objective of the Water sector is to increase the proportion of people in Lebanon using safely managed drinking water and sanitation services, targeting the most vulnerable irrespective of age, gender or nationality at the same time reducing health and environmental risks and improving water quality by increasing the proportion of wastewater that is safely treated.

Through this objective the sector will continue to contribute to the:

- **Protection of vulnerable populations** by ensuring these services are accessible universally and equitably, and by reducing these risks for the benefit of everyone regardless of income, sex, age, race, ethnicity, migratory status, disability and geographic location. (LCRP Objective 1)
- **Immediate assistance to vulnerable populations** by ensuring that all men and women, in particular the poor and the vulnerable, have equitable access to drinking water, sanitation and hygiene at a basic level of service. (Sustainable Development Goal (SDG) 1.4 and LCRP Objective 2)
- **Strengthening of national systems** to deliver services that ensure universal and equitable access to safe and affordable drinking water for all and access to adequate and equitable sanitation and hygiene for all by building capacities of Ministry of Energy and Water and water establishments to fulfil their respective responsibilities and promoting private sector, NGO and civil society participation and partnerships (Sustainable Development Goals 6.1 and 6.2 and LCRP Objective 3)
- **Reinforcing of Lebanon's economic, social and environmental stability** by improving cost recovery for water supply systems and generating construction related jobs easing economic stresses; by ensuring equitable access to services and reducing inefficiencies and losses to optimise use of

water resources alleviating social tensions; and by mitigating negative environmental consequences through improvements to management and treatment of wastewater and protection of water resources. (LCRP Objective 4)

Determinants of results

Achieving the overarching objective requires affecting positive change in three inter-related domains each consisting of several determinants (the desired outcome can be either impeded or supported by these determinants):

Enabling environment (the social, political, budgetary, and institutional determinants necessary to achieve results)

- Adequacy of relevant laws and policies, with attention to sustainability and cost recovery;
- Securing, allocation and disbursing of required resources;
- Reinforcing and strengthening of roles and accountabilities and mechanisms for coordination and partnerships;³⁸ and
- Appropriateness of widely followed social rules of behaviour.³⁹

Supply and quality of services (actual operational capacity of the relevant institutions, actors and systems accountable for the provision of services, promotion of practices and behaviours in compliance with minimum standards)

- Ensuring availability of adequate and essential materials required to deliver services or adopt practices;⁴⁰
- Physical access of targeted population to adequately staffed services, facilities and information; and
- Adherence to required quality standards (national or international norms).

Demand (the geographic, financial, social and cultural factors that facilitate the target population from benefiting from the services, facilities, systems or desired practices)

- Aptness of individual/community beliefs, awareness, behaviours, practices, attitudes;⁴¹
- Affordability of direct and indirect costs for service/practices; and

(38) This includes reinforcing and strengthening of roles and accountabilities of the Ministry of Energy and Water compared to those of the water establishments in accordance with the water sector reform outlined in the National Water Sector Strategy. It also covers mechanisms for coordination between stakeholders including authorities, other ministries, donors, UN, NGOs, etc.; and mechanisms for partnerships with private sector, donors, UN, etc. which are strengthened for example through human and material resources.

(39) This means social rules of behavior which are mainly driven by social pressure such as individuals sourcing their own water through private wells or bottled water, or individuals using water wastefully or not paying for public water.

(40) Materials include network assets such as pipes, valves, pumps, reservoirs, treatment plants as well as equipment and tools for operation and management.

(41) This includes individual beliefs and practices of both providers and populations. For example, women, regardless of nationality, not bathing during first few days of menstruation as revealed by the recently undertaken UNICEF 2017 Knowledge, Attitudes and Practices Study.

- Full, adequate and continued use of public services and adoption of practices.⁴²

The Water sector strategy is guided by the broader strategies and plans of the Government of Lebanon, primarily through the National Water Sector Strategy (Ministry of Energy and Water, 2010) and the Wastewater Strategy (Ministry of Energy and Water, 2010). It should be noted that the National Water Sector Strategy is planned to be reviewed to account for any progress since 2010, whilst the sector has had to cope with the unexpected additional demand and load of 1.5 million people or 30 per cent increase in population.

The strategy aligns with Lebanon's efforts to meet obligations under Sustainable Development Goals 1, 2, 3, 4, 6 and 11 of the 2030 Agenda for Sustainable Development, in particular Sustainable Development Goal 6 which is to ensure availability and sustainable management of water and sanitation for all. It should be noted that Lebanon is one of the first countries in the world, through the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), to establish a clear baseline from which to measure progress on achieving universal and equitable access to safe and affordable drinking water for all (Sustainable Development Goal 6.1). A baseline has also been established to measure progress on the proportion of wastewater safely treated (household component to wastewater treatment plants of Sustainable Development Goal 6.3.1) and the national Knowledge, Attitudes and Practices study provides a baseline for measuring progress on appropriate hygiene knowledge, attitudes and practices. Finally, the most recent national study of WASH in Institutions provides a baseline of Sustainable Development Goal progress for public schools, health centres, social development centres, nurseries and UNRWA clinics and schools.

The strategy also builds on the achievements of previous response plans, which created a range of sectoral initiatives and partnerships for supply gap-filling, information management, capacity-building, infrastructure rehabilitation and construction and community mobilisation.

Sector outcomes and outputs

The sector response for 2017-2020 has one overarching objective and three outputs each with priority interventions outlined for 2018:

Outcome statement - More vulnerable people in Lebanon are using safely managed drinking water and sanitation services whilst reducing health and environmental risks and improving water quality by increasing the proportion of wastewater that is safely treated.

Output 1.1- National institutions, frameworks and partnerships to manage resources and services strengthened.

(42) This includes maintaining water conservation practices or behavior and continuing to pay for public water supply rather than doing this on a part time or once off basis.

This output aims to strengthen national systems, policy and strategic frameworks, and partnerships to manage resources and services with a particular focus on quality, equity and accountability.

Priority interventions for 2019

At the national level, the response will support the Ministry of Energy and Water to deliver reforms it has identified as sector-critical.

- Update of the 2010 **National Water Sector Strategy** by the Ministry of Energy and Water, factoring in progress towards the strategic roadmap and the added burden of the Syria crisis;⁴³
- Improvement of **water quality and protection of groundwater** through:
 - Protecting against contamination of drinking water and its sources by improving wastewater collection and treatment and rehabilitating water networks to prevent cross-contamination;
 - Designing and implementing a comprehensive surface and groundwater quality monitoring plan, assessing quality along the whole supply chain and incorporating a user feedback mechanism.
- Supporting the **operating model between water establishments and Ministry of Energy and Water**, through projects and initiatives that:
 - Foster improvement in coordination capacity;
 - Conform to integrated water resource management approaches, guided by the National Water Sector Strategy;
 - Support the contribution of water establishments to project planning and implementation for water supply, irrigation and wastewater at their level of jurisdiction and under the leadership of the Ministry of Energy and Water;
 - Contribute to administrative and financial autonomy water establishments coupled with proper mechanisms for performance management.
- Developing **contingency planning** to prepare for and respond to potential waterborne-disease outbreaks, as guided by the Acute Watery Diarrhea (AWD)/Cholera Response Plan led by the Ministry of Public Health, maintaining the capacity to deliver on the WASH component of the response.
- Supporting **cooperation between the Ministry of Energy and Water and other key ministries** and responsible institutions by:
 - Strengthening water supply partnerships, including through the private sector, as well as

(43) The Ministry of Energy and Water is planning to update the National Water Sector Strategy to reflect any progress in accordance with its strategic roadmap whilst accounting for the additional load on systems from a 30 per cent increase in population. The strategic roadmap of the 2010 National Water Sector Strategy did not account for the Syria Crisis and an influx of 1.5 million displaced people. Due to the many challenges facing the sector, even targets for 2015 are a long way off being realized, for example; wastewater treatment (30 per cent by end 2012, 80 per cent by 2015 and 95 per cent in 2020) remains currently at 3 per cent for secondary (biological) treatment.

Lebanon's broader political economy, to deliver a better and more comprehensive client focused service;

- Launching the national health education package for schools in partnership with the Ministry for Education and Higher Education, including: workshops for the Ministry for Education and Higher Education team and experts from universities, piloting in 25 schools, and training for all health educators for second shift;

Integrating WASH into the national standards for Public Health Centres and Public Schools in collaboration with the ministries of Education and Higher Education and Public Health.

Output 1.2 - Quality, quantity and reliability of equitable water and wastewater services for the most vulnerable of hosting and displaced communities increased.

This output has two components:

A) Ensure humanitarian water and wastewater service delivery for those with least access, primarily displaced Syrians in temporary locations, by implementing more localised and cost-effective solutions to reach them.

Priority interventions in 2019

In brief, the humanitarian service delivery response strategy has four components: **Prioritization, Targeting, and Transitioning**, of informal settlements towards a situation of minimum vulnerability and dependency, and **Surveillance and Contingency** response through area coverage based on health, environmental, or social issues and to address immediate needs from evictions and new-comers. Using the WASH Assessment Platform and in accordance with the recommendations from the national WASH workshop held in July 2018, the sector will:^{vii}

- **Prioritize** the most vulnerable informal settlements based on WASH vulnerability, but also accounting for other compounding factors where reliable data is available, such as on social tensions, epidemiological surveillance, protection risks, and socio-economic vulnerability;
- **Target** contributing factors to vulnerability, with the aim of moving informal settlements away from a state of dependency and reducing vulnerability to a minimum, by implementing the necessary infrastructure and building on positive coping mechanisms and negotiating safe and equitable access to WASH services;
- **Transition** informal settlements to lower vulnerability status, with more cost-effective solutions of water and wastewater service provision that are localised to reduce dependency, in line with the Ministry of Energy and Water's approved modalities, namely:
 - For sanitation: favouring latrines for each

household; regulating and improving monitoring of desludging operations; implementing removable on-site treatment systems where feasible; and empowering beneficiaries and local entities to assume greater responsibility.

- For water: understand better household water management practices to optimise support; install site-based water treatment systems for unsafe sources; connect to public water networks, provided there is surplus in the water supply system or savings can be made in reducing unaccounted-for-water or augmenting supplies through increasing yield from existing wells or new water sources; provide public water points if favourable supply vs demand can be assured; support regulated trucking only where possible; adopt and scale up cash modality whilst ensuring safety; and encourage beneficiaries and local entities to maintain safe responsible water use.
- Maintain **surveillance and contingency** response capacity, analyzing trends for rapidly deteriorating conditions and proactively intervening based on accurate and up-to-date information on critical needs.

Until financial resources are sufficiently mobilized, sector partners would be forced to maintain the recurring and exorbitant water trucking and desludging services to meet the daily needs of those living in informal settlements.⁴⁴ If the necessary funds are made available, the sector will be able to reduce the WASH vulnerability of the most severely vulnerable sites down to a level whereby they may be considered independent and only require surveillance and contingency response, progressively reducing the overall costs as less and less sites would require expensive operation and maintenance support. In the meantime, sector partners will continue to address WASH needs, focusing particularly on people with specific needs, women and adolescent girls' safe access to WASH facilities, minimising risk of sexual or gender-based violence and maintaining dignity.

The Water sector, in collaboration with the Shelter sector, will increase its attention to urban WASH needs (vulnerable people living in poorly served non-residential and residential buildings) by: collecting better evidence on needs through the Vulnerability Assessment of Syrian Refugees in Lebanon, Collective Sites Mapping Tool (COSIMA), and neighbourhood profiling; developing criteria for addressing WASH needs for different shelter types; involving local entities (particularly municipalities and Unions of municipalities); and supporting and adopting an integrated spatial-based approach to address needs.

B) Improve the quality, quantity and reliability of water and wastewater services delivered to vulnerable communities through national and regional systems.

(44) Interventions which reduce WASH-related vulnerability significantly and eliminate dependency on unsustainable services and coping mechanisms remain few and far apart. Analysis suggests that only above a critical level of funding for essential services, can capital investments be made to provide more sustainable solutions which in turn would drastically reduce the continuing costs of trucking and desludging.

Priority interventions in 2019

The stabilization response focuses primarily on the three main areas of water resource management, namely supply of **Potable** and **Irrigation water**, and collection and treatment of **Wastewater**. The sector will continue to address:

- Provision of safely managed **potable water** through:
 - Drilling and equipping water sources;
 - Constructing, extending and rehabilitating distribution networks in host communities;
 - Enhancing water storage capacity by building and repairing communal storage tanks; and
 - Supporting the safe and effective operation of water services where necessary.
- Access to systems safely managing **wastewater** through:
 - Constructing, extending and rehabilitating wastewater networks and treatment facilities;
 - Cleaning and maintaining rivers and storm water channels, as well as implementing storm water and drainage projects, to mitigate the risks of flood-related damage and environmental health impacts;
 - Supporting the operation and maintenance of wastewater systems where necessary.
- The stress on water resources caused by unsafe and outdated **agricultural** practices through:
 - Upgrading or constructing new irrigation systems and off-farm networks to optimize water usage and reduce water losses to conserve domestic water supply;
 - Collaborating with the Ministry of Agriculture and the Food Security sector to work with farmers on responsible management of water resources for irrigation to reduce the impact of unlicensed wells;
 - Exploring rainwater catchment systems, in line with the guidelines for rainwater harvesting from facilities and greenhouses, combining low-cost solutions with potentially high impact on water supply, as well as agricultural production.

Ensuring **sustainability** of these interventions and continuity of achievement against the National Water Sector Strategy requires that the sector work through established **national systems** at every level. Therefore, the sector will continue to ensure that programming is geared towards boosting the **performance efficiency of WEs**. This is accomplished by:

- Increasing their focus on **irrigation and wastewater** activities, in addition to current water supply responsibilities;
- Supporting **improvements to essential Water Authority functions** including strategic and business planning, water demand management,

performance management, fixed asset management, supply chain management and customer service, through capacity building and material support;⁴⁵

- Promoting **consumption-based tariffs** and equipping user delivery points with customer water meters to encourage and ensure **cost recovery**. This is linked and necessarily follows network system improvements, substantial community engagement, and a proper cost analysis to cover, at a minimum, Operation and Maintenance (O&M) cost as a first stage;
- Increasing collection rates and the number of **subscribers** in the water establishments.

Output 1.3 – Hygiene awareness and responsible use of water services targeting the most vulnerable of hosting and displaced communities increased.

This output aims at enabling and empowering communities to adopt more responsible water, sanitation and hygiene practices, mitigating health and environmental impacts and rationalizing demand.

Priority interventions in 2019

The sector response will increase the quality of its community-based behaviour change initiative, emphasizing public health, environmental protection, and water demand management. Broadly speaking, this falls under two categories:

- Promoting personal, domestic, and environmental **hygiene** activities, covering:
 - **Vulnerable households**, particularly those affected by emergencies, displaced newcomers, or otherwise at risk, focusing on the needs of women and girls, and providing in-kind support in cases of inaccessible hygiene materials;
 - **Informal settlements**, using gender-balanced WASH committees, Focal Points or Community Mobilisers as vehicles for safe handling of solid waste and wastewater, as well as ensuring cleanliness of common areas and sanitation facilities;
 - **Public facilities**, such as schools, healthcare centers, social development centers, and other community centers, where the sector is requested to support the development of programmes delivered through other sectors;
 - **Local authorities**, investing in a comprehensive hygiene training of municipal-level hygiene promoters from the Ministry of Public Health and the Ministry of Education and Higher Education, complementing the community-based mobilization programmes already running in informal settlements and vulnerable locations.

(45) A key initiative is supporting the development of customer-centric public water authorities by building permanent, efficient and well-functioning communications and customer relations systems within these sub-national establishments. Through applying industry standards and best practices this initiative aims to transform water establishments from being conservative, silent and reactive to become pro-active, open, and transparent in dealing with their stakeholders, whilst at the same time increasing the level of stakeholders' knowledge about their rights and duties.

- Improving **awareness on water conservation** and responsible use, including:

- **Launching awareness campaigns** for water conservation and improvement of community responsibility, paired with initiatives supporting water establishments such as subscription, water metering, and consumption-based tariffing;
- Strengthening the application of **business plans** as guiding tools for interventions, ensuring that implemented projects are in line with and support objectives set by and for water establishments for sustained service provision and reversal of financial deficits;
- Strengthening needs identification and planning at the community level, as key ways of **transferring responsibility** for conservation and more responsible practices.

Assumptions, risks and mitigation measures

The response strategy factors in several assumptions, risks and mitigation measures:

Assumption 1: Commitment and accountability across Government to make supply and quality improvements remains strong. Water quality and supply is a cross-sectoral issue. The Ministry of Energy and Water depends upon a shared commitment across the Government of Lebanon to limit practices in both public and private sectors that impact water quality. The response will factor in national advocacy to demonstrate the potential long-term cost of unsafe water and wastewater management to child survival and growth, to learning, to the economy, and also to stability. It will also ground this strategy in those under development to meet Lebanon's commitments under the Sustainable Development Goals.

Assumption 2: Donors provide sufficient visible funding to meet LCRP commitments. The proportion of sector funding to needs is at its lowest point since the crisis began. Should under-funding continue, the sector will use its prioritization criteria (equity, alignment, conflict sensitivity, multi-sectoral impact) to ensure that vulnerability is addressed first before long-term sectoral reforms. However, it will continue to advocate for a shared international vision for the water sector as critical to Lebanon's long-term wellbeing.

Assumption 3: The water demand-supply ratio remains stable. Since the number of people inside Lebanon has been relatively stable since 2015, the most likely potential upset of the current demand-supply ratio would come from extreme weather. Should Lebanon experience either a drought affecting supply or a new influx affecting demand, the response would move onto an emergency footing.

Assumption 4: All priority populations continue to be accessible. Currently the international response can reach almost all parts of the country. To protect against any potentially destabilizing changes making access harder, the response will emphasize knowledge transfer

to equip communities with the tools and information they need to manage their resources more safely for themselves.

Identification of sector needs and targets at the individual/households, institutional and geographical level

The total population in need across all cohorts in the water sector has been defined as equivalent to the percentage of people that do not have access to safely managed water in Lebanon. This is based on data from the Lebanon water quality survey.^{viii}

In general, this may be understating the needs since it doesn't account for those households or areas that do not have water quality issues, but might instead have wastewater needs which are much more widespread. Nevertheless, it gives the best approximation in lieu of detailed vulnerability mapping, across the country, of the varied layers of needs and is based on internationally recognised standards of assessment.

The sector targets institutions, communities that are unserved or poorly serviced and vulnerable groups, households and individuals. The sector will target 80 per cent of the population groups of displaced Syrians, Palestine refugees from Syria and Palestinian refugees from Lebanon, whilst targeting 40 per cent of the most vulnerable Lebanese. This reflects the sector capacity and anticipated resourcing. The inter-agency vulnerable localities map has been a key tool for the sector to identify cadastres which have the highest concentration of Syrian refugees, deprived Lebanese and Palestinian refugees. 251 cadastres are currently targeted, pending an update of the map as new poverty data becomes available.⁴⁶

The Ministry of Energy and Water will be targeted for institutional support in its responsibilities for

policy making, national planning and water resource management, whilst the four Water Establishments and the Litani River Authority are the primary targets for improving service provision.

Prioritization by sector partners will be according to the following criteria:

Equity: Prioritize vulnerable groups, households and individuals (i.e. female/child headed households, elderly or disabled persons and minors) who face particular risks or require specific assistance, and on geographical areas with the highest concentration of affected people and with no/poor access to sufficient quantity, quality and continuity of services.

Alignment: Prioritize implementation of pre-planned specific projects identified as essential within the Government of Lebanon's strategies and master plans, which benefit the most vulnerable communities and would make the greatest contribution to the Sustainable Development Goals.

Conflict sensitivity: Prioritize areas most at risk of resource-based conflict, where community relationships are at their most fragile.

Multi-sectoral impact: Prioritize addressing multi-sectoral risks to health, environment, education and stability, with a focus on environmental degradation, water-borne disease incidence rates and educational retention supporting the delivery of an increasingly integrated response with other sectors.

(46) A Rapid Poverty Assessment was undertaken by MOSA, UNDP, UNICEF and WFP. Update of the most vulnerable cadastres using a multi-derivational index is ongoing.

Total sector needs and targets 2019

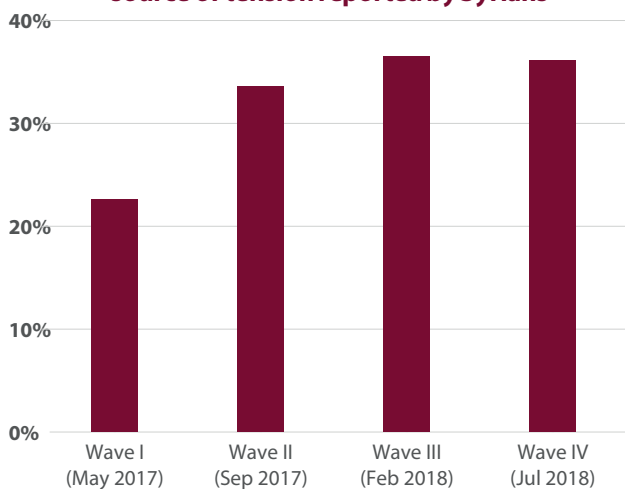
Population Cohort	Total Population in Need	Targeted Population	No. of Females	No. of Males	No. of Children (0-17)	No. of Adolescents (10-17)	No. of Youth (18-24)
Lebanese	1,500,000	696,400	355,164	341,236			
Displaced Syrians	990,000	544,300	277,593	266,707			
Palestinian Refugees from Syria	20,161	17,300	8,823	8,477			
Palestinian Refugees from Lebanon	177,910	130,450	66,530	63,921			
GRAND TOTAL	2,688,072	1,388,450	708,110	680,341			

Mainstreaming of conflict sensitivity, gender, youth, protection and environment

Conflict Sensitivity

Social tensions are often fuelled by competition between refugees and host communities for water resources and degradation to the environment and risk to health from poor water and sanitation practices.⁴⁷ Furthermore, evidence suggests that competition for services and utilities as a source of tension is on the rise, particularly in the Bekaa.⁴⁸

Competition for services and utilities as source of tension reported by Syrians



Competition for services and utilities as a source of tension is on the rise, as reported by both Lebanese and Syrians. Wave I May 2017, wave II September 2017, wave III February 2018 and wave IV July 2018. UNDP and AKR perception surveys.

The Water sector aims at ensuring equitable access for all vulnerable communities, whether poor Lebanese, Palestine refugees or displaced Syrians. Balanced access to services not only mitigates the risk of resource-based conflict but also promotes a climate in which people feel their needs are met fairly and proportionately. Many sector activities contribute to building community resilience, by creating productive fora for discussion and problem-solving. Conflict sensitivity is one of the leading prioritization criteria for the water sector, and social tension indicators and trends, particularly if driven by WASH concerns, will be considered when prioritising interventions.

Gender

Interventions of local and international partners consider the different needs of women, girls, boys and men. Where there are no family latrines and washing facilities, there are gender-segregated toilets. The response includes particular elements to involve women in measuring

(47) 94 per cent of those interviewed, both Lebanese (62 per cent) and Syrians (48 per cent) consider that the presence of so many Syrian refugees in Lebanon today is placing too much strain on Lebanon's resources, like water and electricity (ARK Perception survey wave 4, July 2018).

(48) 22 per cent of respondents rated competition for services and utilities as a source of tension as at May 2017 rising to 36 per cent as at February 2018. In Bekaa, it was 4 per cent rising to 42 per cent for the same period. UNDP and ARK perception surveys.

and monitoring water quality, and in planning solutions alongside Lebanese institutions. It will also increase focus on the dignity and protection needs of women and girls, including through a special programme connecting hygiene promotion, including menstrual hygiene management and capacity-building to the risks of gender-based violence where women lack access to segregated, safe toilets. To incorporate the new global gender-based violence (GBV) guidelines the sector will: endeavour to mainstream gender-based violence considerations in new assessments, incorporating gender-based violence risk related questions in questionnaires and focus group discussions; build the capacity of the staff that are engaged in outreaching activities on WASH related gender-based violence risks and referrals; and mobilise the WASH committees to monitor gender-based violence risks.

Youth

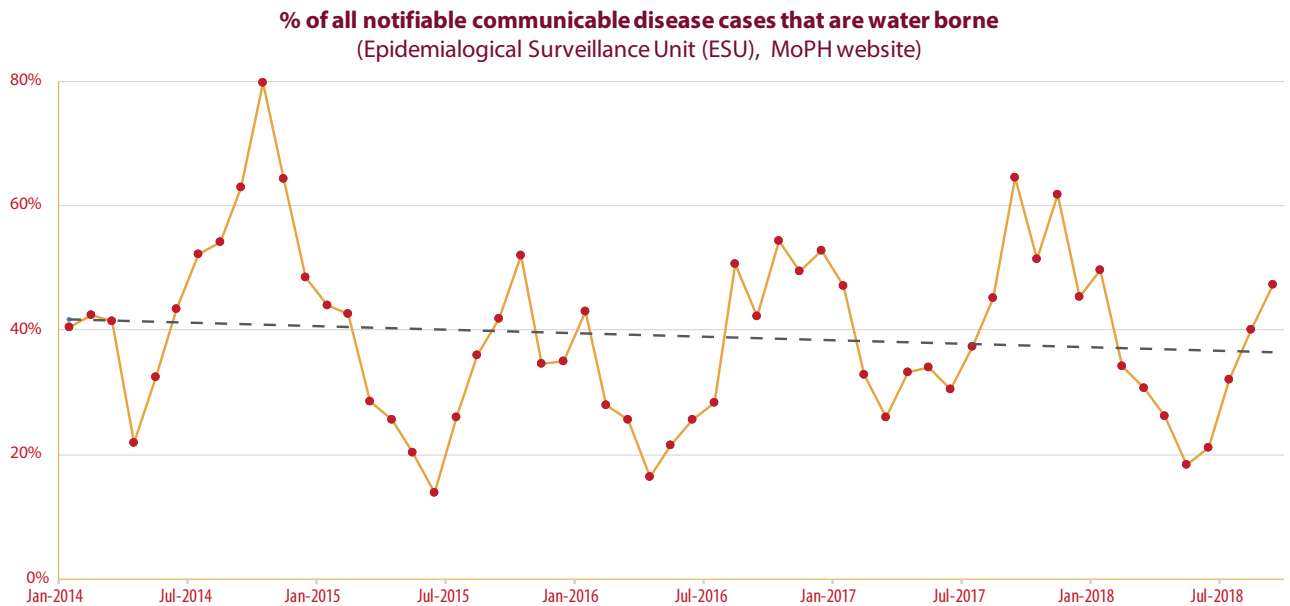
Adolescents and youth will be: targeted with hygiene promotion sessions; trained to become trainers on hygiene promotion and water conservation; provided with increased access to safe water and sanitation services; and involved in youth-led initiatives in communities and informal settlements on water, sanitation and hygiene subjects. Adolescent and young girls will benefit from personal and female hygiene sessions and items. They will also be part of committees ensuring the sustainability of the installed hardware. The launch of a national school-level hygiene promotion programme will involve youth at every level.

People with Specific Needs (PwSN)

Partners will continue to provide humanitarian assistance for evicted families ensuring they have the minimum water, sanitation and hygiene support in the immediate days following. Water and sanitation services shall be implemented in a manner that meets the requirements of people with specific needs, including those with disabilities and elderly persons, as well as for women and children, through ensuring safe accessibility to toilets and, bathing and washing facilities. A specific programme to address special needs is being implemented based on a mapping completed in 2016 and on consultations with people with specific needs. The Refugee Assistance Information System (RAIS) database reflects these needs, and is updated using the ongoing UNHCR household assessment of displaced Syrians. Sector partners at the field level will continue to support Lebanese, Palestinian and Syrian communities by alerting protection colleagues of suspected protection concerns through established referral mechanisms.

Environment

The Ministry of Environment, has received several complaints from local authorities and communities related to discharge of wastewater into the environment without prior treatment, mainly in informal settlements. In many cases, the complaints have escalated into violence and led to cases of evictions. The complaints are not representative of the actual situation on the ground



Percent of all notifiable communicable disease cases that are food and water borne, from January 2014 – September 2018.

Seasonal variations show the highest proportions occur during the period from August to October each year and a linear trendline shows a slight increase across five years.⁵⁸

and growing tension is expected as the number of informal settlements increase and as the general environmental situation in the country deteriorates, as highlighted by the solid waste crisis and pollution of Litani basin.

Protecting the environment is central to the Water sector response, from safeguarding natural water sources to preventing environmental contamination through unsafe supply and use patterns. The sector will continue to build the evidence-base for advocacy by presenting the avoidable cost of environmental degradation to Lebanon, and will seek to increase the portion of wastewater treated before it is discharged into the environment. Practically, the response will support capacity building, training and awareness campaigns to conserve water and dispose of wastewater safely. Innovations for non-permanent yet sustainable wastewater treatment and disposal at informal settlements will be evaluated and rolled out. The long-standing dire operating standard of wastewater treatment plants will be reviewed and a comprehensive strategy to bring them to working order presented in order to raise sufficient funds. The sector will cooperate closely with the Environment Task Force, led by the Ministry of Environment, to maximize the benefits of water and wastewater interventions.

Cross-sectoral linkages

Several sectors under the LCRP cross-report water-related interventions under the Water sector's results framework, requiring close coordination to prevent overlap. Water and wastewater systems are often cited as priority areas requiring support,⁴⁹ and needs dwarf available funding. WASH concerns are compounding

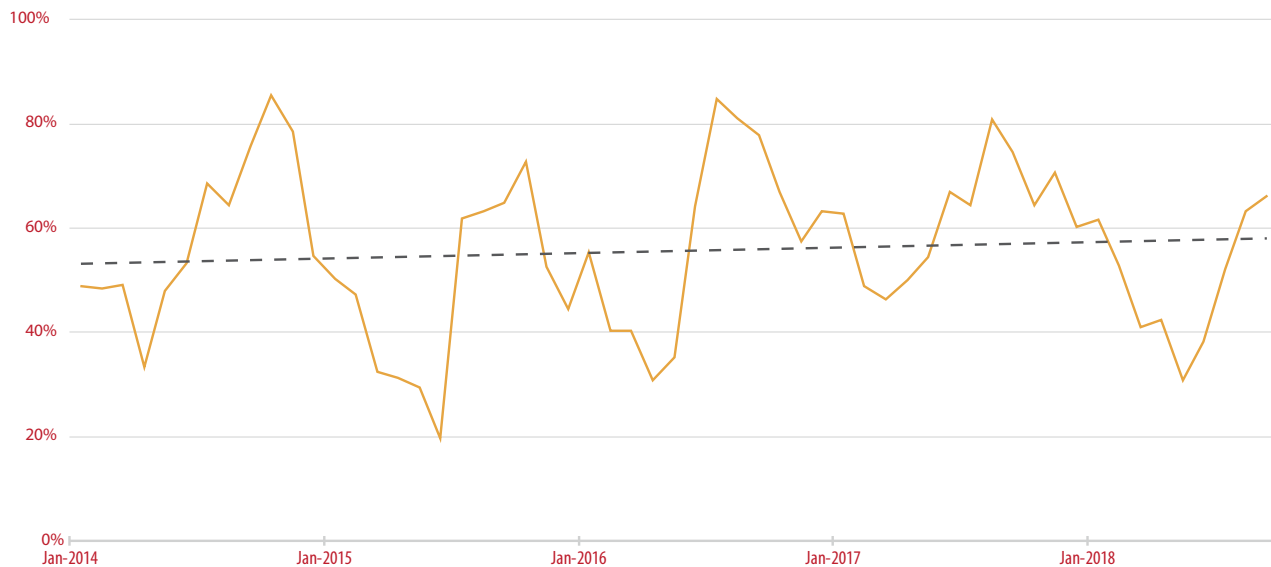
factors for vulnerability across various other areas, and inter-sector cooperation is necessary to ensure WASH service gaps do not put additional strain on systems supported by other sectors. Information gaps must be addressed to improve prioritization and targeting on the basis of vulnerability, understood as a multi-sectoral aggregate.

Health: As of September 2018, 52 per cent of all cases of 'Notifiable Communicable Diseases' reported to the Epidemiology Surveillance Unit (ESU) of the previous 12 months were Food and Water Borne, down from 62 per cent for the previous period.^{ix} In part as a result of the Water sector's support (especially in informal settlements), these cases remain largely isolated, with no notable outbreak in years. The Ministry of Public Health has improved epidemiological surveillance and reflects collected data at the district and municipal level now, which is more helpful for Water sector partners. Referral mechanisms are being revamped through the development of a new cross-sectoral tool in collaboration with Health and Shelter sectors. The Acute Watery Diarrhea (AWD)/Cholera Response Plan is being updated and finalized to address concerns of possible outbreaks. Using the results of the WASH in Institutions study, the Water sector is able to support the Health sector to improve WASH services required in over 100 public health centres and over a dozen UNRWA clinics.

Education: The Education sector is responsible for WASH within schools, while the Water sector covers water and wastewater services to the campus, and advises on hygiene promotion and environmental sensitization. Ongoing rehabilitation and construction of schools is aligned with MEHE's Effective School Profile (ESP) framework, which accounts for WASH national standards.

(50) Food and water borne diseases include Brucellosis, Cholera, Dysentery, Food Poisoning, Hydatid Cyst, Parasitic Worms, Trichinosis, Typhoid Fever, Viral Hepatitis A (Epidemiological Surveillance Unit (ESU), MoPH website).

(49) ARK Perception Surveys, Wave II, 2017.

% of all notifiable communicable disease cases that are food and water borne (2014 - 2018)

Cases of food and water borne disease, from January 2014 – September 2018.

Over the last year, case numbers have averaged about 190 per month. The highest peak in the graph in late 2014 is from a spike in cases of Viral Hepatitis A.

The Water sector is already supporting the Ministry of Education and Higher Education with improvements of WASH services in several priority schools, based on the detailed findings of over 1,000 public schools from the WASH in Institutions study. Collaboration with the Education sector will continue with: the integration of WASH parameters in national accreditation and standards; the development of WASH monitoring tools; and the implementation of a national health education package for schools to sensitize future generations on appropriate WASH knowledge attitudes and practices, while asserting the role of education in improving social norms.

Basic Assistance: Multi-purpose cash support by the Basic Assistance sector incorporates components of WASH-related expenditure (hygiene materials, water, etc.) in the sum provided to 61,000 displaced Syrian households.⁵¹ However, the WASH component accounts for less than two per cent of the multi-purpose cash budget. Considering that support is primarily provided to those below the survival minimum expenditure basket level, cash-based and in-kind support can be considered complementary. Economic vulnerability has been factored into WASH vulnerability using proxy indicators. Collaboration with the Basic Assistance sector will continue for the scale-up of WASH cash assistance and improved targeting.

Shelter: While the Water sector has largely focused its support on informal settlements, the Shelter sector primarily targets households in (peri-) urban settings with interventions that include rehabilitation of WASH facilities. It has become clear that this division of responsibility has left significant gaps in WASH coverage:

1. **Non-residential buildings** typically end up unsupported as they do not satisfy the criteria

(51) MPC assistance fluctuates depending on funding levels and was reaching only 45,000 households at the same time last year.

of either sector, and have so far have only been partially mapped and assessed;⁵²

2. **Building connections** to water and wastewater networks fall outside the Shelter sector's scope and have so far not been targeted by the Water sector, leaving many buildings and neighbourhoods reliant on unsustainable practices, similar to those in informal settlements;
3. **Common areas and public spaces**, especially in poor neighbourhoods, suffer from poor environmental hygiene conditions (flooding, littering, and wastewater leakage), which remain mostly unaddressed by either sector.

Progress has been made to address these gaps in 2018. The Shelter sector completed its revision of shelter typologies, which clarifies settlement categories, and has been collecting data on collective shelters including WASH service conditions. The Water sector has improved its WASH Assessment Platform and can expand the use of this tool to other non-residential contexts. UN-Habitat, in partnership with UNICEF, has expanded its Neighbourhood Profiling and Strategizing exercise. The two sectors will collaborate to ensure harmonized prioritization criteria for stabilization interventions in urban areas, amplifying their impact.

Social Stability: Access to basic services and environmental hygiene and sanitation are stress factors for social tension. Perceived pressures on water resources and environmental impact of displaced Syrian settlements have measurably increased tensions in specific locations, increasing the risk of forced evictions. The Water sector, through stabilization interventions in vulnerable locations, as well as regular emergency

(52) The shelter led Collective Site Mapping (COSIMA) tool has assessed 178 collective shelters (>5 HHs) in Beirut, Mt Lebanon, North and Akkar governorates indicating that 16 per cent don't have fully functioning water connections and 10 per cent don't have a functioning septic system or sewer connection.

services to displaced populations, mitigates risks to stability. In turn, the Social Stability sector often implements water-related interventions identified by communities as priority needs. Regular coordination ensures there is no overlap between the two sectors' stabilization efforts, with proactive coordination at the field level in which Social Stability partners refer identified water needs to the Water sector before committing to implement, particularly when these needs are in water and wastewater systems. This will magnify impact of the limited funds available for both sectors on stabilization. Solid waste management is captured under the Social Stability sector's results framework, whereas activities are implemented by both (and other) sectors in the field. Field level solid waste management task forces will continue to be supported by the Water sector, under the guidance of the national-level Environment Task Force and Social Stability. Social tension mapping and guidance from the Social Stability sector will continue to help the Water sector prioritize interventions.

Livelihoods: The Water sector has been one of the largest contributors to job creation under the LCRP due to the implementation of infrastructure projects, however this has been decreasing with a reduction in funds.⁵³ Targeting infrastructure with labour-intensive upgrades naturally results in cases where the Livelihoods sector implements water-related projects. As between the Water and Social Stability sectors, proactive coordination will prevent duplication. The Water sector, based on guidance from the Livelihoods sector, will offer labour-intensive variants of stabilization interventions, provided necessary funding is available, in order to leverage its potential to create income-generating opportunities.

Energy: Poor reliability of the national electricity grid takes its toll on water and wastewater systems as the costs of operation increase, straining service provider budgets, and contributing to the reduced capacity to treat wastewater and supply (pump) water. Aside from public health implications, the intermittence of supply forces households and businesses (primarily from the agriculture sector) to cope by resorting to illegal and unsafe water sources. The Energy sector aims to improve power supply to water infrastructure, while reducing its load on the national grid, by installing dedicated renewable energy solutions (such as solar panels powering water pumps).

Food Security: Water resources diverted to agriculture account for around 61 per cent of all water usage. As such, efforts to improve irrigation systems and practices, coupled with rationalization of fertilizer and pesticide use, can lead to significant savings in water demand and mitigation of groundwater chemical contamination. The division of responsibility in this regard between the sectors follows the division between the respective line ministries (Ministry of Energy and Water and Ministry of Agriculture), with the Water sector concerned with conveyance systems (primary irrigation canals and networks) and the Food Security sector tackling on-

site irrigation and drainage systems. Both sectors consequently provide support to public water providers (such as water establishments) through investment in capacity building and infrastructure, with the Food Security sector focusing contribution towards improvement of conveyance systems to agricultural lands, while the Water sector prioritizes residential areas, due to limited financial resources. Informal settlements also pose a contamination risk to soil and groundwater resources vital to agriculture, and the Water sector's wastewater disposal efforts (primarily installation of septic tanks and provision of de-sludging services) are key to mitigating their impact. Coordination between the sectors has so far focused on preventing overlap in infrastructural or institutional support (stabilization) efforts. The Water sector will share water quality test results gathered through the WASH Assessment Platform with the Food Security sector, providing a basic indicator of groundwater faecal coliform and/or nitrate contamination.

Protection: The Water sector will continue to support both refugee and host community needs while maintaining a protection space for refugees. Cooperation with the Protection sector has helped people with specific needs receive adapted services. The two sectors will continue to share information on community-level needs and local capacities to meet those needs (including community-based organizations already working on protection and human rights issues). The Water sector has increased its focus on the intersection between sanitation and gender-based violence, as part of a joint effort to minimize the exposure of women and girls to sexual violence in a context of open defecation and rudimentary shared WASH facilities. More collaboration is needed in the area of evictions to ensure planning and response are optimised.

Endnotes





- i. MoEW (2010) NWSS.
- ii. WHO/UNICEF (2016), Joint Monitoring Programme Lebanon Water Quality Survey.
- iii. 2010 NWSS
- iv. UNICEF, WHO JMP (2018), WASH in Institutions.
- v. Gert de Bruijne, Ghada Zeidan and Jan Spit Haastrecht and Delft, December 2016, Provision of wastewater services at Informal Settlements in Lebanon.
- vi. UNICEF (2017), KAP Study, November 2017.
- vii. WASH Workshop – Informal Settlement and Urban WASH: meeting needs better (July 2018), summary document.
- viii. WHO/UNICEF (2016), JMP Lebanon water quality survey (unpublished).
- ix. MoPH Epidemiology Surveillance Unit (ESU).

(53) Job creation under the LCRP 2016 Dashboard.





Sector Logframe

Outcome 1: More vulnerable people in Lebanon are using safely managed drinking water and sanitation services whilst reducing health and environmental risks and improving water quality by increasing the proportion of wastewater that is safely treated.





Indicator 1	Description	Means of Verification	Unit	Frequency
	Percentage increase in proportion of population using safely managed drinking water services (SDG 6.1.1)	JMP 2016 and 2020	Percentage	Four years

 Lebanese			 Displaced Syrians			 Palestinian Refugees from Syria (PRS)			 Palestinian Refugees from Lebanon (PRL)		
Baseline	Result 2018	Target 2020	Baseline	Result 2018	Target 2020	Baseline	Result 2018	Target 2020	Baseline	Result 2018	Target 2020
36%	N/A	46%	36%	N/A	46%	36%	N/A	46%	36%	N/A	46%

Indicator 2	Description	Means of Verification	Unit	Frequency
	Percentage increase of boys, girls, women and men with appropriate hygiene knowledge, attitudes and practices	KAP survey 2017, 2020	Percentage	Three years

 Lebanese			 Displaced Syrians			 Palestinian Refugees from Syria (PRS)			 Palestinian Refugees from Lebanon (PRL)		
Baseline	Result 2018	Target 2020	Baseline	Result 2018	Target 2020	Baseline	Result 2018	Target 2020	Baseline	Result 2018	Target 2020
TBD	TBD	TD	TBD	TBD	TD	TBD	TBD	TD	TBD	TBD	TD

Indicator 3	Description	Means of Verification	Unit	Frequency
	Percentage increase in proportion of wastewater safely treated (Household component to WWTPs of SDG 6.3.1)	WWTP study 2016, 2020	Percentage	Four years

 Lebanese			 Displaced Syrians			 Palestinian Refugees from Syria (PRS)			 Palestinian Refugees from Lebanon (PRL)		
Baseline	Result 2018	Target 2020	Baseline	Result 2018	Target 2020	Baseline	Result 2018	Target 2020	Baseline	Result 2018	Target 2020
3%	N/A	10%	3%	N/A	10%	3%	N/A	10%	3%	N/A	10%