



Energy & Water

Lead Ministry/Co-Lead: Ministry of Energy and Water (MoEW)/
Ministry of Environment (MoE)

Coordinating Agencies: UNICEF

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 <p>PEOPLE IN NEED</p> <p>2,427,000</p>	 <p>PEOPLE TARGETED</p> <p>2,022,000</p>	 <p>REQUIREMENTS (US\$)</p> <p>391.2 million</p>
 <p># OF PARTNERS</p> <p>35</p>	<p>GENDER MARKER</p> <p>1</p>	



SECTOR OUTCOMES

OUTCOME	INDICATORS
OUTCOME 1: Access to improved electricity	<p>INDICATORS</p> <p>% of target population that has equitable and reliable access to electricity to ensure sufficient electric current for lighting, operation of basic household machinery and security purposes.</p> <p>% of target population that has access to safe and equitable water in sufficient quantities for drinking, cooking, personal and domestic hygiene.</p> <p>% of target population that has access to improved, sustainable, culturally and gender appropriate sanitation and drainage services for target population.</p> <p>% of target population that has increased awareness of local/municipal authorities with respect to legislation, guidelines and measures that can be practically adopted for mitigating the impact on the environment in terms of solid waste, air quality and landuse/ecosystems.</p> <p>% of the target population that are aware of key public health risks and are capacitated to adopt good Water and Sanitation related practices and measures to prevent the deterioration in hygienic conditions and Water and Sanitation related diseases.</p> <p>All sector partners are prepared to respond to agreed emergency scenarios and are aware of priorities and targets.</p>
OUTCOME 2: Access to safe water	
OUTCOME 3: Increase access to improved, sustainable, and culturally and gender appropriate sanitation services including wastewater management, vector control and mitigation of flood risks (stormwater drainage) for target population	
OUTCOME 4: Mitigate impacts of the Syrian crisis on the environment in Lebanon, including on air quality and landuse, and management of solid waste	
OUTCOME 5: Maintaining hygienic conditions	
OUTCOME 6: Contingency and preparedness	



PRIORITY INTERVENTIONS

- 1: Ensure sustainable and equitable access to electricity for the vulnerable population.
- 2: Ensure sustainable and gender appropriate, equitable access to safe water for the target population in sufficient quantities for drinking, cooking, personal and domestic hygiene.
- 3: Increase access to improved, sustainable, culturally and gender appropriate sanitation (solid waste and wastewater management, vector control, ...) irrigation, flood prevention, storm water management, and drainage services (mitigation of flood risks) for target population.
- 4: Mitigate impact of the Syrian crisis on the environment in Lebanon.
- 5: Enable target populations to use and maintain water and sanitation facilities, make them aware of key public health risks to prevent the deterioration in hygienic conditions and capacitate them to adopt sound hygiene practices.
- 6: Strengthen and harmonize national and local level systems in line with the actuated laws, guidelines and existing national strategies to ensure improved service provision and timely response.
7. Ensure preparedness to possible risks: develop relevant studies, plans, strategies and contingency stock to improve targeting, prioritization and response.



1. Situation analysis and context

Baseline Situation:

Prior to 2012, the infrastructures and services related to the energy and water Sector (which includes electricity, water, wastewater, irrigation, stormwater and environment) in Lebanon were already negatively impacted by years of conflict and instability, resulting in poor overall management of these public services and resources. The Syrian crisis has exacerbated this situation by putting additional pressure on an already weak system. The baseline situation in 2012 (prior to the Syrian crisis) was as follows:

Electricity:

-Electricite du Liban (EdL) generates a peak supply of 2,019 megawatts (MW), reaching only 63% of the 2012 peak demand estimated at 3,195 MW.

-In addition to the deficit in installed generating capacity, the efficiency of the existing system is below normal levels due to poor maintenance, deterioration of facilities, high losses and the need for reinforcement of the transmission and distribution networks.

-Deteriorating and inadequate infrastructure results in low reliability and inadequate levels of electricity supply.

-Service delivery standards are low compared to other countries with similar per capita GDP. In terms of quality of electricity supply, Lebanon ranks second-last in the world¹.

-Lebanon suffers extensive load-shedding, with supply cuts in Beirut of at least 3 hours per day, and up to 12 hours per day outside of Beirut. With some new, temporary, barge-mounted power generation capacity which came online in 2013, the national average daily power supply is calculated to be 18.3 hours/day. The majority of consumers were and are still forced to rely on costly and environmentally-unfriendly small diesel generators to provide the balance of their electricity requirements.

-The sector causes a massive drain on government resources in the form of subsidies to EdL, estimated at around 4 percent of GDP. Even with the decline of oil prices, the electricity tariff in Lebanon is still far below cost-recovery levels, and is inadequate to fully cover either the cost of fuel required by the electricity sector or any of its enormous investment needs.

-Below cost-recovery tariffs paralleled high system losses, and low revenue collections caused the sector to rely entirely on public resources to subsidize the purchase of fuel for power generation. The sector costs the government US\$2.2 billion in subsidies in 2012, up from US\$1.7 billion in 2011.

Water:

Domestic water supply: Water network coverage is

estimated at 80 percent with unaccounted-for water reaching an average of 48 percent of the supplied quantities. More than 50 percent of the transmission and distribution networks are in severe need of rehabilitation and unable to bear additional pressure². Water resources are adversely affected by contamination from domestic and industrial wastewaters (WW) and agricultural drainage, as well as by discharges from healthcare and other facilities³. Overflow of sewers and infiltration of WW into potable water networks, surface and underground water sources are frequently reported, leading to additional water quality degradation, threatening public health and the environment⁴. Moreover, power shortages paralleled with insufficient water resources lead to a limited water supply ranging from 3 to 22 hours/day⁵.

Wastewater: Lebanon produces about 310 million cubic metres (MCM) of wastewater annually, of which 250 MCM are municipal and about 60 MCM industrial. About two-thirds of the population are connected to networks, but only 8 percent of the generated WW reaches the four operational wastewater treatment plants and is treated. Most WW collected is discharged raw, without treatment, into watercourses, valleys and the sea. Where there is no network, cesspits are used, with considerable seepage into groundwater. The primary negative impacts of poor WW collection and treatment relate to the pollution of groundwater, surface water resources and soil, and to the generation of various health diseases as well as coastal contamination.

Irrigation is the largest water consumer in Lebanon (60% of total water consumption) with low efficiencies. In 2010, irrigation water requirement was estimated at 810 MCM per year. Around two thirds of irrigation water (540 MCM) is lost due to the poor conditions of supply channels and networks⁶. By improving irrigation efficiency through improving supply infrastructure and increasing rainwater harvesting, a large amount of water can be saved for drinking purposes and/or for extending agricultural lands.

Protection of river banks and mitigation of floods into agricultural areas and nearby households:

In the absence of adequate WW network coverage and sanitary landfills, most rivers and streams in Lebanon are being used for the discharge of raw WW and solid waste. The waste and sludge generated by the 1.5 million persons displaced from Syria have added to the load. Cleaning of rivers and streams and protection of river banks - part of MoEW's mandate - are necessary to mitigate the flood risk and potential losses into neighbouring agricultural lands and

(2) Ministry of Energy and Water (MoEW), National Water Sector Strategy, 2012.

(3) MoE, Lebanon State of the Environment Report, Chapter 8: Water, 2010

(4) Margane, Armin and Renata Raad, Hazards to groundwater and assessment of pollution risks in Jeita spring catchment. Federal institute for Geosciences and Natural Resources in collaboration with Centre for Development and Reconstruction pages 49-50, 2013.

(5) MoEW, National Water Sector Strategy, 2012; MoE, EU and UNDP, Lebanon Environmental Assessment of the Syrian Conflict & Priority Interventions, 2014.

(6) MoEW, National Water Sector Strategy, 2012.

(1) World Economic Forum, The Global Competitiveness Report 2014-2015, 2015.

households.

To address the needs of Lebanon in the Energy and Water Sector, the Ministry of Energy and Water (MoEW) developed a **Policy Paper for the Electricity Sector** approved by Council of Ministers in June 2010, and a **National Strategy for the Water Sector** approved by the Council of Ministers in 2012, and has started implementing both since their approval. These strategies were prepared for a forecast population of 5.3 million to be reached by 2020. However, in 2015, the influx of displaced Syrians has brought the number of inhabitants in Lebanon to an estimated 5.9 million, already surpassing the planning figures.

Environment:

Environmental assessments carried out by the Ministry of Environment (MoE) between 2010 and 2014⁷ have reflected an alarming environmental situation, particularly in the following primary aspects:

-Extensive pressures on Lebanon's natural resources. This includes pressure on water resources from increased consumption and pollution loads from wastewater (as indicated in the sections above), extensive pressure on the remaining 13 percent forest cover from urbanization, felling and forest fires. Other pressures are also observed on the fragile land and soil resources (including the coastline) mainly as a result of rapid urban conversion and development.

-A challenging solid waste management situation. Until 2015, municipal solid waste destinations were approximately 53 percent to landfill, 30 percent open dumped/burned, 9 percent composted and 8 percent recycled. There are over 700 open dumps, resulting in extensive environmental degradation and health risks. The current solid waste crisis of 2015 with the closure of the Naameh Sanitary Landfill site has further escalated the situation.

-Degradation of air quality. This is a growing environmental concern in Lebanon and in the last three years has become a major source of concern to public health. Many recent epidemiological studies have consistently shown associations between levels of exposure to air pollution and health outcomes. As such, a deeper understanding of the causality of health risks is needed.

Overview of the Displaced Syrian Population by Cohorts

In Lebanon, displaced Syrians are divided into two main categories:

1- Those living in **informal settlements (IS)**: they constitute 18 percent of the displaced Syrians and are located typically in agricultural areas. For example, 38 percent of the Syrians in Bekaa area are living in informal settlements. They require comprehensive assistance ranging from electricity, water supply, solid waste and drainage management, in addition

to support with hygiene items⁸. The general policy of GoL requires that services be temporary in informal settlements (such as water trucking and desludging). MoEW and MoE are studying alternative efficient solutions for the provision of electricity, water and management of wastewater and solid waste that would preserve national water and environmental resources and are in line with GoL policy.

2- Those that have settled within hosting communities: they are the remaining portion (82 percent) of the displaced population. They typically concentrate in densely populated urban centres, in particular in already impoverished neighbourhoods and in informally developed urban areas, where access to essential electricity, water and wastewater services is insufficient. Lebanese host communities and displaced Syrians living in substandard shelters require a range of electricity, water and wastewater services that need to be gender-sensitive, ensuring equal access.

3- Access to water and wastewater services for Palestine Refugees from Lebanon (PRL) and for Palestine Refugees from Syria (PRS) outside Palestinian refugee camps is similar to that of the vulnerable host Lebanese and displaced Syrians. For those served by UNRWA's water and sanitation services, infrastructure is overwhelmed and overstretched. PRS represent 20 percent more caseload for all of UNRWA's services. One third of PRS families reported not having access to sufficient water for basic livelihood including drinking and cooking⁹.

Impact of the Syrian Crisis on the Energy and Water Sector

The direct impact of the Syrian crisis on Lebanon's infrastructure, namely electricity, water and the environment can be summarized as follows:

A- Electricity:

Given the scarce resources, grid supply of electricity to persons displaced from Syria is diverted from Lebanese consumers, resulting in lower supply levels and the need to meet this lost supply through costlier private generation. This implicates an additional economic cost borne directly by Lebanese consumers of roughly USD206 million in 2013, rising in 2014 and 2015. ("WB Economic and social impact assessment of the Syrian conflict" 2013).

As noted above, the Lebanese electricity system was already unable to meet demand prior to the crisis. This additional demand is therefore being met either through privately-operated generators (in the cases where they can be afforded), or through illegal connection to the national grid, causing a reduction in supply to the baseline Lebanese population. An assumptions-based analysis undertaken by MoEW in conjunction with the World Bank in 2012 estimated an increased demand due to the displaced Syrian

(7) MoE, Lebanon State of the Environment Report, Chapter 8: Water, 2011; MoE, EU and UNDP, Lebanon Environmental Assessment of the Syrian Conflict and Priority Interventions, 2014.

(8) UNHCR, Shelter Survey 2015 (persons registered as refugees only), 2015.

(9) PRS Vulnerability Assessment, 2014.



population of 213 MW by December 2013. The total demand for electricity by the Syrian population was projected to rise to 306 MW by the end of 2014.

Based on an average production cost of 23.69c/kWh, the cost of providing 213 MW of electricity supply to persons displaced from Syria is estimated at US\$170 million for 2013. This estimate takes into account the various types of accommodation being used by them, and conservatively assumes that electricity consumption is paid for at prevailing tariffs, by displaced populations living in host households, rented accommodations and hotels.

The additional demand for electricity is detected through the following practices:

- Connection of improvised accommodations, such as Informal settlements, collective sites, substandard shelters and unfinished buildings to the electricity grid;
- Increased residential load where displaced populations are being hosted in Lebanese households;
- Increased residential load where displaced populations are renting accommodation;
- Increased load from hotels and other rented accommodations, where occupancy has increased because of displaced populations.

B- Water:

Lebanon's protracted civil war left it with a fragile water infrastructure, which had not recovered fully even after 20 years of peace. As such, Lebanon was not equipped to accommodate 1.5 million displaced persons, all of whom require vital water and wastewater services. The major consequences of the Syrian displacement on the water sector in Lebanon are the following:

- Based on the National Water Sector Strategy, out of a total demand of 1,500 MCM, available exploited public resources can provide 900 MCM, resulting in a 40 percent supply deficit. The water consumption of displaced Syrians aggravates this situation resulting in higher deficits and reduced hours of water supply.
- Limited public infrastructure coverage and intermittent service delivery force households to supplement current gaps with private water suppliers, including private wells, private water tankers and bottled water.
- Reduced access to water and inadequate wastewater management expose vulnerable Lebanese and families displaced from Syria to increased risk of waterborne diseases. Diseases transmitted through food and water continue to be the most frequently reported in Lebanon, accounting for 50 percent of all reported diseases. The most common infection is viral hepatitis A, which represents 36.6 percent of the total food and waterborne diseases¹⁰.

-Poor environmental conditions, due to inadequate wastewater collection and disposal practices along with cramped living conditions, increase the risk of disease and cause severe contamination of ground and surface waters.

-Poor irrigation infrastructure causes huge water losses, resulting in the reduction of available surface water resources and the reliance on groundwater resources, which are already stressed due to over-abstraction. This implies a reduced availability of water for domestic use.

-Rivers severely impacted by the hazardous dump of solid waste cause, in addition to water contamination, floods in several areas across Lebanon. Capital investment to clean river courses and consolidate river banks is urgently required to prevent damage into surrounding areas.

-Floods and their consequent damages put vulnerable host communities and Syrian populations living in informal settlements in danger. Addressing this problem is critical to prevent material losses and avoid exacerbating the vulnerability of these populations.

C- Environment:

On the environmental front, the high number of persons displaced from Syria has aggravated an already challenging environmental situation in Lebanon. MoE has conducted an "Environmental Assessment of the Syrian Conflict (EASC) in 2014"¹¹ which identified the incremental impacts of the Syrian crisis on Lebanon in 2014 resulting from the increase of population. While the areas of water and wastewater are addressed in the sections above, the following sections provide a brief analysis of the impact of the remaining areas.

-Solid Waste: The EASC identified an incremental generation of 15.7 percent of solid waste as a result of the displaced Syrians and Palestine Refugees from Syria (PRS). The highest quantities were recorded in areas hosting greater numbers of displaced Syrians (for example, in Bekaa the EASC indicated that municipalities carried the brunt of solid waste management with an increase in spending on solid waste management by municipalities from the national treasury, from an 11 percent increase from 2011 to 2012, to a 40 percent increase from 2012 to 2013). The increased quantity of solid waste results in a negative impact on water resources, soil and land, including an increase in the transmission of communicable diseases due to stagnation of water ponds around uncontrolled dumpsites. Furthermore, the assessment estimated the incremental quantity of healthcare waste produced as a result of the Syrian crisis at 420 tons/year, i.e. in 2014 18 percent was disposed of in the environment without any treatment.

-Air Quality: the EASC estimated that air pollution due to the Syrian conflict originate primarily from: i) on-road transport; ii) residential heating; iii) solid waste management

Surveillance/documents/lebanon.htm

(11) MoE, EU and UNDP, Lebanon Environmental Assessment of the Syrian Conflict & Priority Interventions, 2014.

(10) MoPH, November 10, 2015. Available from <http://www.moph.gov.lb/Prevention/>

practices (unsafe disposal and open burning of solid waste); and iv) electricity production. Overall, an incremental 20 percent in air emissions was recorded in 2014, as an effect of the pressure of displaced Syrians on air quality deterioration factors, which is associated with negative health risks to the displaced population as well as the Lebanese population as a whole.

-Land Use and Ecosystems: the escalated displacement of Syrians led to a build-up of housing (informal tented settlements, formal housing and shelters) that increased the Lebanese population density by 37%, from 400 to 520 persons/km² in 2014. Such densification impacts environmental and social conditions: changing the status quo, polluting rivers, escalated waste generation, problems in water and sanitation, greater noise pollution and overall increased congestion. Moreover, with displaced Syrians in need of housing, haphazard and accelerated construction projects lacking environmental and social safeguards are occurring in affected communities. More significantly, informal settlements are growing in number and encroaching on agricultural lands and coastal areas, reaching 2,365 active settlements in November 2015.

Challenges facing the Response of the Energy and Water Sector

Despite the enormous effort of MoEW, Electricite du Liban and the Water Establishments (WE), with the collaboration of international and local partners, to respond to the needs of the most vulnerable, the basic needs of a large share of the population are still not met as the sector faces several challenges, such as:

-The funding gap in 2015 between what was appealed and what was received continued to exacerbate what was an already problematic situation pre-crisis.

-Geographic disparities when allocating funds leaves many vulnerable communities short on basic electricity, water and sanitation services, as recent assessments reveal¹². For example, in the South, there is a continuing need for the provision of most of these services, latrines, hand washing stations, septic pits, desludging of septic pits, grey water drainages networks, provision of water tanks, solid waste management, garbage containers, hygiene promotions, water trucking, and water analysis. In the North, the problem of water quality is a priority, in addition to the need to pay attention to storm water channels, drainage systems and flood risk mitigation measures in low-lying and flood-prone settlement areas. In Bekaa, water supply, wastewater and solid waste management services are to be enhanced in addition to flood mitigation.

-Eviction, sometimes justified by alleged security reasons and other times by a stated negative impact on the environment, is another challenge. The number of informal settlements

increased by 50 percent between January and July 2015, and projections indicate that this trend will continue. Among other reasons, evictions contribute to informal settlements shrinking in size and spreading over larger areas. This results in an increase in the resources needed, especially given that new settlements require major assistance, not to mention that decommissioning, transportation and resettlement are costly operations that render the response even more challenging. Moreover, the larger number of settlements implies more water trucking and desludging, which are essential but costly responses to core humanitarian needs.

-The policy of GoL banning the installation of permanent infrastructure in informal settlements keeps water trucking and desludging as major components of the emergency needs. For 2016, MoEW will develop more sustainable solutions based on dedicated wells to serve informal settlements, but the extent of coverage of this alternative is still to be studied. In the meantime, the sector relies on the usual practices for the provision of water and wastewater services to Syrian populations in settlements.

-In areas with restricted access, where security issues inhibit provision of sustainable services, temporary and costly interventions (e.g. water trucking) are still required.

-Displaced Syrians in occupied sub-standard buildings also lack basic connections to water and sanitation services. Therefore, emergency upgrades should be undertaken to ensure more efficient practices of service delivery.

-The risk of floods threatens low-lying and flood-prone settlement areas due to lack of drainage systems and other mitigation measures. It is therefore urgently required to clean rivers, rehabilitate riverbanks and improve watercourses to prevent flooding into nearby households, lands and informal settlements. Proper drainage practices also reduce contamination and disease outbreaks.

Summary of Mitigation Measures

The energy and water sector has been highly active since the beginning of the Syrian crisis in addressing the humanitarian needs of displaced Syrians and in stabilizing fragile pre-crisis infrastructure and services supporting vulnerable host populations. Measures taken in every sub-sector are described below.

A- Electricity:

Proper mitigation measures need to be undertaken to alleviate the stress on the available electricity systems. So far, affected populations (both displaced Syrians and Lebanese host communities) have managed to cope with the increasing demand through privately operated generators and illegal connections to the national grid. However, the already frail electrical infrastructure will not be able to sustain the 'shock' of the ever-increasing electricity demand caused by the Syrian crisis. As such, it is more urgent than

⁽¹²⁾ Vulnerability Assessment of Syrian Refugees (VASyR) in Lebanon, 2015; REACH, Defining community vulnerabilities in Lebanon, 2015.

ever to take the appropriate measures enabling, at least as a first stage, the development of the local grids. This need has been continuously raised by municipalities over the last two years, urging MoEW to reinforce the network in communities hosting displaced Syrians. However, MoEW and EdL suffer from limited resources that do not allow reinforcement and improvement of its systems to provide sufficient electricity, especially given the additional demand of displaced Syrians.

In its June 2010 Policy Paper, GoL recognized the critical needs of the electricity sector, and outlined policy, investments and reforms aiming at increasing the level and quality of electricity supply, managing demand growth, decreasing the average cost of electricity production, increasing revenues, improving sector governance - all aimed at ultimately improving service delivery and reducing the fiscal burden that the sector places on public resources. The Policy Paper includes a set of well-articulated short, medium and long-term measures aimed at addressing the issues listed above, including a range of governance reforms, and reforms to improve the supply and cost of services.

Unfortunately, implementation of the Government's reform and investment programs is still far from completion, and has not taken into consideration the impact of the Syrian crisis (which started two years after the Policy Paper was written) on Lebanon's electricity sector. Therefore, a key output in 2016 will be to commission a comprehensive study which will set an electricity investment plan -based on the policy paper for the Electricity Sector and on recommendations and analyses of the "Economic and Social Impact Assessment of the Syrian Conflict, 2013" done jointly between GoL and the World Bank- targeting the additional demand created by the displaced Syrian population in Lebanon. This will form the basis of the energy component of the 2017-2020 Integrated Strategic Framework, the joint GOL-UN development framework covering the first phase of the SDGs.

B- Water:

In 2015¹³, almost 911,000 people were supported with access to water supply at the household level, including through water trucking and rehabilitation of water networks. Over 170,000 people were supported with access to a shower/latrine, and over 612,000 people with hygiene promotion activities. As the crisis reaches its fifth year, however, there is a widening gap between the humanitarian and stabilization needs on one hand, and available funding on the other. This is deeply affecting the coping mechanisms of the hosting communities and displaced Syrians.

Moreover, several other measures are being taken to ensure provision of basic services and to mitigate the impact of the Syrian crisis on Lebanon as follows:

- Preparedness measures (contingency stock and plans, etc.) developed by the sector mainly in respect to possible

mass influx, health outbreaks (cholera, acute watery diarrhoea), follow up of MoPH surveillance information and referrals from the field.

- Areas of responsibilities assigned to active actors with consideration to involving local NGOs, based on their presence in the field and response capacity.
- 3Ws (who, where, what) maps and gap analysis updated on monthly basis to check presence and funds availability per location and actor in order to cover gaps as needed.
- Water quality monitoring and chlorination conducted to ensure provision of safe water.
- Upgrades made of existing accessible infrastructure (wastewater treatment plants, solid waste treatment, including sorting/recycling facilities). Innovative recycling practices (i.e., composting and waste to energy production) introduced.
- Field visits and household assessments conducted to assess needs and service provision.

Nevertheless, the Energy and Water Sector is still far from achieving an environmentally sound response due to alarming absence of required infrastructure at the national level for both host communities and displaced Syrians, as well as the governmental policy not allowing permanent installations in temporary settlements.

C- Environment:

At the environmental level, the pressures of the Syrian crisis remain unaddressed to date, given the emergency relief aspects of the current response to the crisis and lack of comprehensive planning and implementation of environmental measures and safeguards as an integral part of the LCRP, all of which is exacerbating an already fragile environmental situation. That said, innovative methods are being piloted to reduce the impact on the environment, such as mobile wastewater treatment systems, composting and biogas generation.

Based on the above, it is clear that MoEW, MoE, Electricite du Liban, Water Establishments (WEs) and Municipalities need significant capital investment and capacity building to ensure a sustainable and efficient provision of basic services, implemented in line with the existing strategies, reforms and plans.

2. Overall sector strategy

The overarching objective of the energy and water sector in Lebanon is two-fold:

1. Ensuring access to basic services (electricity, water, sanitation and hygiene) to agreed minimum standards for the vulnerable populations affected by the Syrian crisis in order to mitigate the risk of potential health outbreaks and to ensure dignity and respect of human rights;

(13) Activity info database, November 10, 2015.

2. Mitigating the impact of the Syrian crisis on the environment and ensuring needed measures to avoid a further degradation of the natural ecosystem, its environmental health considerations and its long-term sustainability.

The following approach is being adopted to achieve the overarching objective of the Energy and Water Sector Strategy, while highlighting provision of basic services to the affected communities and mitigating the impact on the environment:

-Implementation and maintenance of humanitarian interventions which are temporary or short-term, but designed to mitigate the risk of disease outbreaks and to ensure that services provided meet the agreed water, sanitation, hygiene and other humanitarian standards.

-Sustainable and cost-effective solutions that build resilience and return services to acceptable levels.

-Mainstreaming environmental considerations of the LCRP to mitigate priority environmental impacts of the Syrian crisis.

-Preparedness and disaster-risk management activities (emergency) are required to be able to respond rapidly and adequately to significant changes in needs, such as those arising from a mass influx of displaced populations, evictions, water scarcity or disease outbreaks.

Relevant governmental authorities:

In the Energy and Water Sector, the responsible government authorities provide the necessary direction in determining priority humanitarian and stabilization activities and projects. They are:

- Ministry of Energy and Water (MoEW): in charge of electricity, water, wastewater, irrigation and stormwater drainage projects. Authorities acting under its auspices are: 4 Water Establishments (Beirut & Mount Lebanon, North, South and Bekaa), the Litani River Authority and Electricite du Liban (EdL).
- Ministry of Environment (MoE): in charge of the environmental projects related to solid waste, air quality, land-use and ecosystems. Environmental considerations will be addressed with the scope of tackling priority environmental impacts and mainstreaming environmental considerations in stabilization activities and projects. In order to do this, MoE will coordinate with all concerned governmental institutions, namely MoSA, MoEW, MoPH, MoIM, MoA, MoPWT, CDR, and local authorities.
- Ministry of Public Health (MoPH): in charge of the hygiene promotion component of the sector and of the rehabilitation of sanitation facilities at public health centres, in addition to the promotion of sound healthcare waste management practices and of provision of disease surveillance information.

- Ministry of Education and Higher Education (MEHE): Promotion of sound hygiene and water conservation practices in schools, in coordination with MoPH and the energy and water sector.
- Ministry of Interior and Municipalities (MoIM): governors' offices, municipalities and unions of municipalities will collaborate in solid waste related activities, environmental monitoring, enforcement of environmental guidelines, contribution to awareness-raising and assessments, and in support of rapid response in case of disease outbreaks and other emergencies.

The Energy and Water Sector is guided by the broader strategies and plans of the Government of Lebanon; principal among these are the Policy Paper for the Electricity Sector (MoEW, 2010), the National Water Sector Strategy (MoEW, 2012), the Wastewater Strategy (MoEW, 2012), and the Lebanon Environmental Assessment of the Syrian Conflict and Priority Interventions (MoE, 2014) and its updates. In addition, it uses various assessments conducted by different agencies to understand where the most urgent and critical needs are, such as Country Water Sector Assistance Strategy (World Bank, 2012), the Economic and Social Impact Assessment of the Syrian Conflict in Lebanon (World Bank, 2013), and the Vulnerability Assessment of Syrian Refugees (VASyR, WFP, 2015) which defines Community Vulnerabilities in Lebanon (UNICEF/OCHA/REACH, 2015).

Strategy:

Government authorities in charge of the Energy and Water Sector, in collaboration with international and local partners, will continue their strong support to the most affected local communities, particularly through infrastructure projects in electricity, water, wastewater and solid waste. This has a vital benefit in mitigating the risks of social conflict between the local host communities and the displaced persons from Syria, and will be realized through the implementation of the following activities:

Electricity:

- Provision of transformers (medium to low voltage) to improve the electric current.
- Reinforcement, rehabilitation and implementation of medium voltage cables and poles.
- Reinforcement, rehabilitation and implementation of low voltage cables and poles.
- Provision of electrical systems to connect water sources to the electrical grid.
- Provision and installation of renewable energy sources in public institutions such as schools and healthcare facilities (hospitals and public health centres).

Water:



- Rehabilitation and extensions of the water supply systems are required to improve existing networks, reduce water losses and increase continuity of supply while reducing reliance on costlier and less safe water sources.
- Construction and rehabilitation of water storage facilities is necessary in order to provide continuous and sufficient water supply.
- In temporary locations, water trucking through vouchers or through a dedicated water resource will continue where no alternative solution is possible.
- Completion of wastewater systems within service areas of wastewater treatment plants is required in order to improve rates of collection and rehabilitation of completed but non- or partially-operational treatment plants, and to alleviate contamination of environmental resources.
- Irrigation systems require rehabilitation, upgrading or construction to optimize water usage, reduce losses and stress levels on groundwater, and secure a more sufficient domestic water supply. Implementation of rainwater catchment systems and improvement of supply infrastructure can offer low-cost solutions, yet significantly improve domestic water supply as well improve agricultural production.
- Cleaning and maintaining of river banks is required in order to protect agricultural lands and vulnerable households from damage and losses caused by floods, as well as to prevent disease outbreaks and contamination from polluted river waters (due to wastewater and solid waste discharge).
- Excreta management and drainage activities should be monitored, improved and maintained in informal settlements and collective sites in order to reduce pollution and prevent disease outbreaks.

To achieve sustainability and efficiency of the aforementioned activities, the focus should be on the following:

- Demand management through awareness and sensitization campaigns on water conservation (reusing, reducing and recycling), as well as support of the implementation of consumption-based tariff systems.
- Increased levels of safety in drinking water supply through quality monitoring at source, collection points and households for bacteriological and chemical parameters as appropriate, to inform the correct treatment regimen/activity and awareness campaigning.
- Support to and capacity building of MoEW and WEs through technical training, especially for operating treatment facilities, staff secondment, promoting water demand and quality management, management and master planning of water resources and wastewater systems, and monitoring of water quality.
- Building capacity of, and transferring responsibility to, individual beneficiaries as well as local and displaced communities through gender-balanced WASH committees, Collective Site Management Committees, Municipalities and other local support systems to ensure hygienic conditions, sustainable management of services at local level and reduced costs of maintenance and repairs. As part of ensuring sustainability, local NGOs should be engaged, capacitated and funded.
- Management and adequate disposal of wastewater, particularly in temporary sites, in order to mitigate the risk of diseases, protect the environment and reduce the significant cost of desludging. A number of initiatives are being rolled out such as removable septic systems and mobile treatment plants, studied by MoEW on a case-by-case basis.
- Contingency preparedness for a number of higher-risk scenarios including water-related disease outbreak, influx of additional displaced persons, internal movements due to evictions and displacements, and other reasons. Needed supplies will be stockpiled in addition to undertaking training, awareness and simulations.
- Advocacy efforts to focus on more environmentally sustainable solutions, disease risk mitigation, water conservation awareness campaigns, user-pay and cost recovery systems, controlling usage of groundwater as a primary source, increased wastewater management services and reduce-reuse-recycle (3R) concept for water.

Environment:

The environmental interventions under this sector aim at mainstreaming environmental safeguards in emergency relief and stabilization activities and ensuring that the institutional capacities of the MoE, other concerned line ministries and local authorities are enabled to manage and monitor priority environmental interventions. More specifically, the environmental strategy focuses on the following:

- Implementing environmental activities in areas with the highest risks of environmental degradation, areas with the highest concentration of displaced Syrians impacting natural resources, and geographical locations vulnerable to disease outbreaks and associated health impacts.
- Reducing the environmental impact of the most vulnerable communities while managing the environment through monitoring and capacity-development plans, local engagement in environmental action, and introduction of sound environmental response (i.e. solid waste best management principles such as the 5Rs concept:

Reduce, Recycle, Reuse, Rot, Refuse).

- Adopting the environmental impact assessment tools and other environmental safeguards, including national regulations and standards, to be used by UN agencies and other international and local NGOs to prevent environmental damage during the long-term protracted crisis.
- Ensure that the adherence to environmental considerations is cross-cutting for all LCRP sectors through the structuring of a Stand-Alone Sector starting in 2017.

3. Sector outcomes, outputs and indicators

As stated earlier, the overarching objective of the energy and water sector in Lebanon is the provision of electricity, water, sanitation and hygiene-promotion services to agreed minimum standards to the population affected by the Syrian crisis in order to mitigate the risk of outbreaks of waterborne diseases that might lead to mortality and morbidity, as well as to mitigate the impact of the Syrian crisis on the environment.

Outcome 1 - Sustainable and gender appropriate equitable access to electricity.

The outputs target equitable and reliable access to electricity to ensure sufficient electric current for lighting, operation of basic household machinery and security purposes. To achieve this target, transformers from medium to low voltage are required at municipal level, accompanied by reinforcement, rehabilitation and/or implementation of medium and low voltage cables and poles. In order to provide continuous water supply, provision of electrical systems to connect water sources to the electrical grid is also a priority for the energy and water sector, reflected under this output.

Outcome 2 - Sustainable and gender appropriate equitable access to safe water is ensured for the target population in sufficient quantities for drinking, cooking, personal and domestic hygiene.

The outputs target **water supply** and maintenance at both temporary and permanent locations, as well as public health facilities. In addition, capacity building for national and local institutions to provide an efficient and environmentally-sound management of safe water and wastewater will be conducted. In the aim of ensuring provision of safe water, monitoring of water quality will be conducted at source levels. This outcome includes support to relevant authorities (MoEW, Water Establishments, Litani River Authority, municipalities) in terms of water and wastewater management to increase access to safe and sufficient drinking water. In addition to technical assistance and capacity building, relevant studies

and assessments will be conducted, as well as awareness-raising campaigns to ensure a sound use of water resources (water conservation, water quality, water protection, etc.). Another output is sustainable access to sufficient quantity of water for irrigation purposes. This output intends to improve supply of **water for irrigation** of agricultural lands, and eventually supply of domestic water, through improved infrastructure systems. It aims at reducing water losses, alleviating stress on groundwater (quantity and quality) and ensuring safer access to domestic water for target populations.

Outcome 3 - Increase access to improved, sustainable, culturally and gender appropriate sanitation and stormwater drainage services for target population.

This outcome intends to improve or increase access to **sanitation services** for temporary and permanent locations and public health facilities, as well as to improve wastewater management for all locations. Furthermore, outputs are related to institutional support including capacity building of national and local entities responsible for the provision of quality waste management services for all, in addition to conducting relevant studies and assessments required to identify priority intervention areas.

Wastewater and stormwater management will apply sound environmental guidelines and existing local or international regulations. This will prevent the contamination of major water resources, the development of vectors, and flooding damages on households and properties. These interventions will improve the sanitation conditions and mitigate the impact of wastewater on the environment. It will tackle sludge removal and safe disposal/treatment where possible, operation and maintenance at household level.

To reach this outcome, **wastewater management** will be improved; existing wastewater facilities will be upgraded to absorb the additional quantity generated by the displaced Syrians and Palestinians. Major funds and efforts are required in this area, given the lack of adequate treatment infrastructure in the country.

In order to ensure sustainable **flood prevention**, cleaning and bank stabilization of rivers will be conducted in flood prone areas and in locations where the river is obstructed by major waste dumps. This will prevent flooding into houses and productive agricultural lands hosting vulnerable populations. Stormwater channels will be rehabilitated/extended/constructed where necessary to prevent flooding and contamination of major water resources.

Sanitation practices at public health facilities will be improved through construction/ rehabilitation of sanitation facilities in public health centres.



Outcome 4 - Sustainable and long-term environmental considerations are taken into account in Lebanon's Crisis Response Plan (LCRP).

The objective is to mitigate the impact of the Syrian crisis on the environment in Lebanon assessed under the EASC. While the environmental considerations for water and wastewater issues are addressed in the previous outcomes, this outcome tackles **solid waste, air quality, land use and ecosystems**, in addition to institutional support to MoE and local government authorities (unions of municipalities and municipalities).

To ensure basic sanitation services, the energy and water sector aims at enforcing solid waste management systems to alleviate environmental impacts of solid waste generated from displaced Syrians and Palestinians and host communities. Local authorities will benefit from capacity building, support of the construction of new solid waste sorting facilities, and rehabilitation/upgrading of existing solid waste infrastructure. Identified dumpsites in areas of vulnerable water resources will be rehabilitated.

To reduce occurrence of diseases related to deteriorated water and air quality, one output focuses on strengthening environmental protection of air and water resources through monitoring of compliance with Emission Limit Values (ELVs) for emissions to air mainly from generators (related to the displaced Syrians and Palestinians) and for effluents discharges to the environment with a special focus on areas of high risk to water resources. Support of local authorities in enforcing environmental laws and guidelines and in promoting best management practices, in particular reforestation activities which will improve the environment and contribute to improved social cohesion.

To ensure an integrated ecosystem management approach and appropriate land-use planning tools are adopted to prevent potential encroachment of informal settlements on environmentally sensitive areas and to prevent haphazard urbanization. Support will be provided to local authorities in enforcing environmental laws and guidelines to prevent major risks on the environment.

Outcome 5 - Target populations are enabled to use and maintain water and sanitation facilities, they are aware of key public health risks to prevent the deterioration in hygienic conditions, and they are capacitated to adopt good hygiene practices and measures and to use and maintain the facilities available.

This includes raising awareness of key water, sanitation and hygiene public health risks to prevent deterioration of

hygiene, and increased access to hygiene items (including soap, shampoo, toilet cleaner, etc.) by target populations.

Outcome 6 - Contingency and preparedness to eventual influx, evictions, winterization, water scarcity and health outbreaks.

In this framework, preparedness materials and stock for contingency response is ensured, as well as data (follow up on disease surveillance, water resources availability/quality, plans, studies assessments to better define needs, targets and priorities, etc.) for strategic planning to support an efficient and timely response.

4. Identification of sector needs and targets at the individual, institutional and geographic level

In the absence of a comprehensive dedicated sectoral national assessment of humanitarian needs, the sector relies on the multisectoral assessments carried out in 2015, such as the inter-agency Vulnerability Assessment of Syrian Refugees (VaSYR), REACH and UNHCR/ECHO household assessments, in addition to scattered case studies and preliminary KAP (Knowledge Attitude and Practices) assessments carried out by agencies. Some needs are identified also at the field level, through consultation with the implementing agencies in the respective field areas.

With respect to the stabilization component, needs are expressed by the various relevant ministries, following their mandates, based on i) their previous experience in service provision, ii) the necessity to shift towards more sustainable interventions, iii) the communities that are mostly affected by the Syrian displacement, and iv) the one-year time frame for implementation.

Prioritization:

The sector's response targets the needs of the most vulnerable first, using the following criteria to prioritize activities and projects:

- A. Focusing on **geographical areas with the highest concentration of affected people** and with no/poor access to sufficient quantity, quality and continuity of services related to electricity, water and sanitation.
- B. Focus on the implementation of pre-planned specific priority projects that are part of the **Government of Lebanon's strategies and masterplans** and which benefit most vulnerable communities.
- C. Focus on the **highest risks to environmental degradation** in areas with the highest concentrations of displaced Syrians impacting natural resources.

D. Focus on the sites or communities with the highest **water, sanitation and hygiene-related disease** incidence rates.

E. Focus on **vulnerable groups**, households and individuals (i.e. female/child headed households, elderly or disabled persons and minors) for specific assistance or services such as hygiene items and disabled access.

Total sector needs and targets:

Category	Total population in need	Targeted Population		
		Total	Male	Female
Displaced Syrians	865,000 ²⁸	760,000 ²⁹	364,040	395,960
Palestine Refugees from Syria	42,000	42,000 ³⁰	20,790	21,210
Palestine Refugees in Lebanon	20,000 ³¹	20,000	9,900	10,100
Vulnerable Lebanese	1,500,000	1,200,000 ³²	603,600	596,400
Total	2,427,000	2,022,000	998,330	1,023,670

Institutions	Total	Targeted
Municipalities	1005	TBD
Unions of Municipalities	46	TBD
Hospitals/healthcare institutions (PHC, etc)	80	
Water establishments + LRA + EdL	6	6
Central Ministries	3	MoEW, MoE, MoPH
Communities	Total	Targeted
Governorates	8	8
Sites		
Informal Settlements	2,365	2,365
Palestinian Camps	12	12
Palestinian Gatherings	42	24

5. Mainstreaming of conflict sensitivity, gender, youth, people with specific needs (PWSN) and environment

Conflict Sensitivity:

The Energy and Water sector aims at ensuring equitable access to basic services for the most affected host communities and displaced Syrians to mitigate the risk of resource-based conflict. Many of the sector's activities contribute to building the resilience of communities. Collaboration with the social stability and livelihoods sectors has enabled the incorporation of conflict hotspots and priority areas when

selecting projects. For example, when responding to water scarcity, mapping of high-risk areas incorporated the social tension considerations.

Gender:

Interventions of local and international partners have considered the different needs of women, girls, boys and men. Where there are not family latrines and washing facilities there are gender-segregated toilets. People of all ages are targeted in the energy and water sector with special attention to women and girls (in hygiene promotion and capacity building) and children (water, sanitation and hygiene in schools).



Youth:

Adolescents and youth will be: targeted with hygiene promotion sessions; trained to become trainers on hygiene promotion and on solid waste management 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 youth girls will benefit from personal and female hygiene sessions and items. They will also be part of the committees which will ensure the sustainability of the installed hardware. Youth will also help with awareness-raising in terms of hygiene, water conservation and solid waste sorting at household level.

People with Specific Needs:

Water and sanitation services shall be implemented in a manner that meets the requirements of persons with specific needs (PWSN), such as the accessibility to toilets and bathing for persons with physical disability. Technical guidance documents shall incorporate the specific requirements based on consultations with PWSN and use of the Refugee Assistance Information System (RAIS) database, which is updated using the ongoing UNHCR/ECHO household assessment of displaced Syrians.

Environment:

Protecting the environment is an integral part of the sector's work, through protecting the natural resources and introducing environmental measures which address priority needs and ensure the sustainability through environmentally-sound stabilization interventions. Capacity building, training and awareness campaigns to conserve water and reduce, reuse and recycle solid wastes are essential and will need to be scaled up. Construction of new groundwater extraction facilities must follow licencing and approval procedures. Innovative solutions are being studied for non-permanent yet sustainable wastewater treatment and disposal for collective sites. Unfortunately, the achievements in terms of wastewater treatment and disposal are still lacking, due to the significant funding and capacity requirements to provide the needed facilities. In addition, environmental measures related to air quality, land use and ecosystem management affecting the well-being of the hosting communities and displaced population will be tackled under this sector. Composting and biogas production are being piloted in Bekaa area.

6. Inter-sector linkages

The Energy and Water sector is closely linked to the sectors of health, education, social stability/livelihoods and shelter. Coordination has been undertaken primarily through bilateral discussions, participation in each other's meetings, and through partners in other sectors that also undertake water, sanitation and hygiene activities.

Stronger collaboration is still required, in particular with SS/ livelihoods, health, food security and basic assistance. The most progress can be made through efforts in the planning and strategic phase; therefore, the sector will endeavour to incorporate inter-sectoral linkages at any workshops or development sessions. Increased emphasis on inter-sectoral coordination at the inter-sector meeting is also required, as well as joint meetings between the energy and water sector and other sectors.

- **Health:** Perhaps the most important inter-sectoral linkage is between health and energy and water, to reduce risk of water, sanitation and hygiene-related disease mortality and morbidity. Both sectors are working together to ensure vulnerable populations are aware of water, sanitation and hygiene-related health risks and maintain good hygiene practices and a sanitary environment to mitigate these risks. Hygiene promotion is led by energy and water but input from the health sector is critical in the messaging. Assessing the state of environmental sanitation across the country in conjunction with disease surveillance data from MoPH will enable more effective use of resources by prioritizing areas that are considered at higher risk of water, sanitation and hygiene-related disease outbreak. The energy and water sector should strengthen testing and monitoring of water quality while the health sector ensures its facilities for testing are adequate for when disease cases are suspected. Coordination between the MoPH, MoE and the agencies will take place also in the framework of the vector control.

Mainstreaming environment into the health sector through the documentation of water, sanitation and hygiene-related diseases would bring forth more possibilities for epidemiological and biostatistical research that can feed into better documentation and understanding of health risks associated with environmental media.

- **Education:** The agreed division of responsibilities ensures that the education sector manages the general rehabilitation of schools including a water, sanitation and hygiene component with support from the energy and water sector while water and wastewater services to and from the school are the responsibility of the energy and water sector. Hygiene promotion in schools remains the responsibility of the energy and water sector.

Educating and sensitizing the youth about human actions that damage the environment is pivotal in education and health awareness curriculum in schools. Subsequently, the area of environment needs to emphasize and enforce the linkages between water supply and access, water quality, sanitation and hygiene and solid waste management through an integrated approach to limit impacts on other salient

environmental sectors such as land use planning and ecosystem management.

- **Basic Assistance:** Close coordination with the basic assistance sector is required for addressing the needs of the most vulnerable, in particular where economic vulnerability overlaps with water, sanitation and hygiene vulnerability. The energy and water sector benefits from economic profiling through household visits as the BA Sector benefits from the EW Sector data such as types of latrines in use. Multipurpose cash assistance by the BA Sector incorporates components of hygiene items drinking water in the total sum provided, even though the assistance is of unconditional nature. Hygiene promotion should accompany any assistance that targets hygiene. Provision of safe water by the energy and water sector should also factor the cash contribution by BA Sector to minimize duplication and optimize resources. Responsibilities for winter assistance have been divided so that the BA Sector provides fuel for heating, stoves and again cash assistance whereas the EW sector had undertaken flood risk mitigation and site drainage activities whilst also provided drainage kits for beneficiaries to manage their own sites.
- **Shelter:** The shelter sector has the most well-developed collaboration with the energy and water sector. To date, the energy and water sector has relied on shelter's information on the type of household that displaced Syrians live in as a proxy for their water, sanitation and hygiene vulnerability. There has been good coordination while both sectors undertake flood risk mitigation and site drainage measures in low-lying and flood-prone settlement areas. In addition, elevating toilets and waterproofing their wastewater storage facilities have been undertaken where critical by energy and water. Shelter ensures water and sanitation facilities inside the buildings requiring renovation, and services to and from the building are ensured by the energy and water sector. While collaboration has been strong, improvements can be made, in particular ensuring hygiene promotion is integrated with all hardware activities.
- Inclusion of environmental components is necessary in the planning mechanisms of urban projects carried out by the shelter sector so that site improvements and rehabilitation efforts incorporate environmental construction material, and environmental and social safeguards are integrated to reduce the impact on ecosystems and the natural environment.
- **Social Stability/Livelihoods:** The energy and water sector undertakes projects that have a social stability outcome while the social stability sector undertakes activities and projects that are in some cases water (including irrigation and drainage), wastewater and solid waste in nature. There is a strong link between environment

and energy and water services and social stability and security, for example when displaced Syrians face threats of evictions due to waste degradation, or when access to safe water, healthy air to breathe and food are jeopardized. Increased collaboration between both sectors is essential to mitigate risks of social tension and to ensure projects meet minimum energy and water standards, follow the required approval processes, and so that there is collaboration on their selection and prioritization. The energy and water sector can benefit from the input SS/L sector data for better targeting and prioritization.

- **Food Security Sector:** The energy and water sector will coordinate with the food security sector on water management and conservation, particularly with respect to irrigation of farmland. Huge amounts of water can be saved through improvement of irrigation infrastructure and practices easing the strain on water resources both in terms of quality and quantity and in turn minimizing the impact of drought conditions. Responsibilities have been agreed such that primary canals are under energy and water sector and secondary or on-farm irrigation canals are under the food security sector. A joint technical group between the sectors will be set up to facilitate this coordination. Collaboration is also essential to minimize impact on the environment where there is increased demand on agricultural land for livelihood and food security. Protection of water resources from chemical contamination through better control of pesticides and fertilizers and ensuring improved and environmentally friendly farming practices are adopted are some measures that could be fostered.
- **Protection:** Coordination has been limited with the protection sector in comparison to other sectors. However, protection issues have had an impact on the energy and water sector and vice versa. A recent example is poor environmental sanitation conditions becoming a source of community tension, which has reportedly been a cause for evictions. Both sectors have coordinated to mitigate the likelihood and impact of this situation. From a human rights based approach, collaboration with the protection sector should ensure displaced Syrians and Palestinians have access to safe environments to prevent conflicts in the future with the hosting communities.

PARTNERS PER OUTPUT:

Energy and Water Sector Partners: ACF, ACTED, ADRA, ANERA, AVSI, CARE, CISP, CONCERN, COOPI, FAO, GVC, IOCC, IR Lebanon, Leb Relief, MEDAIR, Mercy Corps, Mercy USA, MoE, MoEW, NRC, OXFAM, PU-AMI, RI, SCI, Solidarités, UN-Habitat, UNDP, UNHCR, UNICEF, UNOPS, UNRWA, URDA, WVI, YMCA.

OUTCOME/OUTPUT	PARTNERS
OUTCOME 1: Sustainable and equitable access to electricity	
Output-1.1: Equitable and reliable access to electricity to ensure sufficient electric current for lighting, operation of basic household machinery and security purposes.	ACTED, CONCERN, GVC, OXFAM, Solidarités, UN-Habitat, UNDP, UNOPS, URDA, MoEW
Output-1.2: Support to MoEW and other concerned government institutions to mitigate impacts of the Syrian crisis on electricity sector through assessment, planning and management measures.	MoEW
OUTCOME 2: Sustainable and gender appropriate equitable access to safe water is ensured for the target population in sufficient quantities for drinking, cooking, personal and domestic hygiene	
Output-2.1: Equitable access to a sufficient quantity of safe water for drinking, cooking and personal and domestic hygiene at temporary locations (collective centers, gatherings and ITS).	ACF, ACTED, AVSI, CARE, CONCERN, GVC, IR Lebanon, Leb Relief, MEDAIR, Mercy Corps, Mercy USA, OXFAM, PU-AMI, RI, SCI, Solidarités, UNHCR, UNICEF, UNOPS, WVI, UNRWA
Output-2.2: Equitable access to a sufficient quantity of safe water for drinking, cooking, and personal and domestic hygiene at permanent locations.	ACF, ACTED, Aide Médicale Internationale, CARE, CONCERN, COOPI, GVC, IOCC, IR Lebanon, Leb Relief, Mercy Corps, OXFAM, SCI, Solidarités, UN-Habitat, UNDP, UNHCR, UNICEF, UNOPS, URDA, WVI, NRC, UNRWA, MoEW
Output-2.3: Water Quality: Monitoring of water quality to ensure safe supply for drinking, cooking and personal and domestic hygiene purposes.	ACF, ACTED, CONCERN, COOPI, GVC, IR Lebanon, Mercy USA, OXFAM, SCI, UNHCR, WVI, UNRWA, MoEW
Output-2.4: Water and wastewater management: National to local level systems strengthened and harmonized in line with regulatory framework to increase access to safe and sufficient drinking water.	ACF, ACTED, CARE, CONCERN, COOPI, GVC, Mercy Corps, OXFAM, RI, UNDP, UNHCR, UNICEF, UNOPS, URDA, WVI, MoEW
Output-2.5: Safe and equitable access to a sufficient quantity of water for drinking, cooking and personal and domestic hygiene at public health facilities.	ACF, ACTED, CONCERN, IR Lebanon, Leb Relief, RI, UNICEF, URDA, UNRWA
Output-2.6: Reduce irrigation water consumption to lower stresses on water resources, by improving irrigation efficiency of existing and planned irrigation schemes. (Target expressed in m3 of water saved/additional.)	ACF, ACTED, CONCERN, COOPI, FAO, Mercy USA, OXFAM, Solidarités, UN-Habitat, UNDP, URDA, MoEW
OUTCOME 3: Increased access to improved, sustainable, culturally and gender appropriate sanitation and drainage services for target population.	
Output-3.1: Sanitation: adequate, appropriate and acceptable sanitation conditions, to ensure a safe environment at temporary locations (collective centers, gatherings and ITS).	ACF, ACTED, CARE, CONCERN, GVC, MEDAIR, Mercy Corps, NRC, OXFAM, PU-AMI, SCI, Solidarités, UNHCR, UNICEF, UNOPS, UNRWA, WVI
Output-3.2: Improved municipal sludge and wastewater management.	ACF, ACTED, CONCERN, COOPI, GVC, IOCC, Leb Relief, Mercy Corps, MoEW, NRC, OXFAM, Solidarités, UNDP, UN-Habitat, UNHCR, UNICEF, UNRWA, URDA, WVI
Output-3.3: Improvement of storm water drainage and management of flood risks.	ACF, ACTED, CISP, CONCERN, COOPI, Leb Relief, MEW, OXFAM, Solidarités, UNDP, UN-Habitat, UNHCR, UNICEF, UNRWA, URDA, WVI

Output-3.4: Sanitation: Adequate, appropriate and acceptable sanitation conditions to ensure a safe environment at public health facilities.	ACF, ACTED, RI, UNICEF, UNRWA
OUTCOME 4: Mitigate impact on the environment	
Output-4.1: Support to MoE and other concerned government institutions to strengthen the management and enforcement of measures that mitigate environmental impacts.	ACF, ACTED, CONCERN, OXFAM, UN-Habitat, UNDP, UNICEF, UNOPS, WVI, YMCA, UNRWA, MoE
Output-4.2: Provide needed solid waste management systems to alleviate environmental impacts of solid waste generated by displaced Syrians and Palestinians and host communities most affected by the Syrian crisis.	ACF, ACTED, Aide Médicale Internationale CARE, CONCERN, COOPI, GVC, Leb Relief , MEDAIR Mercy USA, OXFAM, Solidarités, UN-Habitat, UNDP, UNHCR, UNICEF, UNOPS, WVI, YMCA, NRC, CISP, UNRWA, MoE
Output-4.3: Mitigate the assessed deterioration of air quality associated with the Syrian crisis affecting environmental and human health.	UN-Habitat, UNDP, YMCA, MoE
Output-4.4: Mitigate environmental risks of the Syrian crisis on land use and natural resources management	ACF, ACTED, CARE, CONCERN, COOPI, GVC, UN-Habitat, UNDP, YMCA, CISP, MoE
OUTCOME 5: Target populations are enabled to use and maintain WASH facilities, and they are aware of key public health risks to prevent the deterioration in hygienic conditions.	
Output-5.1: Hygiene promotion: Target populations are aware of key public health risks and are mobilized to adopt measures to prevent the deterioration in hygienic conditions and to use and maintain the facilities provided.	ACF, ACTED, ANERA, AVSI, Aide Médicale Internationale, CARE, CONCERN, COOPI, GVC, IOCC, IR Lebanon, Leb Relief MEDAIR, Mercy Corps, Mercy USA, OXFAM, RI, SCI, Solidarités, UN-Habitat, UNHCR, UNICEF, WVI, UNRWA, MoEW, MoE
Output-5.2: Target population has access to and is involved in identifying and promoting the use of hygiene items to ensure personal hygiene, health, dignity and well-being.	ACF, ADRA, ANERA, AVSI, Aide Médicale Internationale, CARE, CONCERN, COOPI, GVC, IOCC, IR Lebanon, MEDAIR, Mercy Corps, Mercy USA, OXFAM, RI, SCI, Solidarités, UNICEF, WVI, UNRWA
OUTCOME 6: Ensure improved preparedness and efficiency of sector response.	
Output-6.1: Preparedness materials for contingency response and data for targeting and prioritization.	ACF, CONCERN, COOPI, Mercy USA, OXFAM, UNICEF, NRC