



ADAPTATION FUND

REGIONAL PROJECT/PROGRAMME PROPOSAL

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme:	Increasing the resilience of both displaced persons and host communities to climate change-related water challenges in Jordan and Lebanon
Countries:	Jordan, Lebanon
Thematic Focal Area:	Transboundary water management and food security
Type of Implementing Entity:	Multilateral
Implementing Entity:	United Nations Human Settlements Programme
Executing Entities:	Lebanon: Ministry of Environment; Ministry of Energy and Water; Line departments in municipalities; UNICEF and NGO partners Jordan: Ministry of Environment, Ministry of Water and Irrigation;; Line departments in municipalities; UNICEF and NGO partners
Amount of Financing Requested:	USD 14 million

Project Background and Context

Introduction to the problems and needs

There is little exploration of how urban systems respond to the impacts of climate change combined with a rapid influx of new and often long-term residents. Considering the scale and nature of impacts of climate change and the Syrian crisis in the Mashreq region, a comprehensive and regional response framework is needed, including the identification of effective approaches and best practices.¹

The Mashreq region is part of the most water scarce regions in the world and both urban and rural areas face water challenges. However, some urban areas, especially in Lebanon and Jordan, experience extreme pressure on water availability, both in quantity and quality, exacerbated by both climate change and the unprecedented influx of Displaced Persons (DPs), especially from Syria.²

The aim of this project is to support the development of a comprehensive regional response framework, especially in an urban context. This is done by identifying effective approaches and best practices to build urban resilience, focused on actions that address water challenges that benefit both DPs and host communities, and especially women and youth.

Arab region context

The Arab region is full of potential. Over the past decades, the region has seen significant economic and social progress. However, climate risks threaten to derail these development gains. This could disrupt efforts to build



¹ World Bank et al (2017, policy note September 14): Refugees in the middle east. Bringing an urban lens to the forced displacement challenge.

² Ibid

peace, cause a spike in 'eco-migrants,' and undermine efforts to end hunger, poverty and inequality by 2030.³

The Arab region is home to rising levels of conflict and the world's largest population of refugees and displaced people. Simultaneously, it is now the planet's most water-scarce and food-import-dependent region, and the only region where malnutrition rates have been rising. The Arab region contains 14 of the world's 20 most water-stressed countries. In fact, the region's annual internal water resources amount only 6 percent of its average annual precipitation, against a world average of 38 percent. Overexploitation of natural resources in the region has led to severe ecosystem degradation. Poor land and water management are reducing the potential provision of already limited natural resource services.⁴

Urbanization and population growth are putting severe strains on dwindling natural resources. The population of the Arab countries, estimated at approximately 407 million (2016), with 100 million considered to be in poverty, is expected to reach approximately 635 million by 2050. Middle East North Africa (MENA) is the only region in the world where poverty increased between 2011 and 2016; and poverty is projected to increase further by 2030. With low human development index (HDI) rankings for many Arab countries and rampant poverty, the region is also facing internal conflicts over scarce natural resources such as conflicts between rain-fed farmers and pastoralists.⁵

The impacts of climate change are exacerbating the existing challenges of sustainably managing limited natural resources. Current climate change projections show that by the year 2025, the water supply in the Arab region will be 15 percent of the levels in 1960. By 2030 the predominant effects of climate change will include a decrease in precipitation, a drastic rise in average temperatures and an increase in seawater intrusion into coastal aquifers as sea levels rise and groundwater overexploitation continues. Climate change will also have disproportionate consequences for women, poor and marginalized communities who are especially at risk due to their dependence on natural resources.⁶

Lebanon and Jordan socio-demographic, economic and environmental context

The Syrian crisis

Now in its eight year, the Syrian crisis has had a profound humanitarian, socio-economic, and political impact on the population in both Syria and its neighbouring countries. In recent years, millions of people have been displaced and migrated from Syria.⁷ Lebanon and Jordan are among the top DPs host countries: Lebanon is the third largest hosting country in the world (and first if compared to the size of its national population) and Jordan the seventh.⁸ This has placed unprecedented strain on the country's economy, infrastructure, and public services.⁹ Although some moved to camps, most (85 percent in Lebanon¹⁰ and 83.3 percent¹¹ Jordan) settle in cities, often in informal communities. This movement is impossible to stop as people search for security, livelihood opportunities and a decent life. Unfortunately, due to lack of planning and resources to respond to this large influx, many find themselves in communities that lack basic infrastructure and services, of which water challenges are seen as a major problem,¹² often leading to health and livelihood issues (as most DPs work in agriculture and this sector is heavily dependent on water availability) and social unrest.¹³ Moreover,

³ UNDP / GEF (2018) Climate Change Adaptation in the Arab States Best practices and lessons learned. Online: <https://reliefweb.int/report/world/climate-change-adaptation-arab-states-best-practices-and-lessons-learned>

⁴ UNDP / GEF (2018) Climate Change Adaptation in the Arab States Best practices and lessons learned

⁵ Ibid

⁶ Ibid

⁷ The Syrian Arab Republic is the biggest sending country of refugees registered by UNHCR in the world (5.5 million out of a total of 18.5 million - UN-Habitat 2018. Migration and inclusive cities: A guide for Arab city leaders

⁸ UN-Habitat 2018. Migration and inclusive cities: A guide for Arab city leaders

⁹ Lebanon crisis response plan 2017-2020 (2018 update)

¹⁰ Ibid

¹¹ UNHCR fact sheet, August 2018.

¹² See Jordan and Lebanon INDCs and Lebanon crisis response plan 2017-2020

¹³ <https://video.ecc-platform.org/videos/links-between-migration-and-climate-change>

the majority of DPs from Syria live under the poverty line¹⁴ and lack legal residency making it difficult for them to secure income.

Despite support from the National governments, civil society and the international community, the needs of affected communities are outpacing the resources and capacities of partners, and coping mechanisms of the most vulnerable are being severely tested. As there are limited numbers of Syrian DPs returning, there are worrying signs of heightened tensions and host-community fatigue. In this context, it is essential for the international community to maintain its solidarity and support,¹⁵ especially since there is a decline in funding for support (through the UN 3RP: Regional Refugee & Resilience Plan 2018-2019.) to countries like Jordan and Lebanon that face DPs crisis¹⁶ (see also annex 1).

Lebanon context

Lebanon is located on the eastern basin of the Mediterranean Sea, with a surface area of 10,452 km², a coastline extending on 225 km and a landscape characterized by mostly mountainous areas.

Economic trends in Lebanon remain sluggish, with all segments of the economy struggling and competitiveness being undermined by the loss of major trading routes and regional markets. Against this background, in 2017, Lebanon began developing its vision for stability and sustainable long-term growth and job creation, which is accompanied by important sectoral and structural reforms as well as a major infrastructure programme, the Capital Investment Plan (CIP).

The CIP calls for over \$20 billion in funding for 250 projects scheduled over the next decade, until 2030, focusing on investments in priority sectors, such as water, energy, transportation, and solid waste, among others.¹⁷ However, Lebanon faces important challenges, especially related to water resource management and the Syrian crisis.

Environmental and water challenges: Water resources in Lebanon are under stress. Available water, including from rivers and springs, storage dams and groundwater, exceed projected water demand.¹⁸ In addition, widespread pollution and substandard water infrastructure are restricting the ability of the government to meet water demands in the future.¹⁹

Lebanon is also generating ever increasing quantities of domestic and industrial wastewater, all of which requires treatment. The country has invested heavily in wastewater facilities over the last two decades. As a result of this investment, about two-thirds of the population is connected to sewer networks but only 8 percent of wastewater reaches the operational wastewater treatment plants and is treated. A considerable amount of the installed treatment capacity is not being exploited.

The environmental costs of this situation are severe. Most wastewater collected is discharged raw, without treatment, into watercourses and the sea. Where there is no network, cesspits are used with considerable seepage into groundwater. Few industries pre-treat their effluent, so harmful waste is discharged into the sewer system or the environment. While all the water resources are being impacted by bacteriological contamination, in agricultural areas, the runoff and infiltration of fertilizer and pesticide residues is exposing these water resources to further environmental degradation.

Untreated wastewater discharge



¹⁴ UN 3RP: Regional Refugee & Resilience Plan 2018-2019.

¹⁵ UN 3RP: Regional Refugee & Resilience Plan 2018-2019.

¹⁶ Ibid.

¹⁷ UN for Lebanon annual report 2017

¹⁸ UNICEF Evaluation of the Water, Sanitation and Hygiene (WASH) Programme within the UNICEF Country Programme in Lebanon (2013-2016)

¹⁹ UNICEF Evaluation of the Water, Sanitation and Hygiene (WASH) Programme within the UNICEF Country Programme in Lebanon (2013-2016)

Furthermore, runoff from urban areas may contain heavy metals and hydrocarbons, which could impact the quality of receiving waters.

The negative environmental impacts of poor wastewater collection and treatment have the knock-on effects of increasing health costs, polluting water resources and soils, and reducing income from amenities and tourism. This situation is the result of years of political instability, poor planning and scattered responsibilities within the sector.

Demographic challenge: With a total population of 6 million in 2017,²⁰ Lebanon's population has almost doubled since 2000. The largest increase took place during the last decade, especially because of the large influx of DPs since the Syrian Crisis started in 2011. This relatively high population growth rate puts pressure on government spending to deliver basic public services, and to stimulate economic development.

Economic and fiscal challenges: Economic growth for 2019 is expected to be 2 percent. This has been mainly driven by the services and tourism sectors. Public finances remain structurally weak and are expected to worsen, and are in urgent need of reforms. Public debt continued to rise (153 percent of GDP at end-2017), due to low growth and a relatively high cost of debt financing.²¹

Refugee crisis: one of the key issues facing Lebanon is the economic and social impact of the Syrian crisis.²² According to government and independent sources, up to 1.5 million Syrians, about a quarter of the Lebanese population, have taken refuge in Lebanon since the conflict erupted in March 2011. This has strained Lebanon's public finances, service delivery, and the environment. 76 percent of the Syrian DP households subsisted below the poverty line and more than 50 percent of Syrian households live in extreme poverty.²³ The crisis also worsened poverty incidence among Lebanese citizens as well as widen income inequality. In particular, it is estimated that as a result of the Syrian crisis, some 200,000 additional Lebanese have been pushed into poverty, adding to the erstwhile 1 million poor. An additional 250,000 to 300,000 Lebanese citizens are estimated to have become unemployed, most of them unskilled youth.

Host community fatigue became more and more pronounced, and tensions between and within communities have been on the rise. Perceived competition for lower-skilled jobs was identified as a key driver for these tensions. Between 2014 and 2017, the percentage of Lebanese who did not report any inter-community tensions dropped from 40 to 2 per cent.²⁴ Most DPs (around 85 percent) settle in urban areas. The Bekaa valley, which is relatively close to Syria and used to be well connected with Damascus, hosts most of the Syrian DPs (see also annex 1)

Jordan context

Jordan is located about 80 km to the East of the Mediterranean Sea. Located at the heart of the Middle East, Jordan is a middle income country shaped by its Geography, history, Geopolitics and scarcity in natural resources.²⁵

Over the past ten years, Jordan has had success pursuing structural reforms in education, health and privatization and liberalization. The Government of Jordan has introduced social protection systems and reformed subsidies, creating the conditions for public-private partnerships in infrastructure and making tax reforms.²⁶ However, the country faces important challenges. Macroeconomic vulnerabilities persist mainly due to its energy import dependency. Regional tensions and their recent extension to Iraq and Syria are weighing down on the Jordanian economy through a widening trade

²⁰ World Bank. Online: <https://data.worldbank.org/country/lebanon>

²¹ Ibid

²² <https://www.worldbank.org/en/country/lebanon/overview>

²³ VASYR 2017: Vulnerability Assessment of Syrian Refugees in Lebanon

²⁴ Regular Perception Surveys on Social Tensions throughout Lebanon (ARK, 2017), and Defining Community Vulnerability in Lebanon, REACH (2014).

²⁵ Jordan TNC (2014)

²⁶ Hashemite Kingdom of Jordan, UNICEF and UNDP (2015) Socio-economic inequality in Jordan

deficit and weaker investor confidence. High unemployment (18 percent average, 27 percent female and 40 percent youth in 2018²⁷) and dependency on remittances from Gulf economies are additional threats to economic stability.²⁸

Environmental and water challenge: Issues in Jordan are to some extent similar to those in Lebanon. However, Jordan is even a more water scarce country. In fact, it is the second most water scarce country in the world. Water demand distinctly exceeds supply as the annual water availability per capita has declined significantly, from 3,600 m³ per capita in 1946 to only 145 m³ in 2008.²⁹ This trend will make some areas unliveable, reduce agriculture lands and put more pressure on already scarce water resources, potentially increasing displacement, the continuous risk of social unrest and conflicts and migration to host settlements already struggling to provide basic services.

Demographic challenge: With a total population of 9.7 million in 2017,³⁰ Jordans' population has grown very rapidly, doubling more than ten times in 55 years. The largest increase took place during the last decade, especially because of the large influx of DPs since the Syrian Crisis started in 2011. This relatively high population growth rate puts pressure on government spending to deliver basic public services, and to stimulate economic development.

Economic and fiscal challenges: The elevated level of debt of 95 percent of adjusted GDP (2017) is of concern. As for the water sector, increased financing needs of the Water Authority of Jordan (WAJ), which is government owned, continues to pressure this debt situation as operation and maintenance cost recovery is not expected until 2021. Economic growth for 2019 is expected to be 2.4 percent.³¹

Refugee crisis: Jordan has a long history of accommodating refugees. The sheer scale of the current refugee crisis compounds the existing socio-economic and environmental pressures in Jordan. There has been an increased competition for access to public utilities (water and electricity), education, health services, infrastructure, and employment, as well as pressure on natural resources, and the already limited carrying capacity of Jordan's natural environment. Similar to Lebanon, most DPs (around 83.3 percent) settle in urban areas. The Northern governorates of Irbid, Mafrq and Zarqa saw the largest influx of refugees relative to the total population (see also annex 1), leading to increased demand for public services.³²

Climate change

Lebanon

As mentioned in Lebanon's Intended Nationally Determined Contributions (INDC): 'adaptation is a priority for Lebanon. Being a developing country with scarce water resources and high population density in the coastal areas, Lebanon is already facing and will continue to face, significant challenges as a result of climate change. The government of Lebanon recognizes that the more sustainable its development path is, the easier it will be to build resilience to climate change impacts.' Priority sectors are water, forestry & agriculture and biodiversity.

Climate: Lebanon has a Mediterranean-type climate characterized by hot and dry summers and wet and cool winters, with an average annual temperature of 15 °C. Lebanon has an arid / semi-arid climate, which makes it poor in water resources availability.³³

Climate change projections: According to climate models³⁴, temperatures are expected to increase with 1.7°C by mid-century and up to 3.2°C by 2100 and a decrease in precipitation of 4 to 11 percent

²⁷ World Bank. Online: <https://www.worldbank.org/en/country/jordan/overview>

²⁸ Hashemite Kingdom of Jordan, UNICEF and UNDP (2015) Socio-economic inequality in Jordan

²⁹ MWI (Ministry of Water and Irrigation, Jordan) (2009): Water for Life. Jordan's Water Strategy.

³⁰ World Bank. Online: <https://data.worldbank.org/country/jordan>

³¹ Ibid

³² Hashemite Kingdom of Jordan, UNICEF and UNDP (2015) Socio-economic inequality in Jordan

³³ Lebanon TNC (2016)

³⁴ Ibid

with drier conditions by the end of the century (up to 5.8 mm decrease in average monthly precipitation). Projections also show increasing trends of warming, reaching up to 43 additional days with maximum daily temperature higher than 35°C and an increase in number of consecutive dry days when precipitation is less than 1.0 mm by the end of the century, causing the seasonal prolongation and geographical expansion of drought periods. This combination of significantly less wet and substantially warmer conditions will result in hotter and drier climate.

Climate change impacts (on vulnerable sectors and areas), including the water sector: The projected changes in rainfall will put tremendous pressure on national water security and produce knock-on effects in sectors such as agriculture, where around 70 percent of the available water is being used for irrigation. The decline in precipitation will also negatively affect the recharge of rivers and groundwater. Snow will melt earlier in spring, affecting spring recharging and decreasing water availability for irrigation in summer. Annual drought periods are expected to start 15 days to 1 month earlier and will be 9 days longer by 2040 and 18 days longer by 2090. The already dry regions, such as the Bekaa, Hermel, and the South, will experience the sharpest effects. In Zahle, projections show a 6-15 percent decrease in the annual total rainfall (mm)/number of days by 2098 under the SRES A1B scenario.³⁵ Anticipated changes in climate would reduce the nation's exploitable supplies of water by about 1 percent in 2020, 8 percent in 2040, and 29 percent in 2080³⁶. (This is even aggravated by the fact that water demand in Lebanon increased 28 percent between 2011 and 2017, which is directly linked to the Syrian crisis.³⁷

Jordan

As mentioned in Jordan's National Climate Change Policy: 'Jordan faces potential serious impacts on its natural ecosystems, on its river basins and watersheds, on biodiversity—then cascading to impacts on food productivity, water resources, human health, public infrastructure, and human settlements. Climate change will have serious implications on the country's efforts to eradicate poverty and realize sustainable development for current and future generations—ultimately making climate change an issue of intergenerational equity. Climate change scenarios indicate that Jordan and the Middle East could suffer from reduced agricultural productivity and water availability among other negative impacts.'

Climate: Jordan is located about 80 km to the East of the Mediterranean Sea with a predominantly Mediterranean climate; hot and dry summers and wet and cool winters. Jordan is divided into three main climatic regions: the Ghor region (lowlands), Highlands, badia and Desert region.³⁸

Climate change projections: Climate models³⁹ show a consistent trend towards a drier climate and annual precipitation tends to decrease significantly with time. The mean and maximum temperatures over the full country of Jordan will be 2-4 degrees higher, precipitation will be 15-20 percent lower and potential evapotranspiration about 150 mm higher by the end of the century. In 2070-2100 the cumulated precipitation could decrease by 15 percent. The decrease would be more marked in the western part of the country. Simultaneously, the mean, maximum and minimum air temperature tends to increase significantly by 0.02, 0.01, and 0.03 °C/year, respectively. On the other hand, the relative humidity tends to increase significantly by an average of 0.08 percent/year. In addition, projection show that heat waves and drought events, dry days will be more frequent.

Climate change impacts (on vulnerable sectors and areas), including the water sector: Previous studies and strategic documents (i.e. Jordan's SNC (2009) and National Climate Change Policy (2013)) have identified scarcity of water resources as one of the major barrier facing sustainable

³⁵ Ministry of Environment and UNDP (2011) Lebanon Second National Communication on Climate Change – Public Health

³⁶ Lebanon Third National Communication on Climate Change

³⁷ Lebanon crisis response plan 2017-2020

³⁸ Jordan TNC (2014)

³⁹ Jordan's Third National Communication Report to UNFCCC (2014)

development in Jordan; a situation that will be magnified by climate change,⁴⁰ leading to more water stress. Water-related impacts include reduced total water availability, less reliable seasonal patterns, increasing intensity of droughts during which reservoirs are not refilled, reduced groundwater recharge and damage of rain fed agriculture. Flood events will also be more likely. High rainfall events also increase erosion which causes losses of soil water storage and siltation of reservoirs. Higher temperatures cause higher evaporative demand and hence higher irrigation water demand. Higher temperatures also affect the efficiency of wastewater treatment plants.⁴¹ Jordan has been subjected to additional water stress due to the influx of displaced peoples, especially from Syria. There are indications of pollution of the main aquifer lying beneath the Zaatari camp due to wastewater leakages. Besides that, groundwater, including the Amman-Zarqa aquifer,⁴² is being overpumped.

Climate change vulnerabilities assessment and hot-spot mapping approach

Global-, MENA and National climate change models and data have been used to understand climate change trends and projections in Jordan and Lebanon and to justify this project, focused on addressing water-related challenges in the target areas in both countries.

Target areas / municipalities have been selected by identifying which areas experience most pressure on water-related services, exacerbated by climate change impacts and the influx of DPs. As shown in annex 1, Irbid and Mafraq in Jordan are the municipalities that host most DPs after Amman. In Lebanon, the Bekaa area, in which Zahle and the three surrounding target municipalities are located, hosts most DPs.

As labelled by the WB,⁴³ cities under widespread stress from displaced persons – which significantly impacted the overall absorption capacity, including urban systems and services such as water supply (exacerbated by climate change), sanitation, education, and health services, are called ‘type 2’ cities.

Figure 1: Typology of settlements⁴⁴



The project concept phase has been used to collect data required to map climate change vulnerable hotspots (see approach in figure 1 below) and develop response plans (i.e. identify appropriate

⁴⁰ Jordan Third National Communication on Climate Change

⁴¹ Jordan Ministry of Water and Irrigation: Climate Change Policy for a Resilient Water Sector, 2016, page 3

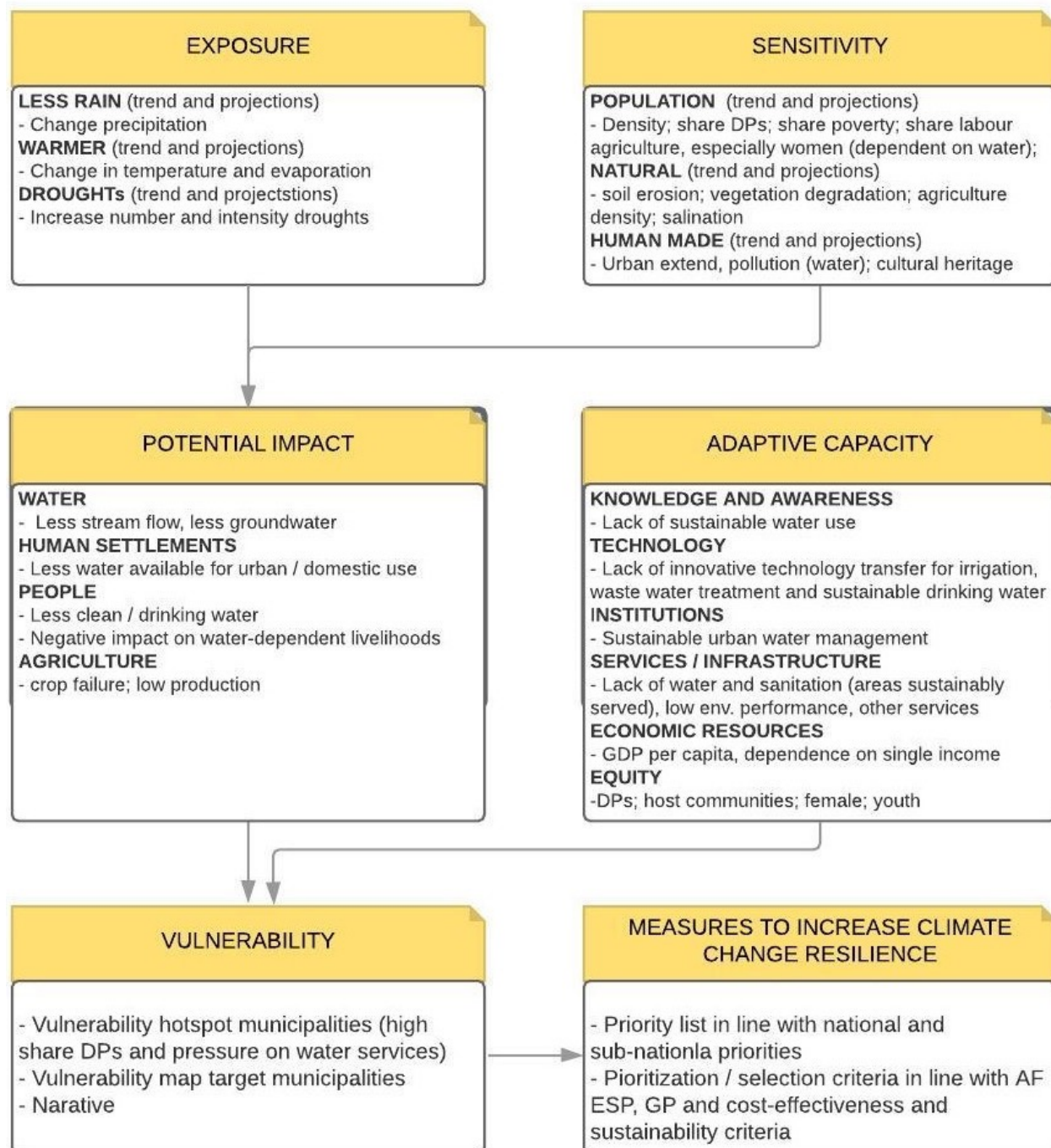
⁴² UN-ESCWA et al. (2017) Arab Climate Change Assessment Report (RICCAR initiative)

⁴³ World Bank et al (2017, policy note September 14): Refugees in the middle east. Bringing an urban lens to the forced displacement challenge

⁴⁴ Ibid

measures) to address specific vulnerabilities in these hotspot areas. This has been done through a combination of research and a comprehensive consultation process (see section II.I), including with vulnerable groups. During the full proposal phase, all proposed activities will be detailed.

Figure 2: Climate change vulnerability assessment and hotspot mapping approach (ESCWA approach)



Project target areas

There is enough evidence⁴⁵ that water challenges will likely grow for Irbid, Mafrq and Zahle in the future due to climate change impacts. There is also a clear link between the influx of Syrian DPs and increasing pressure on water resources in these areas. Both challenges are coupled with adaptation challenges in both countries. Common adaptation challenges for the two countries are financial constraints to implement climate action. For example, the financial deficit in the municipality budget for Greater Mafrq has reached 107 percent due to the impact of the influx of Syrian DPs⁴⁶. Also, there is a lack of awareness at the community level, weak coordination between relevant authorities and a need to spend more on research and capacity building to apply low-cost innovative solutions.⁴⁷

Many of the DPs have now been in the host country for four or more years. As most DPs live in cities, solutions focused on their needs and negative climate change impacts must target host cities and towns.⁴⁸ The shift from a focus on camps to cities and towns means changing the paradigm for how humanitarian and development agencies work with DPs. Instead of providing stand-alone solutions to DPs in camps or rural areas, the challenge is to establish urban – rural linkages and support host communities to adapt / scale up existing services, shelter and jobs to meet the needs of both the original residents and DPs,⁴⁹ considering the impacts of climate change, especially increasing water challenges, on these services. For an overview of urban resilience building needs, see annex 2.

The Jordan Refugee Response Plan identifies the Northern region as highly vulnerable (including Irbid) while the East (Mafrq) is the second highest region in the percentage of DPs rated highly vulnerable or above.⁵⁰ Syrian DPs in Jordan and Lebanon are specifically vulnerable to climate-induced water challenges. The Jordan Refugee Response Plan survey shows that 32 percent of Syrian DPs are identified as severely vulnerable due to spending over 25 percent of their expenditure on WASH items⁵¹. 34 percent of households rely on bottled water.⁵² In Zahle, more than 50 percent of male refugees don't work while most Syrian refugee women (93 percent) don't work. Zahle had the highest share among Lebanese cities (42 percent) of households relying on cash from humanitarian organizations as a source of income and 80 percent of households depended on informal loans as a source of income⁵³. This leaves most of the DPs susceptible to impacts of climate change and with weak adaptive capacity. There is also a cultural barrier with Syrian populations used to higher water availability and so higher consumption and so are struggling to cope with much less amounts of water.

In addition, there is a number of specific challenges across the region, including limited job access and livelihoods opportunities, exhaustion of savings, and the adoption of negative coping mechanisms, which further exacerbate the residual protection risks they face. Broader political and social pressures can also affect stability between displaced populations and host communities in both countries. There are over 10,000 Syrian displaced children recorded in the Arab region as either separated, unaccompanied or in institutional care.⁵⁴ The loss of social networks further decreases the adaptive capacities and make DPs more vulnerable to climate change.

The population of Irbid is estimated at 950,000 and the population of Mafrq is estimated at 206,920 in 2017⁵⁵. Number of Syrian DPs in Irbid is 135,132 and in Mafrq is 157,446.⁵⁶ The disaggregated data and the overview of climate change concerns for each target area are shown in table 1.

⁴⁵ See sections above

⁴⁶ ILO (2016) Local Economic Development Strategy For Mafrq Governorate (2016-2018)

⁴⁷ Jordan Third National Communication on Climate Change and Lebanon Third National Communication on Climate Change

⁴⁸ Idem page 21

⁴⁹ Idem

⁵⁰ UNHCR (2015) Jordan Refugee Response Plan

⁵¹ Idem

⁵² UNHCR, UNICEF and WFP (2017): Vulnerability Assessment of Syrian Refugees in Lebanon

⁵³ Ibid

⁵⁴ UN 3RP: Regional Refugee & Resilience Plan 2018-2019

⁵⁵ Department of Statistics (DoS) - Jordan

⁵⁶ UNHCR

Lebanon

Zahle and surrounding area lies in central Bekaa valley and has an annual rainfall of between 200-600 mm⁵⁷. Figure 3 shows the administrative boundaries of Zahle and the surrounding municipalities. The target areas in Zahle have been identified based on high share of vulnerable communities. The total populations and disaggregated data and an overview of climate change issues and adaptation needs for each municipality are shown in table 1.

Figure 4 shows communities in most need of water resources, which have been combined with figure 5, which shows poverty distribution in Zahle area among vulnerable Lebanese communities (living under 4US\$ per day, as per the World Bank data, 2011) and location of vulnerable Syrian displaced population living in Informal Tented Settlements (ITSs). The maps also show the land cover with agricultural and built areas, which has been used to identify vulnerable farmers and vulnerable urban populations.

Figure 3: Target municipalities in Lebanon

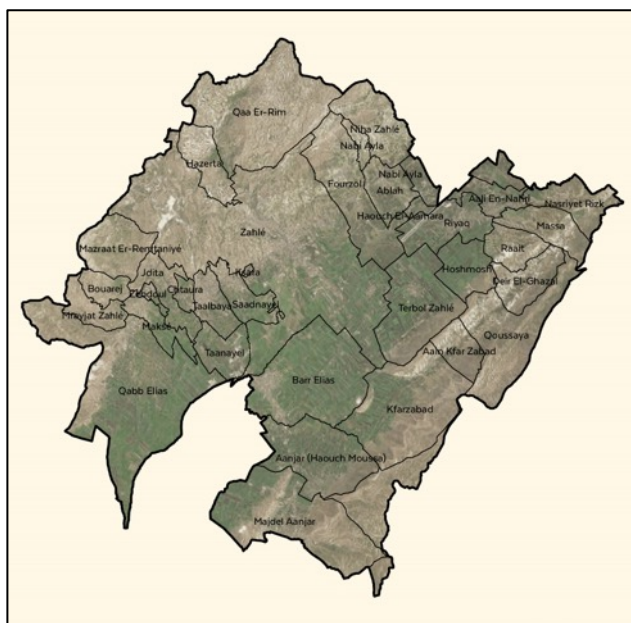


Figure 4: target areas in need of water

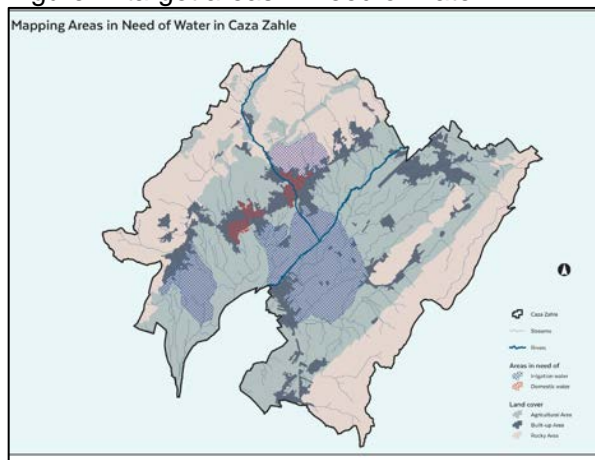
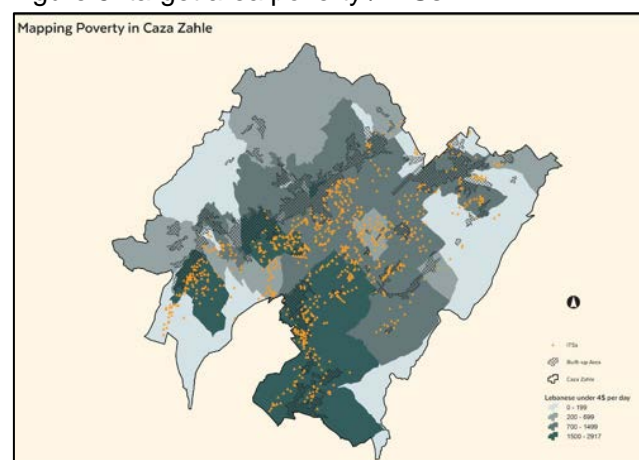


Figure 5: target area poverty / ITSs



Source: UN-Habitat

Focus group consultation and key informant interviews have been held in the target municipalities (see section II.I.) with the purpose to identify specific issues and needs regarding climate change-related water issues and possible concern regarding proposed adaptation actions. For an overview, see table 1. Drought has been identified as the most problematic hazard in the city of Zahle and its surrounding municipalities during the past 10 years. In general, the surrounding municipalities suffer from extreme heat that has been increasing, especially in the years between 2016 and 2018. In 2017 and 2018, flooding has also been a major concern for the target areas. This trend coincides with the predictions of Lebanon's Third National Communication to the UNFCCC for generally prolonged drought periods all over the country, increase in average temperature and increase in winter flooding by up to 30 percent.

⁵⁷ Farajalla et al. (2014): Climate Change in Lebanon: High-order Regional Impacts from Agriculture http://website.aub.edu.lb/ifi/publications/Documents/working_papers/20140722_Higher_order_CC.pdf

Zahle: During the past 8 years, the amount of rainfall and upstream melting snow serving the area has noticeably decreased, causing boreholes to dry out in the summer in addition to becoming increasingly contaminated. The ITS community in Zahle agrees that drought is the main climate change hazard in the area especially during the past 3 years. The quantity of drinking water distributed by Solidarite (35 L/capita/day in summer and 15 L/capita/day in winter) is not sufficient for the entire ITS communities. This has caused the community living in ITS to pay additional monetary cost for buying water (According to VASYR 2017, 20 percent of total Syrian DPs expenditure is on water). While in other cases, women and children, who are responsible for most of the domestic work, travel outside the ITS- mainly on foot- to collect water. This puts them under safety risks and the proposed rainwater harvesting inside ITS will help address this issue.

Haouch El Oumara: The targeted community of host Lebanese population has identified drought and extreme heat as the main climate change hazards in their area, especially in the years 2017 and 2018. The rainfall season shifted to the end of winter- beginning of spring, with heavy downpours. As a result, water infiltration into the underground water table has reduced and so has lowered the water table. Twenty years ago, the water table was 80 m underground in Zahle and nowadays one has to dig to 150 m to reach the water table. Existing boreholes are drying out in summer and supplying less water in winter. Farmers started digging deeper boreholes to reach the water table. This water scarcity has increased the cost of crop production due to the need to pump water from deeper boreholes. As a result, some farmers have lost their livelihoods as they are failing to compete with cheaper imported products. This has also caused farmers to use the polluted water of Litani River, which in turn increased diseases in the surrounding area. According to the community, Lebanon is the third in the world in the rate of cancer, with the central Bekaa area (around Litani River) having the greatest share of cancer patients (800 cases in Barelías alone). These water scarcity issues have been also exacerbated by the increased temperature that increased the water need for plants as well as caused crop damages and spread of new types of insects. Consequently, farmers are using pesticides more often.

Qabelias and Saadnayel: The whole targeted communities are living in ITSs and have no piped water supply. The drinking water being distributed (e.g. by World Vision in Qabelias is not enough for all the ITSs and at the same time boreholes are drying out in summer due to the increasing drought incidents. Due to the fact that 68 percent of the targeted communities in both municipalities are unemployed, most of the community cannot afford to buy drinking water and so collect water from untested water sources. Since women and children are responsible for domestic work and water supply, they are facing safety issues while walking away from ITS to collect water. Another safety concern- especially for children, elderly and disabled people- is the damages caused by the increased flooding causing loss of shelter. This is in addition to the fires in ITS due to increased heat that melts electrical wires. Skin diseases have also spread among the community due to decline in hygiene caused by water scarcity. While other diseases such as respiratory diseases and fever have increased mainly among children due to increased temperature which also caused an increase in the numbers of insects and rodents. The river stream dries in summer and so is filled with wastewater which has also caused spread in insects and rodents carrying diseases.

Informal Tented Settlement



Table 1: overview of main climate change issues and needs in target areas in Lebanon

Municipality	Population / beneficiaries	Main climate change impacts / Hazards (exposure)	Effects on communities and vulnerable groups (sensitivity)	Barriers to adapt (adaptive capacity)	Priority resilience building interventions	Issues and concerns (identified through consultations) and response needs
Haouch El Oumara	Total Number: 30,000 Female: 14,700 <14: 7,500 15-24: 5,100 25-60: 12,000 >60:5,400 Disabled: N/A Syrian /DPs: 5,000	- Drought - Extreme heat	- Drought <ul style="list-style-type: none"> Lower water table Higher cost for producing crops Loss of livelihoods for farmers - Extreme heat <ul style="list-style-type: none"> Increase of water demand by plants Increase of pests that damage crops 	- Lack of funding - Weakness of law enforcement regarding misuse of pesticides	- Clean water for agriculture, e.g. through water harvesting or reuse	- Lack of participation in planning of project/ interventions (need to involve)
Qabelias	Total Number: 50,000 Female: 23,800 <14: 25,800 15-24: 9,000 25-60: 14,000 >60:1,100 Disabled: N/A Syrian DPs: 55,000 *Syrians are sometimes not counted under the total numbers of inhabitants	- Drought - Flooding - Extreme heat	- Drought <ul style="list-style-type: none"> Not enough drinking water for ITS Financial burden for ITS to buy water Skin diseases - Flooding <ul style="list-style-type: none"> Loss of shelter and safety risks for Syrian women and children - Extreme heat <ul style="list-style-type: none"> Spread of insects and diseases 	- Lack of funding - Lack of knowledge and awareness - Legal restrictions on supplying piped water to ITS	- Clean water, e.g. through water harvesting or reuse	- Treated wastewater will only benefit farmers - Harvested water can be polluted (need quality control and awareness) - Maintenance of rainwater harvesting system (need maintenance plans)
Saadnayel	Total Number: 24,374 Female: 7,935 <14: 7,725 15-24: 2,715 25-60: 4,245 >60:330 Disabled:180 Syrian DPs: 17,266	- Drought - Flooding - Extreme heat	- Drought <ul style="list-style-type: none"> Not enough drinking water for ITS Financial burden for ITS to buy water Skin diseases for children - Flooding <ul style="list-style-type: none"> Loss of shelter - Extreme heat <ul style="list-style-type: none"> Spread of insects and diseases 	- Lack of funding - Lack of knowledge and awareness - Legal restrictions on supplying piped water to ITS	- Clean water for agriculture, e.g. through water harvesting or reuse	- Harvested water can be polluted (need quality control and awareness) - Maintenance of rainwater harvesting system (need maintenance plans)
Zahle	Total Number: 80,282 Female: 10,580 <14: 10,300 15-24: 3,620 25-60: 5,660 >60:440 Disabled: N/A Syrian DPs: 25,409	- Drought	- Drought <ul style="list-style-type: none"> Not enough drinking water for ITS Financial burden for ITS to buy water Safety risk for Syrian women and children who walk to collect water 	- Lack of money to buy drinking water	- Clean water for agriculture, e.g. through water harvesting or reuse	- Harvested water can be polluted (need quality control and awareness) - Maintenance of rainwater harvesting system (need maintenance plans)

Jordan

Irbid lies in Jordan's wet region with a total annual rainfall in this region varies between 400 and 600 mm while Mafrqaq lies in the dry region in the east with an average rainfall between 100 and 300 mm (see figure 6). The total populations and disaggregated data and an overview of climate change issues and adaptation needs for each municipality are shown in table 2.

According to focus group consultation and key informant interviews carried in target areas in Jordan (see section II.I) and in table 2.), the increase in temperature and the decline in rainfall leading to drought are two of the most hazardous climate change impacts in both Mafrqaq and Irbid. This confirms the outcomes of Jordan's Third National Communication to the UNFCCC that predicted a serious decline in precipitation trends and a significant increase in the mean temperature. While in some target areas, flooding has also been pointed out as a major hazard. This is also in line with the predictions of a higher intensity of flooding in Jordan due to climate change⁵⁸.

Figure 6: annual average rainfall in target areas

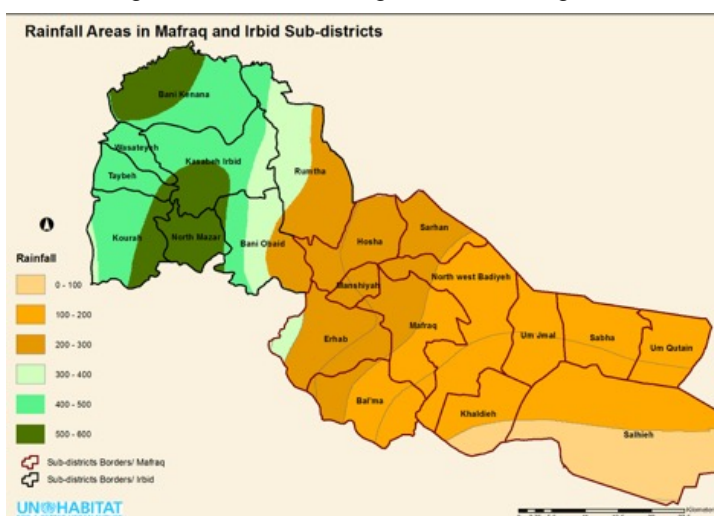


Figure 7: existing situation / infrastructure and severe water vulnerability in red in Irbid and Mafrqaq

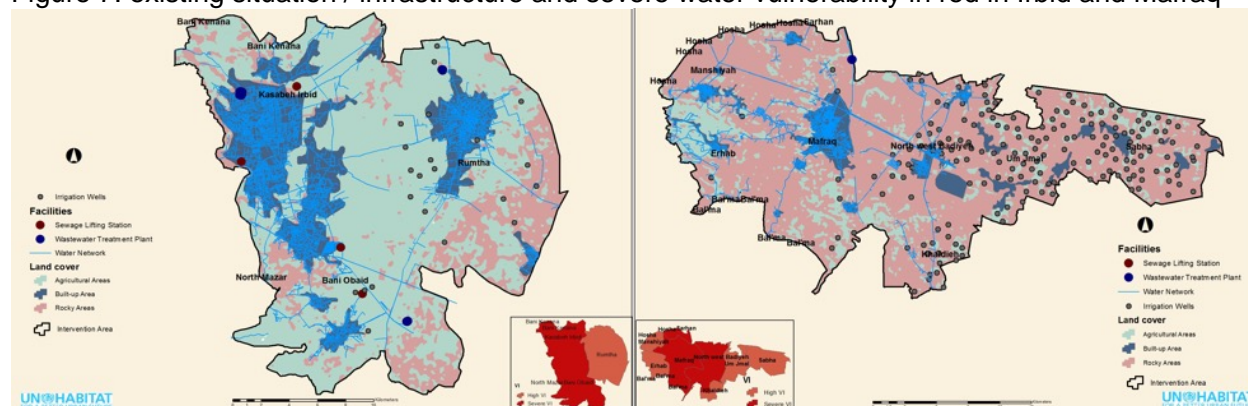
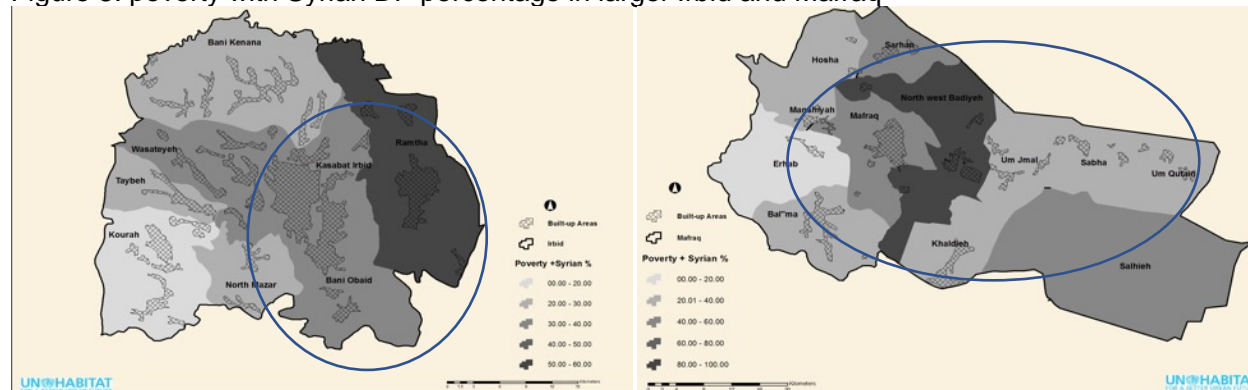


Figure 8: poverty with Syrian DP percentage in larger Irbid and Mafrqaq



⁵⁸ Jordan Ministry of Water and Irrigation: Climate Change Policy for a Resilient Water Sector, 2016, page 3

All the target areas suffer from increased water demand mainly due to the influx of Syrian DPs besides population growth. Syrian DPs live in the same urban areas as Jordanians and so are subject to the same impacts. However, Syrian DPs have higher vulnerability due to the fact that they rent shelter and so have less income. In agricultural areas, livelihoods of Syrian DPs mainly depend on working for Jordanians in the farms and so are affected by any decline or change in agricultural activities.

Figure 7 shows the build-up area in larger Irbid and Mafraq with existing water infrastructure. In red, the area with severe water vulnerability (according to UNICEF) is shown. Figure 8 shows the share of poverty with Syrian DP percentage in larger Irbid and Mafraq. The cities fall in the category 30-40 percent poverty / DPs.

Mafraq city

Kasabet Al Mafraq (Al Mafraq Main Municipality Area, 2 Focus Groups): Flooding and drought have been identified as the two most problematic climate change hazards. Flooding of the main Wadi which passes through the city of Mafraq affects safety of people, mainly women and children as well as damages to houses and infrastructure. The frequency of floods occurrence forced many households to displace, particularly those who are living close to the Wadi, forced children and parents' absence from schools and work, increased number of insects and rodents and so increased diseases accordingly. Decline in the precipitation level led to decline in water table and groundwater level which resulted in water scarcity. Water is being pumped to households once a week and houses with small tanks do not store enough water. Women suffer from physical and psychological stress as they sometimes need to stay up late at night to make use of the water supplied once a week in laundry, cleaning and other house work purposes. Also, women are obliged to stay at home with their children during flooding which affects their income. This also adds a financial burden to families to buy drinking water especially Syrian DPs families who usually have less net income than Jordanian families. In addition, this drought has caused a decline in agricultural land and livestock production in the surrounding areas. This affects also livelihoods of Syrian DPs working in farms in addition to women who rely on the production of olive oil to generate income.

Bwaidat Al-Elaimat – Erhab: Drought and extreme heat have been identified as the main climate change impacts in this target area according to the targeted community. Generally, there has been a decrease in precipitation during winter with severe drought in summer. Since water is only delivered to households once a week, houses have to store water for the rest of the week. In case stored water is not adequate, households need to buy water from the market. Men are particularly responsible for securing adequate water supply to the house. However, women and children also suffer from physical and psychological stress as they sometimes need to stay up late at night to make use of the water supplied once a week in laundry, cleaning and other house work purposes. Water scarcity has also led to less agricultural activity as well as a decline in livestock production. Farmers who depended on rainfall for cultivating wheat and barley cannot cope with water scarcity and at the same time cannot afford to switch to irrigated agriculture. In the past, farmers have been cultivating crops twice a year, now they only cultivate crops once a year due to the decline in water availability. Water scarcity has also been exacerbated by increased temperatures in summer which also led to the increase in insects and skin diseases among children. Women also identified flooding as a significant climate change impact that poses a safety risk and affects their ability to work as they are forced to stay at home with their children.

Al Ghadeer Al Abiad and Eastern Mafraq: Farmers in both target areas have identified drought and extreme weather (heat and cold) as the two most significant climate change hazards in the past 10 years. Farmers used to rely on rain fed for agriculture. However, due to water scarcity, they are becoming more dependent on reclaimed water which is- according to them- becoming more expensive. They are also sometimes forced to receive reclaimed water in times that they do not need for irrigation (e.g. during rainy season) and they cannot store it in storage tanks for more than few days because its quality will be extremely deteriorated resulting in serious health risks. The change in the patterns of rainfall seasons resulted in deteriorating cultivated crops such as wheat and barley and

forced farmers to shift from rain fed to irrigated agriculture. Livelihoods of Syrian DPs who work in the farm for Jordanians are also negatively affected with these impacts. Less farm workers are needed and for less number of days. Drought has also caused a decline in livestock production. In addition, extreme weather in summer and winter has damaged crops and caused economic losses to farmers.

Irbid city

Kasabet Irbid (Greater Irbid Municipality): Flooding and drought are the two most hazardous climate change impacts affecting the area. The increased frequency of flooding- which occurs mainly in winter- over the past few years imposes safety risks especially to children, disabled and elderly. It sometimes causes displacement among people living in wadi (valley) areas in addition to damage to houses and infrastructure. According to the community, flooding increases the number of insects and rodents which increased diseases among children. Women and children mainly remain at home during flooding. On the other hand, drought caused by decline in rainfall has severely affected households. Exacerbated by Syrian DPs influx, water scarcity caused a shortage in supplied drinking water adding a financial burden on men- who are responsible for ensuring adequate water supply- to buy drinking water from the private market. Women and children also suffer from physical and psychological stress as they sometimes need to stay up late at night to make use of the water supplied once a week in laundry, cleaning and other house work purposes. Drought also caused a shrinkage in the agricultural area and changes in the vegetation cover. For example, the supply of olive oil has dramatically decrease and with much higher prices.

Edon Neighbourhood, Liwa: Bani Obead: Drought, extreme heat and flooding have been identified as the most hazardous climate change impacts in the target area. Exacerbated by Syrian DPs influx, water scarcity caused a shortage in supplied drinking water adding a financial burden on men- who are responsible for ensuring adequate water supply- to buy drinking water from the private market. It has also affected personal hygiene especially among children. Drought also caused a shrinkage in the agricultural area. The agricultural pattern has also changed due to increased temperature with a decline in wheat and clover. Temperature which used to reach 35°C can now reach up to 45°C in summer according to the community members causing spread of mosquitos and emergence of diseases that are new to the area. The increased frequency of flooding over the past few years imposes safety risks especially to children, disabled and elderly. It also causes damages to houses and infrastructure and make women and children less mobile.

Ramtha: Farmers in the target area have identified drought and extreme weather (heat and cold) as the two most significant climate change hazards in the past 10 years. Due to water scarcity, farmers are becoming more dependent on reclaimed water which is- according to them- becoming more expensive. They are also sometimes forced to receive reclaimed water in times that they do not need for irrigation (e.g. during rainy season) and they cannot store it in storage tanks for more than few days because its quality will be extremely deteriorated resulting in serious health risks. There is also water shortage at household level. Women pointed out that lack of knowledge of permaculture techniques and greywater use in addition to lack of funding to install rainwater harvesting systems are missed opportunities to adapt with water scarcity. Less farm workers are needed and for less number of days. Drought has also caused a decline in food and water available for livestock production. In addition, extreme weather in summer and winter has damaged crops and caused economic losses to farmers. Livelihoods of Syrian DPs who work in the farm for Jordanians are also negatively affected with these impacts.

Table 2: overview of main climate change issues and needs in target areas in Jordan

Community	Population / beneficiaries	Main climate change impacts / Hazards (exposure)	Effects on communities and vulnerable groups (sensitivity)	Barriers to adapt (adaptive capacity)	Priority resilience building interventions	Issues and concerns (identified through consultations) and response needs
MUNICIPALITY						
Kasabet Al Mafraq (Greater Mafraq Municipality, 2 focus groups)	Total Number: 106800 Female: 50534 <14: 33011 15-24: 20749 25-60: 40149 >60: 4593 Disabled: NA Syrian DPs: 36916	<ul style="list-style-type: none"> - Flooding - Drought 	<ul style="list-style-type: none"> - Flooding <ul style="list-style-type: none"> o Safety risk due to flooding especially for women and children o Damage to infrastructure and houses o Spread of diseases among children and youth - Drought <ul style="list-style-type: none"> o Water Scarcity in urban areas o Agriculture/ crop failure with significant impact on Syrian DPs 	<ul style="list-style-type: none"> - Lack of funding - Lack of capacity - Lack of awareness - Absence of legislations to cope with climate change - Lack of space in the Wadi area (valley) to provide buffer zone to cope with flooding 	<ul style="list-style-type: none"> - Water harvesting from the upstream of the Wadi to reduce flooding - Greywater reuse - Rooftop rainwater harvesting 	<ul style="list-style-type: none"> - Resettlement during construction and after it as many houses are located within the buffer zone of the Wadi (project will ensure no resettlement will take place / resettlement is not needed as intervention is upstream) - How to use apartment blocks for water harvesting (to be identified during full proposal) - Some cultural and religious resistance to greywater reuse (awareness through religious leaders)
Bwaidat Al-Elaimat – Erhab (Mafraq)	Total Number: 1173 Female: 568 <14: 443 15-24: 224 25-60: 452 >60: 53 Disabled: NA Syrian DPs: 64	<ul style="list-style-type: none"> - Drought - Extreme heat 	<ul style="list-style-type: none"> - Drought <ul style="list-style-type: none"> o Less agriculture practices with significant impact on Syrian DPs - Extreme heat <ul style="list-style-type: none"> o Increased diseases o Decline in livestock production 	<ul style="list-style-type: none"> - Lack of funding - Lack of awareness of water scarcity in Jordan especially among Syrian DPs who used to consume much larger amounts of water in Syria. 	<ul style="list-style-type: none"> - Rainfall water harvesting - Permaculture practices at household level - Greywater reuse in public buildings. 	<ul style="list-style-type: none"> - The average annual precipitation is relatively low (but high enough) - Some cultural and religious resistance to greywater reuse (awareness through religious leaders)
Irbid (Greater Irbid Municipality and nearby municipalities)	Total Number: 306102 Female: 148711 <14: 107455 15-24: 68033 25-60: 97980 >60: 16572 Disabled: NA Syrian DPs: 73341	<ul style="list-style-type: none"> - Flooding - Drought 	<ul style="list-style-type: none"> - Flooding <ul style="list-style-type: none"> o Safety risks especially for women and children o Displacement o Increased diseases - Drought <ul style="list-style-type: none"> o Urban water scarcity o Agricultural decline with significant impact on Syrian DPs 	<ul style="list-style-type: none"> - Lack of funding - Lack of awareness - Lack of space in wadis to provide buffer zone in flooding - Absence of legislations to cope with climate change 	<ul style="list-style-type: none"> - Rehabilitation of 3 existing ponds to harvest flood water - Rooftop rainwater harvesting - Water saving devices 	<ul style="list-style-type: none"> - Resettlement during construction and after it as many houses are located within the buffer zone of the Wadi (project will ensure no resettlement will take place / resettlement is not needed as intervention is upstream) - How to use apartment blocks for water harvesting (to be identified during full proposal)

Neighbourhood: Edon, Liwa: Bani Obead (Irbid)	Total Number: 61768 Female: 30255 <14: 21122 15-24: 13539 25-60: 23896 >60: 3211 Disabled: NA Syrian DPs: 14,636	<ul style="list-style-type: none"> - Drought - Extreme heat - Flooding 	<ul style="list-style-type: none"> - Drought <ul style="list-style-type: none"> o Urban water scarcity o Decline in agricultural area - Extreme heat <ul style="list-style-type: none"> o Increased diseases - Flooding <ul style="list-style-type: none"> o Safety risks among women and children o Damage to houses and infrastructure 	<ul style="list-style-type: none"> - Lack of funding - Lack of awareness - Absence of legislations to cope with climate change 	<ul style="list-style-type: none"> - Rooftop rainwater harvesting - Greywater reuse in public buildings - Storm water harvesting - Water saving devices 	<ul style="list-style-type: none"> - Lack of participation in planning of project/ interventions. - Safety during construction.
AL Ghadeer AL Abiad (Mafraq)	Total Number: 1752 Female: 858 <14: 680 15-24: 338 25-60: 658 >60: 76 Disabled: NA Syrian DPs: 271	<ul style="list-style-type: none"> - Drought - Extreme heat and cold 	<ul style="list-style-type: none"> - Drought <ul style="list-style-type: none"> o Less water available for agriculture o Changing crop patterns o Decline in livestock production - Extreme heat and cold <ul style="list-style-type: none"> o Crop failure 	<ul style="list-style-type: none"> - Lack of funding and high prices of reclaimed water - Lack of capacity to use new agricultural techniques - Absence of legislations to cope with climate change 	<ul style="list-style-type: none"> - Enhance the quality of treated wastewater from Al Mafraq WWTP - Shared water ponds between farmers to store and mix water of different qualities 	<ul style="list-style-type: none"> - Land availability as farmers prefer to use the whole land for cultivation. - Non-equal access to provided service. Water shares are not evenly distributed among farmers (inclusive planning)
Eastern Mafraq	Total Number: 9338 Female: 4323 <14: 3586 15-24: 2056 25-60: 3811 >60: 396 Disabled: NA Syrian DPs: 2144	<ul style="list-style-type: none"> - Drought - Extreme heat and cold 	<ul style="list-style-type: none"> - Drought <ul style="list-style-type: none"> o Less water available for agriculture with significant impact on Syrian DPs o Changing crop patterns o Decline in livestock production - Extreme heat and cold <ul style="list-style-type: none"> o Crop failure 	<ul style="list-style-type: none"> - Lack of funding and high prices of reclaimed water - Lack of capacity to use new agricultural techniques - Absence of legislations to cope with climate change 	<ul style="list-style-type: none"> - Introduce hydroponic agriculture - Construct ponds to properly store rainfall water and use it when it is needed 	<ul style="list-style-type: none"> - Land availability as farmers prefer to use the whole land for cultivation.
Ramtha (Irbid)	Total Number: 5439 Female: 2655 <14: 2258 15-24: 1085 25-60: 1878 >60: 218 Disabled: NA Syrian DPs: NA	<ul style="list-style-type: none"> - Drought - Extreme heat and cold 	<ul style="list-style-type: none"> - Drought <ul style="list-style-type: none"> o Less water available for agriculture with significant impact on Syrian DPs o Urban water scarcity - Extreme heat and cold <ul style="list-style-type: none"> o Crop failure 	<ul style="list-style-type: none"> - Lack of funding for farmers to adapt - Lack of financial capacity to invest in permaculture - Lack of capacity to use new agricultural techniques 	<ul style="list-style-type: none"> - Enhance the quality of treated wastewater from Ramtha WWTP - Permaculture 	<ul style="list-style-type: none"> - Non-equal access to provided service. Water shares are not evenly distributed among farmers (inclusive planning)

Project Objectives

The overall aim of this project is to support the development of a comprehensive response framework to climate change, combined with the Syrian crisis, especially in an urban context. This is done by identifying effective approaches and best practices to build urban resilience, focused on actions that address water challenges that benefit both DPs and host communities, and especially women and youth. The framework is not only developed for the project target areas, but also for areas with similar contexts.

The project will focus on supporting a sustainable water management approach, by reducing water use of unsustainable sources (by reducing water losses and increasing water use efficiency) and by increasing water supply of sustainable sources (by supporting water harvesting and promoting the use of non-conventional sustainable water resources). The approach also includes promoting innovative, low cost and sustainable techniques (see examples in annex 4) and to establish urban-rural linkages (as water challenges also impact agriculture and livelihood security). The project identifies DPs as the most vulnerable group due to socio-economic challenges that could affect affordability to access water in the target areas. However, the project also recognizes increased tension between DPs and host communities and the need of poor Lebanese.

Table 3: project objectives and sub-objectives

Challenges / objectives	Development approach applicable to DPs crisis and climate change context
Overall objective: Increasing the resilience of both displaced persons and host communities to climate change-related water challenges in Jordan and Lebanon.	
Sub-objectives:	Support address regional migration / DPs crisis and climate change challenges at the municipal level: through developing a comprehensive and integrated development approach and capture best practices
1. Increase resilience of municipal governments in a regional context: Managing urban risks and vulnerabilities in context of climate change and high influx of DPs (in line with AF outcome 1 and 2)	Forward-looking / pro-active urban land use planning and sustainable water management: planning for future influx of people and climate change impacts in an integrated manner
2. Improve citizen (DPs and host communities) engagement and livelihood security support: Bridging the divide city and securing livelihoods (in line with AF outcome 3)	Citizen engagement: minimizing risks to social tensions through citizen engagement and enhancing opportunities for social exchange between host-city inhabitants and DPs (especially women and youth) Skill building support: providing support such as skill building and training to build people's self-reliance, especially regarding water (targeting especially women and youth).
3. Increase community-level resilience to water challenges: expanding the coverage of resilient water supply systems, using innovative, low-cost and replicable techniques that are suitable for high DPs presence context (in line with AF outcome 4)	Settlement upgrading: Area-based (i.e. urban – rural linkages) approach for increasing the resilience of basic services that also provides opportunity for target populations living in the area for complementary social, economic and environmental benefits Infrastructure and services projects: Expanding and strengthening water infrastructure and services which are climate change resilient and sustainable (and capture best practices)
4. Improve policies and plans to increase urban resilience in the region: development of regional urban risks and vulnerabilities management model (in line with AF outcome 7)	Improvement of policies and plans in the region: by developing a 'regional' approach / model for managing urban risks (considering DPs and climate change impacts), especially for type 2 cities, including gender considerations

Project Components and Financing:

Table 4: project components and financing (see annex 3 for project theory of change)

Project Components	Expected Outcomes	Expected Outputs	Countries	Amount (US\$)
1. Managing urban risks and vulnerabilities in context of climate change and high influx of DPs	1.1.1. Strengthened municipal institutional capacity to manage urban risks, impacts and vulnerabilities related to both climate change and the movement of DPs, also considering urban – rural linkages (in line with AF outcome 1 and 2)	1.1. Land use strategies and plans as a tool to assess and comprehensively / efficiently respond to water needs and availability water (taking into consideration both climate change and movement of DPs (which require studies and assessments) - Trainings on above (targeting municipal officers)	In target municipalities in Jordan and Lebanon	1 million
2. Bridging the divide city and securing livelihoods	2.1.1. Strengthened DPs and host communities local-level awareness and ownership of adaptation actions and processes + capacities strengthened to operate and sustain proposed adaptation actions, including skills building (in line with AF outcome 3)	2.1 Community level skill building and trainings conducted (targeting women and youth), and operation and maintenance plans developed, including participatory community-level planning processes to promote social exchange focused on implementing and replicating adaptation options to climate change	In target municipalities and communities in Jordan and Lebanon	1,427.420 million
3. Expanding the coverage of resilient water supply systems, using innovative, low-cost and replicable techniques that are suitable for high DPs influx context	3.1.1. Increased adaptive capacity within the water sector through resilient and sustainable water supply, using innovative, cost-effective, climate change resilient water supply techniques, which are suitable for high DPs influx context and replicable and benefit vulnerable	3.1 Small-scale upstream river / flood water harvesting systems - Rooftop rainwater harvesting systems and storage options - Decentralised waste water treatment and reuse facilities to irrigate agriculture land and efficient water use options and permaculture	In target municipalities and communities in Jordan and Lebanon	8,25 million

	groups (in line with AF outcome 4)	(all suitable for flexible use in DPs context). For more details see section II.A		
4. Development of regional urban risks and vulnerabilities management model	4.1.1. Strengthened National and international institutional capacity to manage urban risks, impacts and vulnerabilities related to climate change and DPs movements, including lessons learned collected and options to replicate approaches and techniques shared regionally	4.1 'Regional' urban risks and vulnerabilities assessment, planning and management approach model for type 2 cities developed, taking into account climate change and urban development trends, including DPs movements. The model can be replicated in similar context and feed into 3RP programming	Lebanon, Jordan (and other countries in the region that are part of ESCWA and especially 3RP programming)	1 million
5. Total components				11,677.420
6. Project/Programme Execution cost				1,225.806
7. Total Project/Programme Cost				12,903,226
8. Project/Programme Cycle Management Fee charged by the Implementing Entity				1,096,774
Amount of Financing Requested				14,000,000

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	January 2020
Mid-term Review (if planned)	March 2022
Project/Programme Closing	June 2024
Terminal Evaluation	March 2024

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Project compon

To achieve the overall project objective 'Increasing the resilience of both displaced persons and host communities to climate change-related water challenges in Jordan and Lebanon' the projects' 'core' entails a set of concrete adaptation actions, using innovative, low-cost and replicable techniques (see also examples in annex 4), to support efficient and climate change resilient water use (by reducing water use of unsustainable sources (by reducing water losses and increasing water use efficiency) and by increasing water supply of sustainable sources (by supporting water harvesting and promoting the use of non-conventional sustainable water resources) at municipal and community level (component 3). To ensure local ownership and sustainability of these concrete adaptation actions, and to avoid social tension of proposed project benefits, measures to inclusively plan, operate and sustain the actions at the community level are proposed (component 2). To better manage urban risks and vulnerabilities, especially related to the water sector, capacities will be strengthened at the municipal level (component 1). Based on above, a model to better manage urban risks and vulnerabilities suitable for a high DPs influx context (in type 2 cities) will be developed, taking into account the impacts of climate change, especially on water resources. This model is relevant for the Mafrqa region as well as areas with a similar context.

The objectives of the proposal are in line with national priorities (see section II.D) and Adaptation Fund outcome areas, which resulted in the following components:

Component 1: Increase resilience of municipal governments in a regional context: Managing urban risks and vulnerabilities in context of climate change and high influx of DPs (in line with AF outcome 1 and 2).

This component will focus on strengthening municipal institutional capacity to manage urban risks, impacts and vulnerabilities related to both climate change and the movement of DPs, also considering urban – rural linkages. This will be done by developing land use strategies and plans as a tool to assess and comprehensively / efficiently respond to water needs and availability water (i.e. multisectoral and urban - rural linkages assessment and planning), taking into consideration both climate change and movement of DPs (which require studies and assessments) and by training municipal officers to developing these plans and manage related urban risks and vulnerabilities.

As water is managed at the governorate level, capacities to assess and plan for water at the municipal level are lacking, especially taking into consideration climate change impacts and urban growth trends, including DPs movements. Therefore, municipalities need tools to better plan water together with governorates, including using water harvesting and reuse technical options.

In Zahle in Lebanon, a strategic municipal plan is forthcoming. Recommendations for this plan will be made to also manage urban risks and vulnerabilities related to climate change and trends in DPs movements. As for target municipalities surrounding Zahle, 'complete' spatial strategies and plans will be developed. In Irbid in Jordan, a spatial plan is also forthcoming. Here, also recommendations will be made to better manage urban risks and vulnerabilities related to climate change and trends in DPs movements. As for Mafrqa, 'complete' spatial strategies and plans will be developed. In light of the new decentralization law in Jordan, there is a need to focus on local plans and strengthen the capacity of local authorities. However, local plans stem from national priorities and respond to them, which will also be the case in Jordan, especially linking with water strategies

Component 2: Improve citizen (DPs and host communities) engagement and livelihood security support: Bridging the divide city and securing livelihoods (in line with AF outcome 3).

This component will focus on strengthening DPs and host communities local-level awareness and ownership of adaptation actions and processes + strengthening capacities to operate, sustain and replicate proposed adaptation actions. This will be done by developing operation and maintenance plans for proposed adaptation actions (and techniques). As tensions between DPs and host communities, especially around scarce resources and jobs, are increasing, inclusive community-level planning processes are needed to support social exchange and to ensure equal benefits to interventions. Women and youth organization will be strengthened and trained to lead water harvesting interventions at home / in the settlement and to use and replicate techniques.

Component 3: Increase community-level resilience to water challenges: expanding the coverage of resilient water supply systems, using innovative, low-cost and replicable techniques that are suitable for high DPs presence context (in line with AF outcome 4).

This component will focus on Increased adaptive capacity within the water sector through resilient and sustainable water supply, using innovative, cost-effective, climate change resilient water supply techniques (see also examples in annex 4), which are suitable for high DPs influx context and replicable and mostly benefit vulnerable groups. The purpose is to reduce water use, especially of unsustainable sources, by reducing water losses, increasing water use efficiency and promoting the use of non-conventional sustainable water resources. This will be done by 1) developing small-scale upstream river / flood water harvesting systems, 2) establish rooftop rainwater harvesting systems and water storage options and 3) decentralised waste water treatment and reuse facilities to irrigate agriculture land and efficient water use options and permaculture.

Small-scale upstream river / flood water harvesting systems will be established in Zahle and Mafraq. In Zahle, Lebanon, the upstream system will serve relatively higher elevated agriculture areas. In December 2018, the National court demanded companies upstream of Zahle to close in order to improve water quality in the local seasonal stream. In Lebanon, small-scale 'urban' upstream water harvesting options don't exist and the ministry of environment requested UN-Habitat (see section II.I) to show such interventions can be feasible and replicable options besides large-scale reservoirs. In Mafraq, the upstream water harvesting system will serve agriculture areas but also reduce flood risks of the seasonal stream.

Rooftop rainwater harvesting systems will be established in Informal Tented Settlements (ITS) in Lebanon and in private houses in Jordan. Besides that, grey water reuse systems will be established in public buildings in Jordan (targeting especially religious leaders and children for awareness raising purposes). Moreover, existing ponds / reservoirs will be rehabilitated and permaculture and hydroponic promoted in Jordan to reduce water use / increase water use efficiency for gardens and agriculture. In Lebanon, syrian DPs pay a relatively large share of their income to trucked water. The project intends to develop a business model for rainwater harvesting systems in ITSs in Lebanon. In Jordan, various ministries requested UN-Habitat (see section II.I) to set-up a national programme for rainwater harvesting. This will be piloted in Irbid and Mafraq. Details of the business models will be shared in the full proposal (after further studies and assessments).

Informal Tented Settlement



Decentralised waste water treatment and reuse facilities to irrigate agriculture land will be established in Lebanon. In the target areas, release of untreated waste water and non-efficient use of treated waste water has been identified as a major problem and priority (see section II.I). Flexible use of these facilities is required to respond to changing migration and climate change trends. Therefore,

decentralised and easy and fast to establish and dismantle facilities are required. In Jordan, treated waste water will be used to irrigate agriculture land.

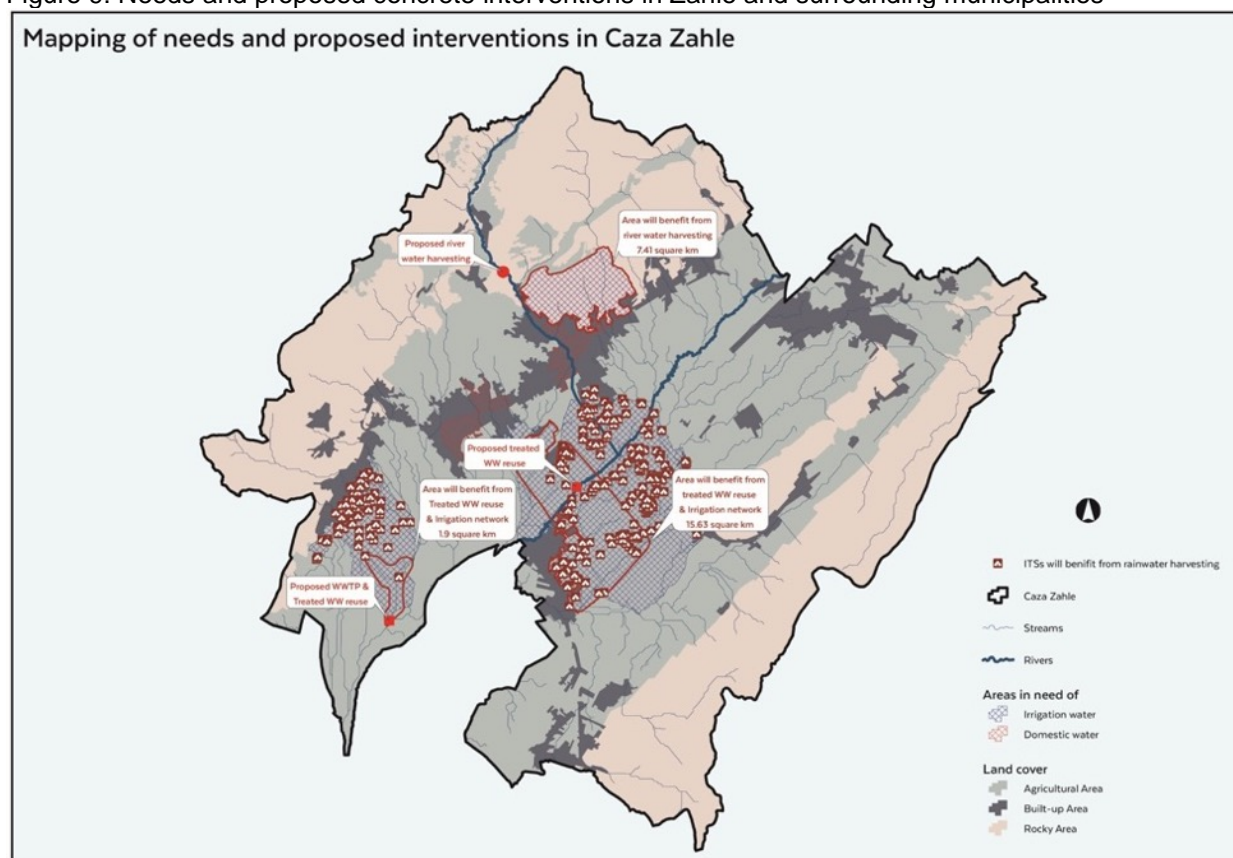
Component 4: Improve policies and plans to increase urban resilience in the region: development of regional urban risks and vulnerabilities management model (in line with AF outcome 7).

This component will focus on strengthening National and international institutional capacity to manage urban risks, impacts and vulnerabilities related to climate change and DPs movements, including lessons learned collected and options to replicate approaches and techniques shared regionally.

As mentioned above, there is a need for more effective, inclusive and sustainable regional, national and local programming focused on addressing water challenges, especially in 'host' (type 2) cities, exacerbated by both the influx of DPs and climate change impacts. There is an opportunity and need to do this in Lebanon and Jordan, but also in the region (i.e. Turkey, Iraq and Egypt) through an existing single planning and resource management framework called 3RP (i.e. Regional, Refugee and Resilience Plan 2018-2019). This project will work with ministries in Lebanon and Jordan responsible for 3RP coordination, other 3RP partners and ministries responsible climate change, spatial strategies and water resources to develop an integrated approach focused on addressing water challenges in these cities, exacerbated by both the influx of DPs and climate change impacts.

Proposed concrete adaptation actions in Lebanon

Figure 9: Needs and proposed concrete interventions in Zahle and surrounding municipalities



The proposed concrete interventions in **Zahle and surrounding municipalities** include:

- ☐ Waste Water Treatment system(s) and Treated Wastewater reuse for Qabb Elias;
- ☐ Proposed treated Wastewater reuse from Zahle Wastewater treatment plant;
- ☐ Small-scale River Water Harvesting, for the Berdawni River;

- ☐ ITSs tents rainwater harvesting.

The small-scale river Water Harvesting will include retention walls formed from steel mesh filled with gravel (similar to the picture), to serve as dam wall to retain water. The retained water is to be canalized to the agricultural lands specified in the proposed interventions map. The gravel will filter impurities from flowing water and the full wall will serve also as a crossing bridge from bank to another. This system will be done at three stages.



The proposed WWTP(s) in Qabb Elias, is suggested by the community and the Municipality. The municipality has already purchased the land for its construction. Previously and due to water shortages, the Municipality adopted a plan of watering half of the agricultural fields each year. The other year, farmers had to rely on well digging or informal water sources. Reusing the treated waste water will allow all farmers in Qabb Elias to benefit from it.

The proposed reuse of treated wastewater of the Zahle WWTP will cover a large area of agricultural lands as it treats 18,000 Cubic Meters of sewage daily, and this amount is subject to increase as Taalabaya and Saadnayel system are going to be connected. The current practise, is to flush treated water to the Litany river located on the downstream of the plant. And as the WWTP is located in a merely flat land, gravity system will apply, and this will limit extra operation costs in the future.

The last proposed action, is to collect rain water from Syrian refugees' tents. And knowing that working INGOs in the area have decreased supplied water from 35 l/c/day to less than 15 l/c/day. This has led refugees to resort to illegal water sources. Collecting rain water and using traditional chlorine filtration will complement INGOs efforts and supply water for displaced Syrians for domestic use.

Proposed concrete adaptation actions in Jordan

The proposed concrete interventions in **Irbid municipality** include:

- ☐ Rehabilitation of 3 existing ponds to capture water in Hoson, sareeh and Howara.
- ☐ Grey water reuse in public buildings⁵⁹ such as schools and Mosques in the following areas: Hashimya, Nuzha, Barha, Rabia, and Al Amanarha.
 - a. Mosques: collect water from ablutions of worshippers in Mosques, pump it to a storage tank and filter it and then reuse for irrigation purposes.
 - b. Schools: capture the drainage water from drinking water faucets and use it to irrigate ornamental shrubs and trees. Since the water will be of high quality, and should contain little solid matter or organics, only a simple screen filter will be used and water to protect the pipe system. The reuse of graywater in such a simple, low cost way, will be used as awareness tool for students
- ☐ Rainwater harvesting from rooftops in Edeon, Al Afrah, Al Atiba, Al Jamiah and Beit Ras. Rain water harvesting from rooftops can be mandatory through Jordanian building bylaws.⁶⁰ However, financial burden needs to be reduced through government support through funds like solar heaters where 50 percent of the cost was covered by JREEEF⁶¹
- Farms around Ramtha WWTP
- ☐ Hydroponics and permaculture at household level
- ☐ Rainwater harvesting from rooftops at farm level

⁵⁹ <http://www.csbe.org/greywater-reuse-in-jordan/#girls>

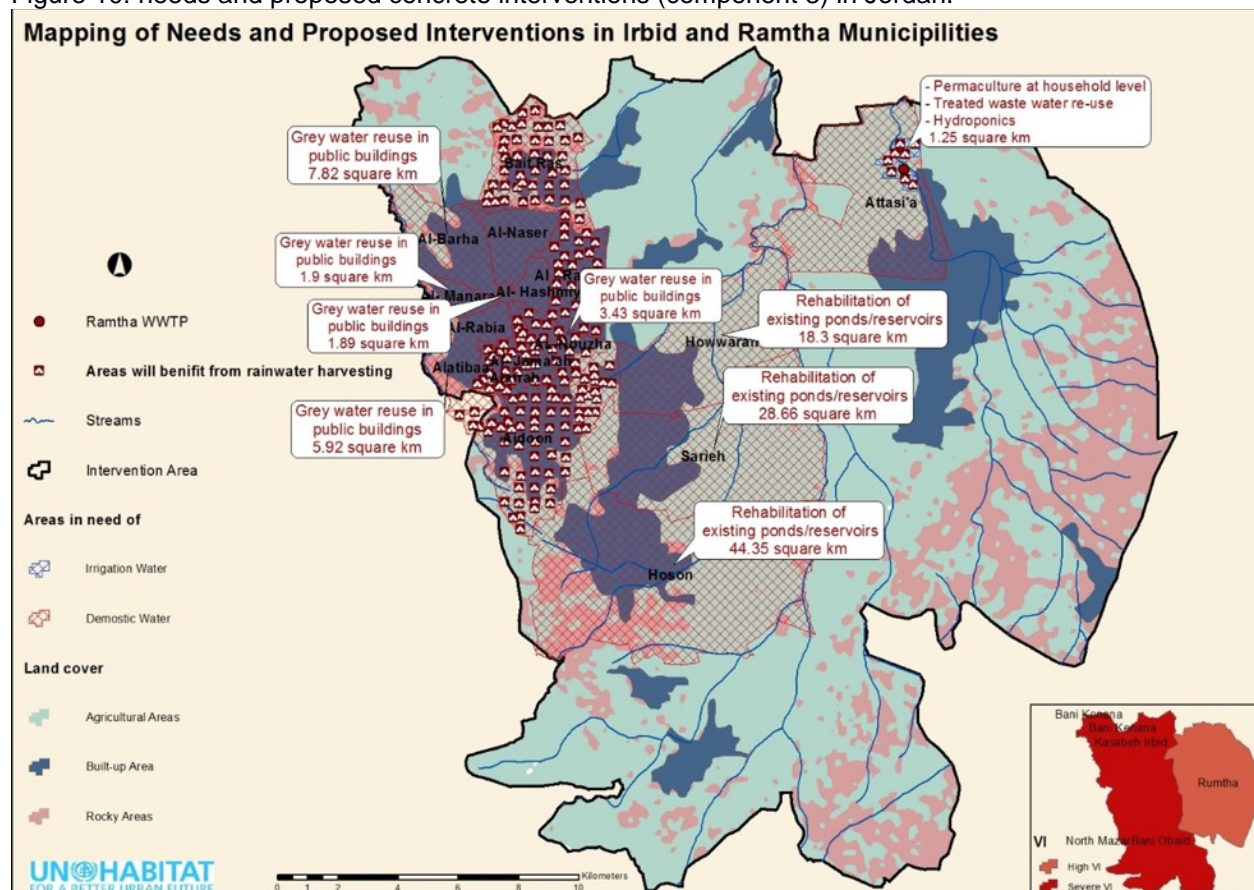
⁶⁰ <http://jordantimes.com/news/local/public-urged-harvest-rainwater>

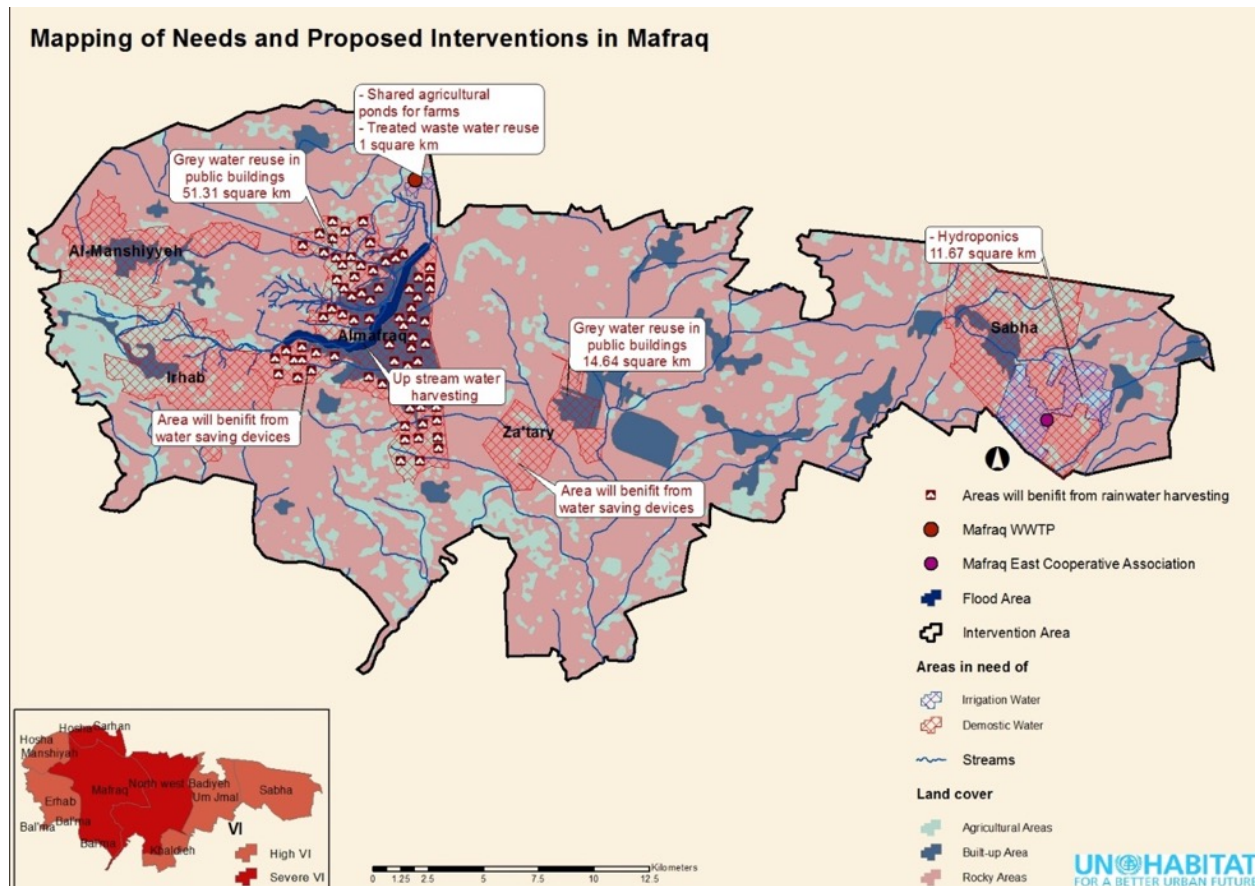
⁶¹ <http://www.jordantimes.com/news/local/energy-fund-assistance-cover-30-50-cost-renewable-energy-systems-households%E2%80%99>

The proposed concrete interventions in **Mafrq Municipality** include:

- ☐ Small-scale upstream water harvesting for the main wadi. The upstream of the wadi is at Al Mnashia and Rehab in the west and the downstream is in the north of the Municipality at Al Ghadeer Al Abyad.
- ☐ Install water saving devices at household level and in public buildings (Mosques and Schools) to reduce water consumption in Mafraq and Zaatari neighbourhood: These include Shower heads, faucet fixtures, toilet flushing practices to reduce amount of flush water.
- ☐ Grey water reuse in public buildings in Mafraq and Zaatari
Farms around Mafraq WWTP
- ☐ Shared agricultural ponds for farms to collect and store water
Farms in East Mafraq
- ☐ Hydroponics: Introducing hydroponic systems to farmers to use significantly less water in agriculture than traditional farming practices and thus improving water efficiency.

Figure 10: needs and proposed concrete interventions (component 3) in Jordan.





B. Promotion of innovative solutions

Under component 1, the proposed land use strategies and plans for target cities would be innovative decision-making tools for municipal governments (but also national government) in Jordan and Lebanon to plan cities for future climate change impacts, especially water, and the influx of people in an integrated manner (that allows for coordinated and forward-looking investment in infrastructure and services).

Under component 2, community-level adaptation related planning and decision-making as a tool to enhance social cohesion (i.e. avoid tension over scarce resources) is unique and very relevant and timely in the case of Lebanon and Jordan, where increased tension between DPs and host communities has been reported. Especially women and youth groups will be encouraged to participate in this exchange and planning process.

Under component 3, the project will use internationally proven technologies (see overview of options in annex 4) that are innovative yet cost-efficient for water harvesting, waste water reuse and water efficient use at community / household level. The purpose is to showcase techniques that are suitable for urban areas, considering urban-rural linkages and flexibility in response needs, including e.g. wastewater treatment systems that need little time to assemble and could be removed easily and assembled again. Rainwater harvesting from tents is also an innovative technique and would require some more studies to fill the exact numbers for a business case (to be completed during the full proposal phase). Small-scale upstream river / flood water harvesting is also a new approach in both countries and collecting information on this best practice is needed and requested by ministries. The innovative permaculture concept can also be applied to an urban / garden context (see section II.G). This concept has shown to be promising in Jordan through the national AF project.

Under component 4, the integration between the climate change sensitive management approach for type 2 host cities and 3RP programming is innovative and provides synergy between climate and DPs action relevant for the region.

C. Economic, social and environmental benefits

The proposed project aims to maximize benefits to the most vulnerable groups, including DPs, poor Lebanese and Jordanians, women and youth, and to avoid any negative environmental and social impacts.

Table 5: Economic, Social and Environmental benefits

Type of benefit	Baseline	With/after project
Economic	<p>Climate change is already leading to economic and livelihood losses, especially caused by less rain, droughts and water evaporation. Water dependent livelihoods, especially in the agriculture sector, are especially threatened.</p> <p>A large share of DPs, poor Lebanese and women are dependent on the agriculture sector for their income</p>	<ul style="list-style-type: none"> <input type="checkbox"/> The governments, at different levels, but especially at the municipal level, will be able to better assess, plan and manage scarce water resources, which are also of economic importance <input type="checkbox"/> The agriculture sector in target areas will be more climate change / drought resilient, leading to improved livelihood security, benefitting especially DPs, poor Lebanese and Jordanians, women and youth, with more secure / higher income. <input type="checkbox"/> Flood mitigation interventions will help avoid economic losses due to damages to infrastructure and houses. <input type="checkbox"/> Sustainable solutions implemented will avoid future costs related to drought / less rain impacts.
Social	<p>Climate change is already leading to negative social impacts, especially caused by less rain, droughts and water evaporation, leading to rural –urban migration, and social tension and incoherent development.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> The governments, at different levels, but especially at the municipal level will be able to better assess, plan and manage scarce water resources, also with the purpose to enhance social cohesion (i.e. avoid / reduce tension) over scarce water resources. <input type="checkbox"/> Inclusive assessment, planning and decision-making processes over scarce water resources, also involving DPs, poor Lebanese and Jordanians, women and youth, will enhance social cohesion (i.e. avoid / reduce tension) over scarce water resources. <input type="checkbox"/> Climate change resilient techniques skills building activities, including to operate, sustain and replicate these (especially targeting women and youth) + resilient water supply systems, will benefit the most vulnerable, including DPs, poor Lebanese and Jordanians, women and youth. These groups will also be involved in construction activities where possible. <input type="checkbox"/> Improved or new climate resilient and sustainable water systems will contribute to social well-being and avoid any tension between Syrian DPs and host communities that may arise due to competition over water resources. <input type="checkbox"/> Improved awareness of involved communities will increase adaptive capacities.

Environmental	Climate change is already leading to negative environmental impacts, especially land / soil degradation and desertification and overexploitation of resources. Moreover, due to the crisis, untreated wastewater is increasingly polluting water resources	<ul style="list-style-type: none"> ❑ The government, at different levels, will be able to better assess, plan and manage scarce water resources ❑ Water resources such as wells, and water dependent livelihoods (i.e. agriculture) will be protected from pollution through above and waste water treatment. This will mostly benefit the most vulnerable / poor groups dependent on these resources, including DPs, poor Lebanese and Jordanians, women and youth. ❑ Introduction of unconventional water sources will help decrease pressure on the already depleting groundwater resources in some areas.
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The development of upstream river / flood water harvesting systems will reduce flood impacts, especially in areas with a high share of poor people and Syrian DPs, while enhancing water availability in the dry season for agriculture purposes (in which most Syrian DPs and poor Lebanese and Jordanians, especially women, work). The systems will be small-scale and on public land. As the streams are seasonal, possible negative impacts on biodiversity are limited.

Rooftop rainwater harvesting increases water availability at household level, reduce urban flash flooding probabilities, also in ITSs, and reduces illegal connection to wastewater network thus reducing manhole flooding in the streets in winter season. It will also reduce costs for water purchase, especially in ITSs. Besides that, harvesting systems and grey water reuse in public buildings, especially schools, will raise awareness for sustainable water use and climate change for students and through religious leaders.

Decentralised waste water treatment and reuse facilities to irrigate agriculture land and efficient water use options and permaculture will reduce groundwater and agriculture pollution while enhancing sustainable access to water, thus also securing agriculture livelihoods. The permaculture approach will reduce land / soil degradation.

The number of direct beneficiaries under component 3 (i.e. concrete adaptation actions) is around 381,000, of which around 190,000 women and around 74,000 youth and around 151,000 Syrians. For an overview of beneficiaries per sub-project, see tables 7 and 8 below.

D. Cost-effectiveness

Table 6: Proposed adaptation actions' cost-effectiveness rationale

Proposed adaptation actions / outputs	Alternative actions and rationale why priority actions have been selected from a cost-effectiveness perspective
1.1. Land use strategies and plans as a tool to assess and comprehensively / efficiently respond to water needs and availability (taking into consideration both climate change and movement of DPs (which require studies and assessments) - Trainings on above (targeting municipal officers)	<p>Municipal level land use strategies and plans are a cost-effective way to plan and manage water resources efficiently and comprehensively by looking at the whole system and future trends and projections (including for implementation of actions such as below)</p> <p>Alternatively, Integrated Water Resource Management is also an option, but this is not a ministry priority</p>
2.1 Community level skill building and trainings conducted, and operation and maintenance plans developed, including	Participatory planning processes are required to avoid social tension over scarce resources and benefits of proposed intervention while ensuring ownership. Skill building of

<p>participatory community-level planning processes to promote social exchange focused on implementing and replicating adaptation options to climate change</p>	<p>beneficiaries and community leaders to operate, maintain and replicate interventions is required to sustain them.</p> <p>Alternatively, interventions are planned and executed top-down, but this may lead to sustainability and tension issues, with the chance of lost investment</p>
<p>3.2 Small-scale upstream river / flood water harvesting systems</p> <ul style="list-style-type: none"> - Rooftop rainwater harvesting systems and storage options - Decentralized waste water treatment and reuse facilities to irrigate agriculture land and efficient water use options and permaculture <p>(see details of cost-effectiveness per concrete action in tables below)</p>	<p>Proposed concrete adaptation actions are cost-effective solutions in a water-scare context. Upstream river / flood water harvesting systems are regarded as being cost-effective when cost associated with floods are reduced and when alternative water supply options are limited (such as in higher elevation agriculture areas where groundwater is polluted or limited). Rainwater harvesting options are regarded as being cost-effective when the investment is returned within an accepted number of years or when it supports awareness raising purposed. Wastewater treatment systems are regarded as being cost-effective when availability of groundwater is limited when the action can stop pollution of water (used for agriculture)</p> <p>Alternatively, conventional water supply methods are used, such as continued pumping of groundwater, but this is not sustainable / climate change resilient in areas that already suffer from water scarcity</p> <p>For an overview of the cost-effectiveness per concrete intervention, see table x below and annex x</p>
<p>4.1. 'Regional' urban risks and vulnerabilities assessment, planning and management approach model for type 2 cities developed, taking into account climate change and urban development trends, including DPs movements. The model can be replicated in similar context and feed into 3RP programming</p>	<p>Type 2 cities contexts require specific planning approaches and water supply techniques.</p> <p>Alternatively, best practices and approaches are not shared regionally, which may lead to loss of investments in countries and urban areas, which need to deal with similar situations.</p>

Altogether, the project will be cost-effective by:

- ☐ Avoiding future costs associated with damage and loss due to climate change impacts (especially less rain and droughts) and to ensure the interventions are sustainable;
- ☐ Efficient project operations because of 'in-house' technical support options and capacity building expertise and because of direct partnering with communities (thereby building their capacity as well as reducing costs) and specialist agency (UNICEF)
- ☐ Community involvement with development / construction of concrete interventions and because of community capacity building
- ☐ Selected technical options based on cost-, feasibility and resilience/sustainability criteria (to be done during full proposal development phase).

Table 7: overview concrete interventions, beneficiaries and cost-effectiveness in Lebanon

Priority Concrete Interventions	Details	Target areas and target communities	National/ local priority	Estimated number of Beneficiaries	Studies and assessments needed (during full proposal)	Challenges	Cost and cost effectiveness
Treated Wastewater re-use	Treated Wastewater re-use from Zahle Wastewater plant in irrigation	Farmers in Zahle and the surrounding municipalities + people working in agriculture	National Water Sector Strategy, National Physical Masterplan, INDC, LCRP, Third National Communication	30,000 Leban (14,700 women 6,000 youth) 5,000 Syrian (2,550 women 1,000 youth)	efficiency of Irrigation systems in the area; EIA during full proposal	Pumping feasibility, awareness on using treated wastewater for agriculture, no upstream beneficiaries	\$1,500,000 Cost Effectiveness 43\$ per person
Wastewater treatment and re-use	Building a new wastewater treatment system in Qabb Elias	Farmers and residents in Qabb Elias residents + people working in agriculture	National Water Sector Strategy, National Physical Masterplan, INDC, LCRP, Third National Communication	50,000 Leban (24,500 women 10,000 youth) 55,000 Syrian (28,050 women 11,000 youth)	The studies have been already done by the Qabb Elias Municipality; EIA during full proposal	Awareness on using treated wastewater for agriculture, not a lot of beneficiaries, business case (revenue to operate and maintain)	\$1,200,000 Cost Effectiveness: 12\$ per person
Riverwater harvesting	Small-scale upstream riverwater harvesting in Berdawni	Upstream farmers whose wastewater is connected to downstream wastewater plants	Ministry of environment request	20,000 Leban (9,800 women 4,000 youth) 1,000 Syrians (510 women 200 youth)	Hydrological studies, EIA during full proposal	Ensure water is clean enough (national court order closure of companies upstream in December 2018)	\$500,000 Cost Effectiveness: 24\$ per person
Rainwater harvesting	Rainwater harvesting in ITsS, Greenhouse roofs, public buildings	Syrian DPs in ITsS in the 5 targeted municipalities	Third National Communication, LCRP	20,957 Syrians (10,690 women 4,191 youth)	Simplest and most cost-efficient rainwater harvesting technique	Community led technology, government approval, sustainability	250\$ per tent Total of \$850,000 Cost Effectiveness: 41\$ per person
Total				>100,000 Leban >81,957 Syrians >90,800 women >36,391 youth			USD 4.05 million

Table 8: overview concrete interventions, beneficiaries and cost-effectiveness in Jordan

Priority Concrete Interventions	Details	Target areas and target communities	National/ local priority	Estimated number of Beneficiaries	Studies and assessments needed (during full proposal)	Challenges	Cost and cost effectiveness
Treated waste-water re-use	Enhancing treated Wastewater from Mafrq and Ramtha WWTPs for irrigation purposes + introducing imodern irrigation technologies	Farmers around in Ramtha and Mafrq WWTPs Jordanian and Syrian refugees	Jordan's TNC; INDC; NAP; National Water Strategy; Climate Change Policy for a Resilient Water Sector; Water Demand Management Policy	8000 Jordan (3840 women; 1620 youth) 4000 Syrians (2140 women; 760 youth)	Irrigation study, Capacity and quality of effluent from WWTPs; Check if EIA may be required	Awareness on using treated wastewater for agriculture	650,000 Cost effectiveness \$50
Flood Water harvesting	Small-scale upstream flood water harvesting from the Main Wadi in Al Mafrq	Municipality of Greater Mafrq Jordanians and Syrian refugees	National Water Strategy 2016-2025, Climate Change Policy for a Resilient Water Sector, Water Demand Management Policy; Building Resilience to Combat the Impact of Climate Change on the Water Sector Policy and Surface Water Exploitation Policy; Decentralized Wastewater Management Policy;	23,000 Jordan (14,400 women; 6,300 youth) 27,000 Syrians (9,600 women; 2016 youth)	Hydrological study. Check if EIA may be required	Feasibility and connections	\$850,000 Cost effectiveness \$17
	Rehabilitation of 3 existing ponds	Irbid Municipality Howara, Sareeh and Hoson communities		84,700 Jordan (43,350 women; 16,940 youth) 26,000 Syrians (13,520 women; 4940 youth)	Hydrological studies.	Feasibility and connections	\$1,250,000 Cost effectiveness \$11 per person
Grey water reuse	Greywater reuse in public buildings in Mafrq and Irbid Municipalities	Identify sources and flood areas Jordanian and Syrian refugees	Exploitation Policy; Decentralized Wastewater Management Policy;	200 buildings Whole community using mosques and schools			400,000 Cost effectiveness \$2000 per building
Rainwater harvesting	Rooftops rainwater harvesting at	Mafrq and Irbid, Ramtha municipalities	National Strategy for Agricultural Development 2016-2025, TNA; National	5000 Jordan (2400 women; 1000 youth)	Best practices mapped - simplest and most cost-efficient	Setting the right condition for a national programme	\$500,000 Cost effectiveness \$50 per person

	household level	Jordanian and Syrian refugees	Water Strategy 2016-2025, Climate Change Policy for a Resilient Water Sector, Water Demand Management Policy;	5000 Syrians (2400 women; 1000 youth)	rainwater harvesting technique		Assumption: 2 households per plot. The system includes constructing water collection tanks and pumping system.
Water saving devices (WSDs)	Installing water saving fixtures	Mafrq and Irbid municipalities Jordanian and Syrian refugees		2000 Jordan (1,100 women; 500 youth) 5000 Syrians (2,650 women; 1,000 youth)	Survey of most effective water saving devices in Jordan market	Lack of awareness on water conservation especially among Syrian refugees	100,000 Cost effectiveness \$15 per person
Permaculture		Permaculture at household level in Ramtha. Jordanian and Syrian refugees	National Strategy for Agricultural Development 2016-2025, National Water Strategy 2016-2025, Climate Change Policy for a Resilient Water Sector, Water Demand Management Policy.	1200 Jordan (580 women; 200 youth); 1800 Syrians (860 women; 320 youth)	Develop permaculture criteria	Lack of awareness and capacity on using and practicing permaculture activities	150,000 Cost effectiveness \$50 per person Assumption: 4 households per plot and community permaculture gardens.
Hydroponic		Farmers in East Mafrq. Jordanian and Syrian refugees		6250 Jordan (1,875 women; 1,250 youth) 2150 Syrians (645 women; 420 youth)	Studying suitable cropping patterns, feasibility study	Lack of awareness and capacity on using hydroponic	\$300,000 Cost effectiveness \$5000 per greenhouse \$40 per person
Total				>130,150 Jord >69,150 Syrians >99,360 women >38,266 youth			USD million 4.2

E. Consistency with national or sub-national strategies

Both Jordan and Lebann have advanced climate action agendas, since both countries ratified the UNFCCC in 1994. Both countries submitted the Third National Communications and an INDC to the UNFCCC while also having done Climate change Technical Needs Assessments. Jordan also has a national climate change policy. However, the institutional and individual capacities, especially at sub-national levels, for effective climate programming is still weak. Below table x provides an overvier of project consistency with national and sub-national priorities. For consistency of sub-projects with national strategies, see also table 7 and 8 above.

Table 9: Project alignment with National and sub-national priorities

Policy / Document	Year submitted / ratified	Relevant priorities
Lebanon		
Climate Change strategies / plans		
Lebanon's Intended Nationally Determined Contribution	2015	<p>This project aligns with the water related climate change adaption priorities listed in the INDC:</p> <ul style="list-style-type: none"> - Rehabilitation of existing water networks - Artificial recharge of groundwater aquifers - Improving water efficiency and decrease water loss in irrigation - Increasing wastewater collection and treatment - Increasing water re-use, especially after wastewater treatment
Lebanon's third national communication to the UNFCCC	2016	<p>The project is well aligned with some adaptation measures for the water sector listed in the report:</p> <ul style="list-style-type: none"> - Increasing the water-use efficiency of domestic, industrial, and agricultural sectors, - Developing watershed-managed plans appropriate for expected changes in climate, investigating the feasibility of alternative sources of water supply, and improving the available information about Lebanon's water resources and water systems <p>The report prioritized the installation of rainwater harvesting systems in agricultural greenhouses around different locations in Lebanon</p>
Lebanon's Technology Needs Assessment project	2012	<p>The Report outlines all the adaptation technology options available for the water sector in Lebanon and used a criteria-based weighting system to prioritize the most cost-effective, sustainable and socially acceptable options. It also highlighted the main barriers to adopting each of these technologies that should be addressed. The report lists a number of water related solutions that the project aligns with. These include:</p> <ul style="list-style-type: none"> • Rainwater harvesting from greenhouses, hill lakes and rivers. • Efficient water use irrigation systems • Use of treated wastewater in irrigation
National Development strategies / plans		

National Physical Master Plan of the Lebanese Territory (NPMPLT)	2005	<p>The NPMPLT was endorsed by a decree issued by the Council of Ministers in July 2009. It is a strategic reference document that overrides all documents concerning regional and local urban development and planning. It is not only the framework for urban planning policy, but also serves as a guideline for all stakeholders participating in the national and land use development. The NPMPLT tackles water resources management through land use plans and measures consisting of the following:</p> <ul style="list-style-type: none"> • Launching legislative and legal reforms that define the principles of land use • Elaboration of several local urban plans with precedence to the zones threatened by urban linear expansion and agricultural lands jeopardized by urban structures. <p>The report defines different challenges that Lebanon is facing today and might face in the future. One of those important challenges is wastewater management.</p>
Disaster Risk Reduction strategies / plans		
UNDP –DRM Unit LEBANON Monitoring of Sendai Framework 2017	2017	The report outlines national updates on strengthening disaster risk management capacities in Lebanon. Target G5 of this report highlights the importance of disaster risk information through a national flood risk map. The project is in line with this target as it also aims to control floods in target areas.
Environmental strategies / plans		
Support to Reforms – Environmental Governance (StREG) Programme	2017	<p>Main aims:</p> <ul style="list-style-type: none"> - increasing the effective capacity at the MoE to plan and execute environmental policy - enforce environmental law - mainstream environmental issues in key line ministries -
The Practical Guide for Municipalities to Enhance Environmental Management (2017)	2017	This report supports this project by presenting the problems that the municipalities face in the water sector, and the measures and actions that they can take to solve these challenges. It highlights all the laws and regulations related to water resources management as well as the roles of all stakeholders involved in that sector.
State and Trends of the Lebanese Environment	2010	<p>This report provides an overview of the current condition of natural resources and environmental management in Lebanon. It gives an analysis of past and future developments across multiple sectors. It describes the impacts of rapid population growth, urbanization and climate change on water resources, then outlines the opportunities for improving the water sector.</p> <p>The project is in line with the selected responses presented in this report. Wastewater collection, treatment and reuse is one of the main opportunities presented in this report. Also, rainwater harvesting is outlined as another water resource augmentation option.</p>
Sectoral strategies / plans, especially related to water		

National Water Sector Strategy (NWSS) 2010-2020		<p>Environmental concerns: Climate change negatively impacting water resources</p> <p>The strategy is in line with the project since it aims at:</p> <ul style="list-style-type: none"> Collection and treatment of at least preliminary level of 80% of wastewater by 2015, and of 95% by 2020. Secondary treatment and reuse for all inland and for coastal systems where reuse is applicable by 2020. Irrigation and sanitation services through 16 initiatives involving institutional & organizational reforms and financial, commercial and environment initiatives, refining climate change knowledge on the water sector and preparing the sector for private sector participation.
Strategy for the Wastewater Sector (MoE)	2010	Presents a strategic roadmap to improving water sector infrastructure and management.
National Physical Master Plan of the Lebanese Territory	2005	It's the only national master plan that was drafted. It is not yet approved and implemented. The plan has predicted that there will be an increase in demand for water following population growth and increase of agricultural and industrial use of water.
Health Strategic Plan	2016-2020	Second Strategic goal set out by this plan is to improve collective public health through water and environmental controls.
Lebanese Crisis Response Plan (LCRP)	2017-2020	The LCRP is designed to: 1) Ensure humanitarian assistance and protection for the most vulnerable among persons displaced from Syria and poorest Lebanese; 2) Strengthen the capacity of national and local service delivery systems to expand access to and quality of basic public services; and 3) Reinforce Lebanon's economic, social, environmental, and institutional stability.
Sub-national plans		
Water Sector Lebanon - Bekaa governorate water supply (Map)	2017	Map showing existing water networks, wells and reservoirs in Bekaa governorate. It also highlights projects implemented or under construction.
Litani river basin management support program action plan for water resources awareness and enforcement (USAID)	2009-2014	Proposes an action plan aimed at improving the management of the Litani river through awareness projects that target schools, farmers and municipalities.
Water Sector Lebanon - Bekaa and Baalbeck El-Hermel wastewater network (Map)	2015	Map showing existing wastewater networks and wastewater treatment plants in Bekaa and Baalbeck El-Hermel. It also highlights the most vulnerable localities in the two governorates.
Water Supply and Wastewater Systems master plan for the Bekaa Water Establishment	2015-2035	Report presents work related to the development of the Master Plan and the adoption of recommendations for the year 2035 for proposed action plans for water and wastewater sector in Lebanon.

Policy / Document	Year submitted / ratified	Relevant priorities
Jordan		
Climate Change strategies / plans		
Jordan's Climate Change Policy for a Resilient Water Sector (2016-2025)	2016	<p>The policy lists a number of water-related solutions that the project aligns with. These include:</p> <ul style="list-style-type: none"> • Water storage e.g. dams & reservoirs and ponds • New water, water harvesting (in combination with supplementary irrigation for drought and climate-proofing and increasing the water use efficiency of primarily rain fed agriculture, which is practiced on 60% of Jordan's cropland), water transfers, wastewater collection/treatment/reuse • Water quality protection and improvement, to increase water availability for unrestricted use; • Integrated water and land planning / management / zoning, water-smart land use, including urban planning • Water (and energy) demand management: either via technical measures, e.g. infrastructure rehabilitation and reduction of transmission losses according to the 3rd National Communications the main threat to rainfed cultivation in Jordan is urban expansion • Better use of rainfall, more efficient irrigation) or also economic measures (e.g. water pricing) or awareness raising and behavioural changes; • Improvements in water use efficiency, e.g. driven by demand-management or water reallocations, these generally also translate into energy savings¹⁸; • Training and capacity development: public awareness and behavioural change e.g. mainstreaming climate expertise into water management, facilitating the use of climate data for planning and early warning (climate services); and training of experts for writing successful proposals to international climate funds;
Jordan's Third National Communication on Climate Change	2014	<p>Expected reduced precipitation, maximum temperature increase, drought/dry days and evaporation are the main determinants of climate change hazards. The impact of the increased evaporation and decreased rainfall will result in less recharge and therefore less replenishment of surface water and groundwater reserves. In the long term, this impact will extend to cause serious soil degradation that could lead to desertification, exacerbating future conditions and worsening the situation of the agricultural sector due to the lack of sufficient water that will affect the income of the agriculture sectors. The project aligns with enhancing climate vulnerability analysis at the local level as one of the suggested measures by the report.</p>
Jordan's Intended Nationally Determined Contribution (INDC)	2015	<p>The project is well aligned with some of the adaptation measures for the water sector listed in the INDC:</p> <ul style="list-style-type: none"> • Reducing water losses in distribution pipes; • Introducing water saving technologies such as low-flow toilets and showers, and efficient appliances; • Collection of rainwater for gardens, toilets, and other applications; • Promoting water saving by awareness campaigns. • Improving wastewater treatment plants (WWTP); • Recycling wastewater; • Increasing public awareness to water related issues;
The National Climate Change	2013	<p>This document was published by the Ministry of Environment of Jordan. This National Climate Change Policy will provide guidance to</p>

Policy of the Hashemite Kingdom of Jordan (2013-2020)- Sector Strategic Guidance Framework		<p>the Government of Jordan to implement the major climate change objectives of national priority related to adaptation. The project is aligned with a number of adaptation measures for the water sector listed as follows:.</p> <ul style="list-style-type: none"> • Further mainstream climate change consideration in water sector strategies, policies, and planning documents on all levels; • Address the use of treated/recycled wastewater in the regulation/ directives on the demand-side such as grey water as part of codes and regulations for buildings including, high-rise and high-density buildings; Improve the domestic water distribution networks, including reducing water losses and energy efficiency in pumping; • Develop proposals for adaptation in the water sector for financing from international climate change adaptation funds
Climate Change Technology Need Assessment Project of Jordan (TNA)	2018	<p>The Report outlines all the adaptation technology options available for water sector in Jordan and prioritized them based on most cost-effective, sustainable and socially acceptable options. It also highlighted the main barriers to adopting each of these technologies that should be addressed. The top three adaptation technologies for water sector include rainwater harvesting; water users association; and desalination/brackish water treatment and re-use. The AF project is in line with TNA that selected water and agriculture as two top priority adaptation sectors in Jordan.</p>
NAP	(Forthcoming)	
National Development strategies / plans		
Jordan 2025- Part 1 Jordan 2025- Part 2	2015	<p>This document (Jordan 2025) represents a long-term national vision and strategy rather than a detailed government action plan. The vision acknowledged the impact of climate change in widening the gap between water supply and water demand. The project is aligned with the vision's objective to maximize the utilization of water and the reuse of waste water.</p>
Jordan Economic Growth Plan 2018-2022	2018	<p>The project is aligned with Jordan Economic Growth Plan 2018-2022 in terms of achieving water security through integrating the management of water resources and improving the quality of water and wastewater services.</p>
A National Green Growth Plan for Jordan (2017-2025)		<p>This NGGP seeks to understand what prevents Jordan from implementing the goals established in Jordan's current plans and strategies, and offers suggestions in the context of green growth for other aspirations that will help to futureproof Jordan's Vision. The plan identified water as one of main six priority sectors that provide coverage of key green growth issues and opportunities for Jordan. The project is aligned with the plan in terms of:</p> <ul style="list-style-type: none"> - Acknowledging that water sector presents a crucial challenge to Jordan and that climate change has exacerbated existing water security issues resulting in significant negative implications for social development. Promoting the reuse of wastewater - Reallocate humanitarian funding towards more strategic interventions to boost to boost resilience and minimise environmental impacts of refugee communities e.g. microgrid renewable energy, water harvesting - Implementing a water provision intervention which could take the form of a desalination plant, a dam or a form of water harvesting.
National Social Protection and Poverty Eradication Strategy (2018-2025)	under development	

Environmental strategies / plans		
Strategic Plan of the Ministry of Environment in Jordan (2017-2019)	2017	This document addresses the programs and plans of the Ministry of Environment in Jordan during 2017-2019. The project is well aligned with one of the objectives of the plan which is to prevent and reduce the negative impacts on the environment caused by pollution & climate change.
The Aligned National Action plan to Combat Desertification in Jordan 2015-2020	2015	The project will contribute to achieving the objectives of this action plan through mainstreaming climate change in planning in the target areas and so strengthening the enabling environment to adapt to drought in these areas. .
The National Biodiversity Strategy and Action Plan (NBSAP) in Jordan 2015 - 2020	2015	The 2015-2020 NBSAP embraces a new vision for Jordan's biodiversity as follows: The project is specifically aligned with the objective regarding ecosystem services and climate change: through enhancing the national understanding of dryland ecosystem benefits to national resilience, economic sustainability and local livelihoods. This is mainly through increasing resilience to climate-induced drought.
Sectoral strategies / plans, especially related to water		
Jordan's National Water Strategy (2016-2025)	2016	This document represents the vision and reference of the water sector in Jordan. The project is generally well aligned with the adaptation to climate change measures. In addition, the project will contribute to reducing inefficient use of water as well as increasing water supply for irrigation.
Water Demand Management Policy 2016	2016	<p>This policy addresses the management of water demands in all sectors, including municipal, industry, tourism, agriculture and other activities of national importance. The project is aligned with the policy in terms of:</p> <ul style="list-style-type: none"> - Maximizing the utilization of the available water and minimize water losses and conserve water resources, promote effective water use efficiency, to adapt with the challenge we face of water scarcity in order to reduce the gap between supply and demand. It supports the achievement - Updating codes and technical regulations periodically to ensure the installation of Rainwater harvesting systems in new construction (residential, commercial, industrial, tourism, etc.) where the size of the storage tank that depends on average rainfall and the surface area of the building is considered within the construction code. - Continue implementation the replacement of all inefficient plumbing fixtures, appliances and equipment with the latest most efficient models. Assist low income consumers to obtain water saving devices for free or stimulatory prices - The introduction of best technologies and modern and advanced irrigation systems in terms of the efficient water use in agriculture - Expansion in establishing water harvesting systems "dams, ponds, excavations" in all regions of the Kingdom especially in the highlands and desert areas that are suited for it, this water can be used in different purposes and agriculture in particular. <p>Continue public awareness campaigns and water education through several means of communication and media focusing on water scarcity and spreading the culture of awareness and responsibility to protect the water sources and its efficient use</p>
Surface Water Utilisation Policy	2016	<p>The project is aligned with the Surface Water Utilisation Policy in terms of:</p> <ul style="list-style-type: none"> - Maximizing the use of surface water to the greatest extent possible by increasing the storage capacity of dams, construction of new dams, and investment in rainwater harvesting in remote areas and from rooftops.

		<ul style="list-style-type: none"> - Constructing water harvesting schemes (ponds and desert dams) in the Highlands. <p>Increasing Jordanians' awareness of water scarcity and the importance of conserving and protecting Jordan's limited water resources.</p>
Jordan's Decentralized Wastewater Management Policy (2016-2025)	2016	The Decentralized Wastewater Management Policy is an integral part of the Jordan's National Water Strategy. One of its key objectives is to seek measures to adapt to the increasing pressures from climate change on public sewer and wastewater treatment facilities. The project will follow the guidelines for wastewater reuse in all the interventions related to greywater and wastewater reuse.
Jordan's Water Substitution and Reuse Policy (2016-2025)	2016	The Water Substitution and Reuse Policy is an integral part of the Jordan's National Water Strategy. The project is well aligned with the main objective of this policy which is to enhance the efficiency of the management of the scarce water resources in Jordan through maximizing the benefits and returns, and proposing actions required for implementation. In addition to ensuring sustainability and preservation of water resources.
National Strategy for Agricultural Development 2016-2025 (In Arabic)	2016	The National Strategy for Agricultural Development 2016-2025 stated that among challenges facing the agricultural sector is desertification in Jordan, which is increasing due to climate change, overgrazing and poor agricultural practices. The project is aligned with the strategy in terms of increasing the efficiency of water use in irrigation and the use of non-traditional water resources such as greywater.
Land use plan 2007	2007	Comprehensive plan designating the land use throughout the Kingdom. This Master Plan is distinctive in that it is a directive map illustrating the natural, geographic and demographic characteristics, including the sustainability of natural resources. The plan aims to: <ol style="list-style-type: none"> 1. Preserve agricultural lands, ensure its continuity, and its development. 2. Control the arbitrary urban sprawl 3. Limitation of urban development based on natural features and actual needs 4. Protect the environment from pollution.
The National Strategy for Health Sector in Jordan 2016-2020	2015	This strategy represents the general framework for developing and strengthening the capacity of the health system to face the challenges and raise Jordan's leading position in the provision of health care. The threats include climate change impacts on health. In the context of this project, community consultations in most of the target areas have shown that there has been an increase in diseases due to climate change.
Jordan Response Plan for the Syria Crisis 2018-2020 JPR 2018-2020 Annex	2017	<p>The project is well aligned with sector specific objectives under Environment and WASH Sectors as per the details below:</p> <ul style="list-style-type: none"> - Environment sector: SSO1: Improved mechanisms to mitigate pressure and competition for ecosystem services (land, water) resulting from refugee influx - Wash sector: SSO1: Quantity, quality and efficiency of safe drinking water delivery improved and system optimized. SSO3: Strengthened sector planning, implementation, monitoring and coordination. SSO5: Sustainable provision of safe and equitable access to water services in host community as per min standards.
Sub-national plans		
البرنامج التنموي لمحافظة إربد 2017-2019 (Development Program for Irbid Governorate 2017-	2017	The project is aligned with a number of proposed interventions by the municipality and the community including rainwater harvesting and rehabilitating water networks.

2019_Agriculture and Water Sectors_Translated)		
البرنامج التنموي لمحافظة المفرق 2019- 2017 (Development Program for Mafraq Governorate 2017-2019_Agriculture and Water Sectors_Translated)	2017	The project is aligned with some of the proposed interventions in the agriculture sector including rehabilitation of water harvesting ponds.

F. Compliance with relevant national technical standards

The project will fully align with national technical standards, including standards for environmental and social impacts, land use planning, water supply / harvesting / reuse, etc. If environmental and social impacts are required for proposed interventions, this will be done during the full project development phase.

Lebanon

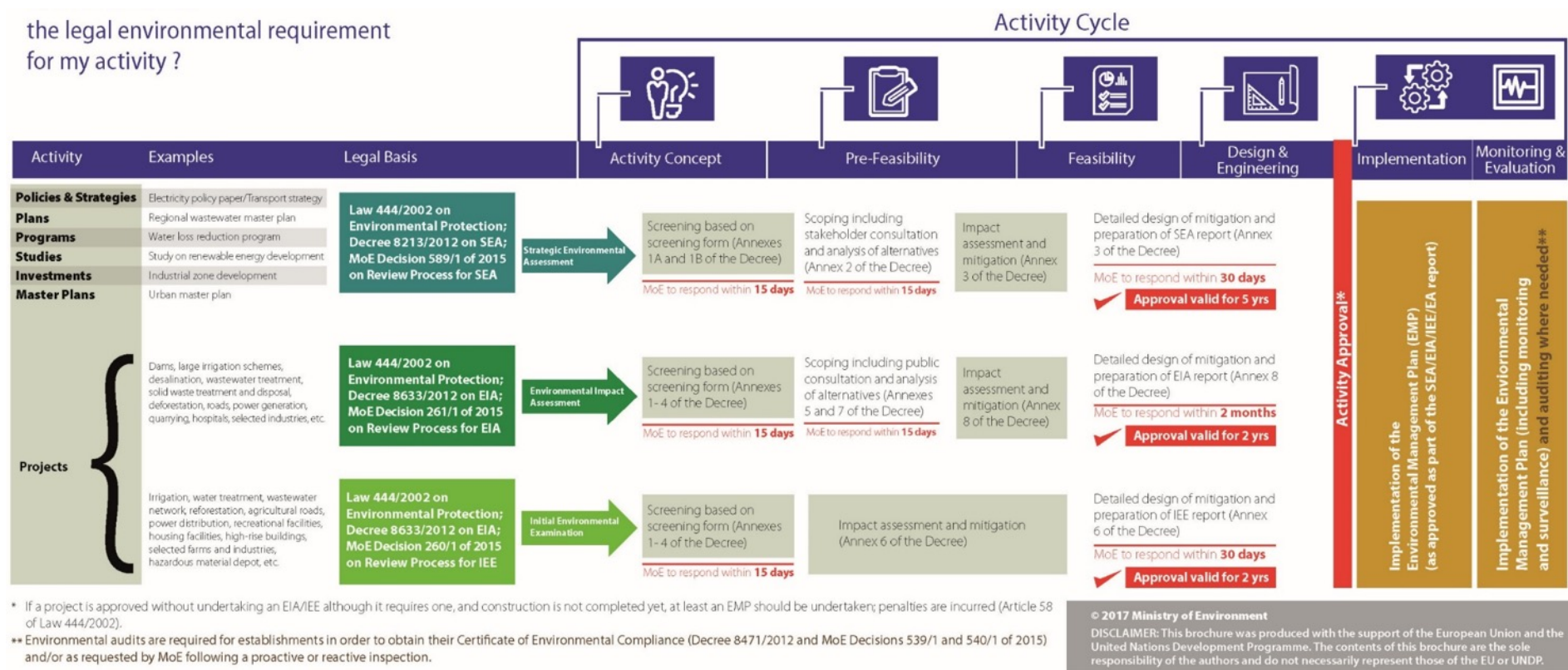
The institutional framework for the water sector in Lebanon is managed by a number of ministries, water establishments, public agencies, municipalities, etc., as per below.

Table 10: Key players and responsibilities in the water and wastewater sectors are shown in the table below.

Function	MOEW	RWEs	LRA	CDR	MOE	MOPH	Other
Planning	X	X		X			
Licensing and permitting (inc. EIAs)	X				X		X
Capital Investment	X	X		X			X
Infrastructure construction	X	X		X			X
Operation & maintenance	X	X					
Financing (national)	X	X		X			
Financing (external funding)	X			X			
Regulations and guidelines	X				X	X	
Water quality / quantity monitoring	X		X		X		
Hydro-power plants	X		X				

Source: State and Trends of the Lebanese Environment, 2010

Figure 11: Legal environmental requirement for any project activity in Lebanon



Source:

<http://www.lb.undp.org/content/dam/lebanon/docs/Energy%20and%20Environment/Publications/20171218%20Environmental%20safeguards%20EN.pdf>

For which sub-projects may required an EIA, see table 7.

Table 11: Compliance with relevant notional technical standards

Expected concrete output/intervention	Relevant rules, regulations and standards (to comply to AF principle 1)	Compliance procedure and authorizing offices
<p>Output</p> <p>1.1. Land use strategies and plans as a tool to assess and plan water availability and needs (taking into consideration both climate change and movement of DPs (which require studies and assessments))</p> <ul style="list-style-type: none"> - Trainings on above (targeting municipal officers) 	<ul style="list-style-type: none"> - The Urban Planning decree-law of 1983: <ul style="list-style-type: none"> ▪ Article 4 to 17: plans, regulations and relevant planning conditions and possibilities. ▪ Article 18 to 24: operational arrangements that governments can use when undertaking a development project. ▪ Article 25 to 44: building permits and land subdivision. - Municipal Law decree 118/77: <ul style="list-style-type: none"> ▪ Article 11: masterplans and regulations should be submitted to the relevant municipalities. ▪ Article 49: an urban plan should be approved jointly by the Directorate General of Urbanism (DGU) and the concerned municipality. - Environment Code, Law 444/2002. - Strategic Environmental Assessment (SEA) decree 8213/2012 	<ul style="list-style-type: none"> - Ministry of Interior and Municipalities - Ministry of Environment - Directorate General of Urbanism (DGU) - Municipalities of Zahle, Qabb Elias, Barr Elias, Taalbaya and Saadnayel.
<p>Output</p> <p>2.1. Community level skill building, trainings and operation and maintenance plans developed, including participatory community-level planning processes to promote social exchange focused on planning urban adaptation options to climate change</p>	<ul style="list-style-type: none"> - The Urban Planning decree-law of 1983: <ul style="list-style-type: none"> ▪ Article 4 to 17: plans, regulations and relevant planning conditions and possibilities. ▪ Article 18 to 24: operational arrangements that governments can use when undertaking a development project. ▪ Article 25 to 44: building permits and land subdivision. - Municipal Law decree 118/77: <ul style="list-style-type: none"> ▪ Article 11: masterplans and regulations should be 	<ul style="list-style-type: none"> - Ministry of Interior and Municipalities - Ministry of Environment - Directorate General of Urbanism (DGU) - Municipalities of Zahle, Qabb Elias, Barr Elias, Taalbaya and Saadnayel.

	<p>submitted to the relevant municipalities.</p> <ul style="list-style-type: none"> ▪ Article 49: an urban plan should be approved jointly by the Directorate General of Urbanism (DGU) and the concerned municipality. <ul style="list-style-type: none"> - Environment Code, Law 444/2002. - Strategic Environmental Assessment (SEA) decree 8213/2012 	
<p><u>Output</u></p> <p>3.1. Upstream river / flood water harvesting systems</p> <ul style="list-style-type: none"> - Rooftop rainwater harvesting systems and storage options - Decentralised waste water treatment and reuse facilities to irrigate agriculture land and efficient water use options and permaculture 	<ul style="list-style-type: none"> - Law 444/2002: Environmental protection - Law 251/2014: Appointing prosecutors and investigative judges for environmental affairs - Initial Environmental examination (IEE) decree 8633/2012 - Decree 8213/2012: SEA of policy, plan and program proposals in the public sector - Decree 8471/2012: Environmental compliance of establishments - Decree 8633/2012: Fundamentals of EIA - Law 221/2000 (amendment 241/2000) and law 77/2018: Water Code - Water and Wastewater masterplan for the Bekaa Governorate 2015 - The National Guideline for Rainwater Harvesting Systems in Lebanon - Water Code–Law 77 	<ul style="list-style-type: none"> - Ministry of Interior and Municipalities - Ministry of Environment - Ministry of Energy and Water - Ministry of Agriculture - Bekaa Regional Water Establishment - Lithani River Authority - Municipalities of Zahle, Qabb Elias, Barr Elias, Taalbaya and Saadnayel. <p>For which sub-projects may require an EIA, see table 7</p>
<p><u>Output</u></p> <p>4.1. Regional' urban risks and vulnerabilities assessment, planning and management approach model for type 2 cities developed, taking into account climate change and urban development trends, including DPs movements. The model can be replicated in similar context and feed into 3RP programming</p>	<ul style="list-style-type: none"> - Not relevant 	<p>Not relevant</p>

Jordan

Process to comply with national technical standards: compliance will be attained by:

1. Abiding with provisions of the governing Jordanian legal document (laws, by-laws, standards, etc.) through conforming to the relevant rule(s);
2. In cases a permit is required from the authorizing entity to fulfil certain regulatory requirements, in which obtaining the permit entails following no standardized procedure, the Executing Entity will prepare an official letter addressed to the authorizing Ministry to obtain the approval. This is usually requested at preliminary phases of the projects. During the full proposal development phase, sub-projects proposals will be shared with the ministries to check if permits are needed.
3. If the permit is only issued based on a standardized procedure and a risk management tool is needed, the specific procedure will be followed based on the governing Jordanian [Environmental Protection Law No. \(1\) of 2003](#) and Environment Impact Assessment Regulations of 2005, by-law or Instructions (i.e. ESIA permit based on Ministry of Environment-administrated ESIA Bylaw no. 37 of the Year 2005 will be obtained including developing an ESMP for activities that are required to develop an EIA, etc.). In all cases sub-project proposals need to be submitted to the ministry of environment to decide on the type of EIA required based on the EIA compliance process shown in the figure. This will be done during the full proposal development phase. A first screening shows that no EIA may be required as there is no mentioning of EIA requirements for water-project, except 'deep drilling. For agriculture project, EIA are only required for cattle breeding farms.

Figure 12: EIA compliance process

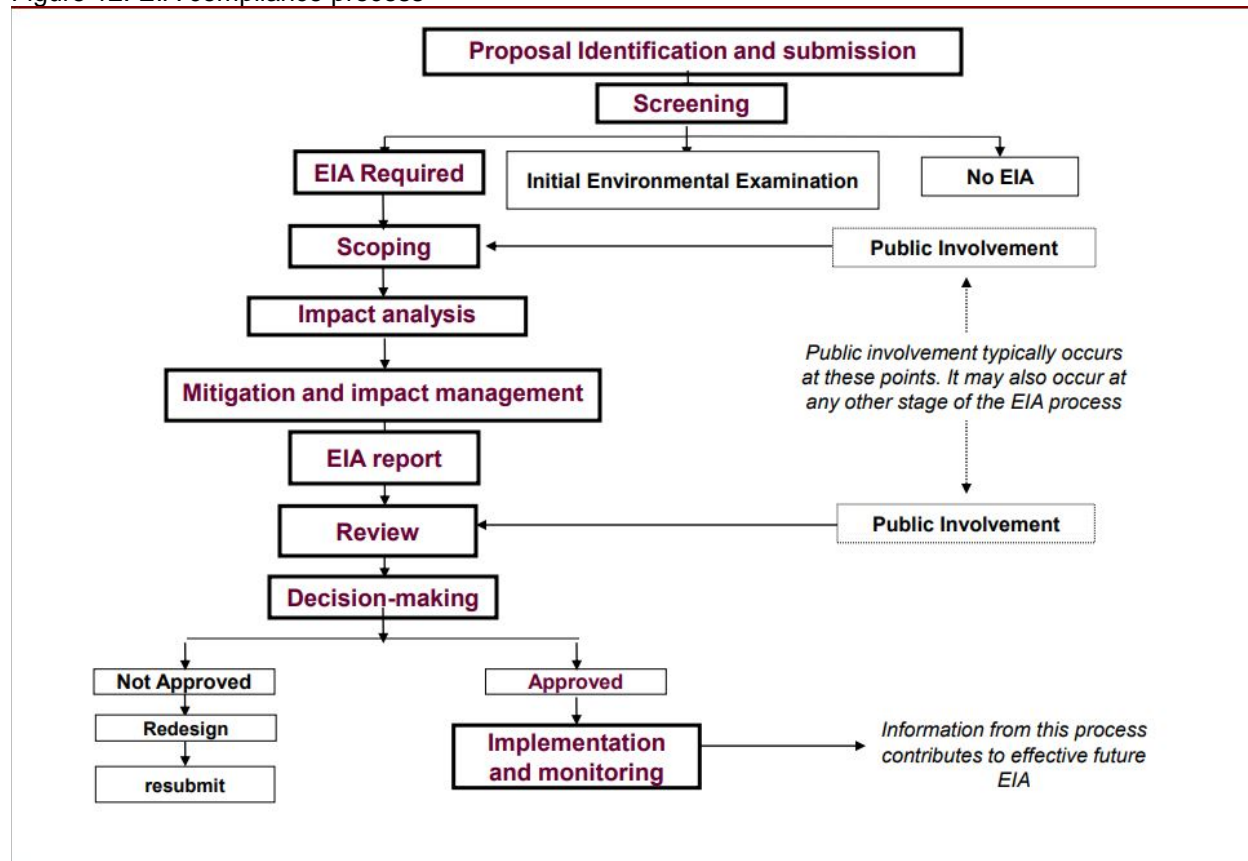


Table 12: Compliance with relevant national technical standards

Expected concrete output/intervention	Relevant rules, regulations and standards (to comply to AF principle 1)	Compliance procedure and authorizing offices
<p><u>Output</u></p> <p>1.2. Land use strategies and plans as a tool to assess and plan water availability and needs (taking into consideration both climate change and movement of DPs (which require studies and assessments))</p> <ul style="list-style-type: none"> - Trainings on above (targeting municipal officers) 	<ul style="list-style-type: none"> - Cities, Villages and Buildings Planning Law and Amendments thereof No (79) for the year 1966 - Building, villages and cities regulating by-law and amendments thereof for the year 2016 - Land Use Planning By-Law No. 6 of 2007 - Environmental Protection Law No. (1) of 2003 	<ul style="list-style-type: none"> - See compliance procedure above. - Authorizing offices: Municipalities of Irbid and Mafrqa and Ministry of Municipal Affairs-MoMA for Land use-related affairs and strategies
<p><u>Output</u></p> <p>2.2. Community level skill building, trainings and operation and maintenance plans developed, including participatory community-level planning processes to promote social exchange focused on planning urban adaptation options to climate change</p>	<ul style="list-style-type: none"> - Cities, Villages and Buildings Planning Law and Amendments thereof No (79) for the year 1966 - Building, villages and cities regulating by-law and amendments thereof for the year 2016 - Land Use Planning By-Law No. 6 of 2007 - Environmental Protection Law No. (1) of 2003 	<ul style="list-style-type: none"> - See compliance procedure above. - Authorizing offices: Municipalities of Irbid and Mafrqa and Ministry of Municipal Affairs-MoMA for Land use-related affairs and strategies
<p><u>Output</u></p> <p>3.2. Upstream river / flood water harvesting systems</p> <ul style="list-style-type: none"> - Rooftop rainwater harvesting systems and storage options - Decentralised waste water treatment and reuse facilities to irrigate agriculture land and efficient water use options and permaculture 	<ul style="list-style-type: none"> - Environmental Protection Law No. (1) of 2003 - EIA Rules, regulations, standards (see above) - The Jordanian Standard for Reclaimed Domestic Water - No. 893/2006 - JS:286/2015: Water – Drinking Water, mandatory regulations - Design Guidelines for Water Harvesting in Jordan, National Agricultural Research Center (NARC). - Water and sanitary wastewater building code, Jordan National Building Council 	<ul style="list-style-type: none"> - The program will abide with the strict regulatory measures enforced in Jordan to manage the use of reclaimed water for agriculture or other purposes. - EIA Studies EIA procedure: Submit a request to the MoE to obtain environmental approval for the project. Then the project is classified according to its impact into three categories (first, second and third. The first category requires full EIA, the second require preliminary EIA, while the

	<ul style="list-style-type: none"> - Jordanian National Building Law No. 7 of 1993 and recent Amendment Law No. 24 of 2018 - Law on Municipalities No. 41 of 2015 - The By-Law of Buildings and Organization of Cities and Villages and its Amendments No. 2 of 2018 - Jordan Green building Guide - Instructions No. G/7 for the Year 2016: Instructions and Conditions to Use Treated Waste Water, Salty Water, and Brackish Water for Agricultural Use - Permaculture Manual – CARE International (guidelines) 	third does not require EIA. The process is explained in the attached flow chart.
<u>Output</u> 4.2. Regional' urban risks and vulnerabilities assessment, planning and management approach model for type 2 cities developed, taking into account climate change and urban development trends, including DPs movements. The model can be replicated in similar context and feed into 3RP programming	<ul style="list-style-type: none"> - Not relevant 	Not relevant

G. Duplication with other funding sources

The project will avoid overlap with other projects and use lessons learned where possible. During the concept note development phase, all projects and their lessons learned, complimentary potential and non-duplication have been mapped.

Table 13: Duplication with other funding sources

Relevant projects and focus	Relevant focus and interventions / activities	Lessons learned	Complimentary potential and non-duplication
Global			
‘Urban permaculture’ by UN-HABITAT’s Cities and Climate Change Initiative in Esmeraldas, Ecuador	<ul style="list-style-type: none"> - Promoting resilient communities in the face of highly probable future food and energy crises and the collapse of water and sanitation services due to Climate Change - The project tries to mimic Nature and its ecological cycle with the following components: urban agriculture and healthy food, rainwater harvesting, water recycling, solid waste recycling, and dry toilets. 	<ul style="list-style-type: none"> - Greening of urban habitats and environments while harvesting water and producing food have been demonstrated; - Permaculture can be used as a climate change adaptation measures in an urban context 	<p><u>Complementary</u></p> <ul style="list-style-type: none"> - Use lessons learned and further develop the concept in urban context for target area <p><u>Non-Duplication</u></p> <ul style="list-style-type: none"> - In Ecuador
MENA region			
UN-Habitat – with AF funding – Enhance water and livelihood security and social cohesion through adaptation in Syria’s Barada watershed (concept to be submitted) – USD 10 million	<ul style="list-style-type: none"> - The protection of water resources (and prevent contamination of surface and groundwater resources / wells) - The reduction of water losses; - The increase of water use efficiency, supporting water harvesting projects and using high efficiency irrigation methods; - The promotion of use of non-conventional water resources (e.g. treated wastewater) and: - Improved agricultural production practices (e.g. drought tolerant crops). 	<ul style="list-style-type: none"> - Project proposal under development 	<p><u>Complementary</u></p> <ul style="list-style-type: none"> - Align approach and lessons learned throughout project preparation and implementation <p><u>Non-Duplication</u></p> <ul style="list-style-type: none"> - In Syria
IFAD with AF funding - Building Resilience of the Agriculture Sector to Climate Change in Iraq (2018-2023) – USD 10 million	<ul style="list-style-type: none"> - Capacity development to integrate CC adaptation and risk reduction into agriculture planning and production systems - Climate-resilient Agriculture Investments 	<ul style="list-style-type: none"> - Has not started yet - Monitor lessons during project formulation phase 	<p><u>Complementary</u></p> <ul style="list-style-type: none"> - Consider similar approach to capacity building and efficient water supply from tertiary canals up to farmland plots is secured based on climate- proof systems and technologies <p><u>Non-Duplication</u></p> <ul style="list-style-type: none"> - In Iraq
FAO Water Scarcity Regional Initiative (WSI)	<ul style="list-style-type: none"> - Establishing community-farm demonstration fields to show the benefits of new irrigation technology 	<ul style="list-style-type: none"> - Monitor results 	<p><u>Complementary</u></p> <ul style="list-style-type: none"> - Potentially complement results related to new technology

Pursuing food and water securities in MENA region	<ul style="list-style-type: none"> - Implementing a plan to envision future climate change scenarios for 'hotspots' at the regional level 		<u>Non-Duplication</u> <ul style="list-style-type: none"> - Regional, including Jordan and Lebanon. No overlap with target areas
<p>FAO Dutch-funded Sanaa Basin Project in Yemen (2014-2017)</p> <p>Water sustainability for farmers while empowering women</p>	<ul style="list-style-type: none"> - Construction of wells through a cash-for-work formula for farmers to use for agricultural production. - All Water User Associations choose their board members through elections and 30 percent of the seats are designated for women. 	<ul style="list-style-type: none"> - Water association and women only access to water can be used as a water management system to reduce conflict between tribes 	<u>Complementary</u> <ul style="list-style-type: none"> - Consider building upon lessons from Water association and women only access to water approach and cash-for-work formula for farmers to use for agricultural production. <u>Non-Duplication</u> <ul style="list-style-type: none"> - In Yemen
Jordan			
<p>Jordan government with AF funding - Increasing the resilience of poor and vulnerable communities to climate change impacts in Jordan through Implementing Innovative projects in water and agriculture in support of adaptation to climate change⁶² (2015-2018) – USD 9,2 million</p>	<ul style="list-style-type: none"> - Waste water treatment plant + monitoring quality - Irrigation study - Rain/flood water harvesting dam / basin (400.000 m3) with solar panels to reduce evaporation - Permaculture – adaptation + ecosystem management in demonstration sites 	<ul style="list-style-type: none"> - According to manager Permaculture has promising results for adaptation, reducing pollution and protecting ecosystem - Water user associations / cooperation can be used to reach farmers and administer water 	<u>Complementary</u> <ul style="list-style-type: none"> - Use permaculture concept in real farms and in urban context - Use similar approach for water harvesting basins at farms and in urban areas - Water user associations / cooperation can be used <u>Non-Duplication</u> <ul style="list-style-type: none"> - In Jordan Valley
<p>UNICEF WASH programme</p>	<p>Supports the Ministry of Water and Irrigation and partners in the Water Sanitation and Hygiene (WASH) sector at three different levels</p> <ul style="list-style-type: none"> - Leading the emergency WASH sector coordination - Ensuring access to safe water and sanitation facilities and services in refugee camps and in host communities, and - strengthening the Government's capacity to prioritize, plan, implement and monitor. 	<ul style="list-style-type: none"> - In host communities, leakage along the water network results in huge losses (up to 60 per cent in some areas) and inefficient operation modalities. 	<u>Complementary</u> <ul style="list-style-type: none"> - UNICEF has been consulted to better understand their approach and local needs - Compliment UNICEF work (emergency / humanitarian) by supporting sustainable and climate change resilient interventions - As UNICEF is the national water lead, have UNICEF execute water interventions

⁶² <https://reliefweb.int/report/jordan/planning-ministry-launches-9-2million-project-adaptation-climate-change>

			<u>Non-Duplication</u> <ul style="list-style-type: none"> - Through coordination with UNICEF, overlap is avoided; UNICEF mainly focused on piped water
USAID Hydroponic Green farming Initiative (2015-2017)	<ul style="list-style-type: none"> - Promoting hydroponic technology in established farmer networks and targeted communities. - Demonstrating the feasibility of hydroponics. - Bridging the gap between traditional agricultural knowledge and hydroponic systems through educational material and training exercises. - Ensuring prospective farmers have the technical knowledge and funding to access hydroponic technology. - Focusing on vulnerable demographics – such as women and youth – when designing outreach and dissemination activities. 	<ul style="list-style-type: none"> - Hydroponic can be scaled up as a climate change adaptation measures in Jordan 	<u>Complementary</u> <ul style="list-style-type: none"> - Potentially complement results related to new technology and water efficiency - Use hydroponic concept in farms <u>Non-Duplication</u> <ul style="list-style-type: none"> - In Jordan Valley and highlands. No overlap with target areas
GIZ – improvement of community water efficiency through cooperation with religious authorities	<ul style="list-style-type: none"> - Religion-based teaching materials are developed for schools and universities and then included in religious education to raise awareness of the issue of water scarcity. - Equipping selected mosques in northern and central Jordan with rainwater collection and grey water recycling systems. 	<ul style="list-style-type: none"> - It is important to raise awareness of religious leaders and education experts on the issue of water scarcity at mosques and schools to serve as water ambassadors. 	<u>Complementary</u> <ul style="list-style-type: none"> - Potentially complement efforts related to water efficiency and harvesting in Mosques and Schools. <u>Non-Duplication</u> <ul style="list-style-type: none"> - Northern governorates. Through coordination with GIZ, Ministry of water and irrigation, Ministry of Awqaf, overlap is avoided.
FAO Project- Reduce Vulnerability in Jordan in the Context of Water Scarcity and Increasing Food/Energy Demand	<ul style="list-style-type: none"> - The project pilots a three-pronged, community-based approach, combining water harvesting, conjunctive use of groundwater, and solar power for lifting irrigation water. - Downstream water harvesting in Al-Ghadeer Al-Abyad watershed site - Rehabilitation of Al Ghadeer Dam - Installing PV system to pump water from the dam to nearby agricultural lands. - Assessment of the water harvesting sector in Jordan which will serve as an important input into the development of a sub-sector strategy for water harvesting. 	<ul style="list-style-type: none"> - Focus on the creation of a comprehensive policy framework for water harvesting to promote the more efficient use of water resources as well as to better integrate agricultural production policies with the water harvesting efforts. 	<u>Complementary</u> <ul style="list-style-type: none"> - Potentially complement efforts related to upstream water harvesting. <u>Non-Duplication</u> <ul style="list-style-type: none"> - Al Mafraq Governorate, around Al Mafraq WWTP. Through coordination with FAO, overlap is avoided.
Lebanon			

UNHCR Water, sanitation and hygiene programme	<ul style="list-style-type: none"> - UNHCR's strategy on water, sanitation and hygiene (WASH) is aimed at helping both refugees and the Lebanese communities hosting them. It targets the needs of refugees in informal settlements, as well as refugees living in Lebanese communities, through the implementation of water and waste water projects that strengthen and/or rehabilitate existing infrastructure. - Rehabilitation of storm water channels to the construction of reservoirs, and even the drilling and equipping of boreholes. - Nine water supply systems in the Bekaa and North Lebanon are being rehabilitated 	<ul style="list-style-type: none"> - Crucial to support both DPs and host communities. 	<p><u>Complementary</u></p> <ul style="list-style-type: none"> - UNHCR has been consulted to better understand their approach and local needs - Use lessons learned for supporting both DPs and host communities, while adding the climate change component <p><u>Non-Duplication</u></p> <ul style="list-style-type: none"> - Through coordination with UNHCR, overlap is avoided
UNICEF WASH programme 2013-2016	<p>Three components:</p> <ul style="list-style-type: none"> - Strengthen the capacities and information systems of authorities in Lebanon; - Improve access to WASH services for Syrian refugees in ISs (WASH in Emergencies); - Improve WASH infrastructure to ensure better service delivery to host communities (WASH in urban areas/stabilization interventions). 	<ul style="list-style-type: none"> - Interventions should support national water plan / targets - Different targeting strategies required (difference between urban and camp-based refugees) - Requires flexibility 	<p><u>Complementary</u></p> <ul style="list-style-type: none"> - UNICEF has been consulted to better understand their approach and local needs - Compliment UNICEF work (emergency / humanitarian) by supporting sustainable and climate change resilient interventions - As UNICEF is the national water lead, have UNICEF execute water interventions <p><u>Non-Duplication</u></p> <ul style="list-style-type: none"> - Through coordination with UNICEF, overlap is avoided; mostly piped water

UNDP Support to Host Communities in North Lebanon in the WASH Sector (2014-2017) – USD 8,8 million	<ul style="list-style-type: none"> - Identification, implementation of water supply / storage works and commissioning and handover of works to North Lebanon Water Establishment 	<ul style="list-style-type: none"> - Lengthy process for licensing for works 	<u>Complementary</u> <ul style="list-style-type: none"> - Complement UNDPs work in target area while also supporting host communities <u>Non-Duplication</u> <ul style="list-style-type: none"> - <u>North of Lebanon</u>
Lebanon Recovery Fund (MOE & UNDP)	<ul style="list-style-type: none"> - Systems for rainwater harvesting from the top of greenhouses has been installed in three sites Choueifat, Kfarmashoun and Damour in Mount Lebanon. - Collecting rainwater from the top of the greenhouses, storing it in big tanks to be used for irrigation during the dry months. 	<ul style="list-style-type: none"> - Farmers are saving all the money they used to spend on purchasing water for irrigation and on pumping. - The groundwater quality will be protected from pollution and salinization, since pumping rate and depth will both decrease. - Water quantity will be preserved as natural recharge - CO2 emissions from energy consumed for pumping water will decrease. 	<u>Complementary</u> <ul style="list-style-type: none"> - Benefit from UNDP's guidelines destined for all Lebanese farmers to replicate these pilot rainwater harvesting initiatives. <u>Non-Duplication</u> <ul style="list-style-type: none"> - Mount Lebanon
IFAD with AF funding Climate Smart Agriculture: Enhancing Adaptive Capacity of the Rural Communities in Lebanon (2013-2017) – USD 8 million	<ul style="list-style-type: none"> - Water Management: Rainwater harvested from greenhouse roof tops - Water Management: Water efficient irrigation systems deployed - Adaptation Techniques Roll-out: Capacity building on adaptation techniques for vulnerable field crops enhanced and Guidelines and recommendations on agricultural adaptation techniques for vulnerable areas developed 	<ul style="list-style-type: none"> - Get guidelines 	<u>Complementary</u> <ul style="list-style-type: none"> - Consider similar approach to water harvesting and irrigation systems <u>Non-Duplication</u> <ul style="list-style-type: none"> - <u>Target is Rural communities</u>
World Bank - Greater Beirut Water Supply Project (2010 – 2020) – USD 370 million	<ul style="list-style-type: none"> - Bulk Water Supply Infrastructure - Supply Reservoirs, Distribution Network and Metering - Project Management, Utility Strengthening and National Studies - Land Acquisition and Resettlement Compensation 	<ul style="list-style-type: none"> - 	<u>Complementary</u> <ul style="list-style-type: none"> - Increase the provision of potable water to the residents in the project area within the Greater Beirut region - Strengthen the capacity of the Beirut Mount Lebanon Water Establishment in utility operations <u>Non-Duplication</u>

World Bank – Water Supply Augmentation Project (2014 – 2024) – USD 617 million	<ul style="list-style-type: none"> - Construction and construction supervision of the Bisri Dam and the associated access road. - Construction and construction supervision of the conveyor pipelines to the existing Joun reservoir and the associated access road - Two (2) hydropower plants - Expansion of the Ouardaniyeh water treatment plant (WTP) - Technical assistance to the Ministry of Energy and Water (MOEW), Beirut Mount Lebanon Water Establishment (BMLWE) and Council for Development and Reconstruction (CDR) on the operation and maintenance of dams; on management of water resources; in developing and implementing awareness raising campaigns on the economic benefits of switching to the public water network and eventual volumetric metering water supply 	<ul style="list-style-type: none"> - People will access to clean and improved water supply service without spending additional expenses on alternative water sources. 	<p>- Greater Beirut Area</p> <p><u>Complementary</u></p> <ul style="list-style-type: none"> - Increase the volume of water available to the Greater Beirut and Mount Lebanon area - Capacity building to the Ministry of Energy and Water (MOEW) <p><u>Non-Duplication</u></p> <ul style="list-style-type: none"> - Greater Beirut and Mount Lebanon Area
World Vision (applied projects based on Bekaa water and wastewater masterplans)	<ul style="list-style-type: none"> - Taalabaya Water Network Replacement and Expansion project - Rehabilitation of Waste Water Treatment Plant in Ablah - Project for Waste Water Treatment for Bar Elias and Dakweh in Bekaa Area 	<ul style="list-style-type: none"> - Limit water trucking and informal water services - Enhance water supply for vulnerable communities. 	<p><u>Complementary</u></p> <ul style="list-style-type: none"> - Support to Enhance Basic Infrastructure and Economic Recovery in Lebanon - The use of treated wastewater for irrigation. - Benefit from network expansion. <p><u>Non-Duplication</u></p> <ul style="list-style-type: none"> - Follows the masterplan which is coordinated by the Bekaa Water Establishment.
CDR, national government with grant from Kuwait - Rehabilitation of water systems in West Bekaa and villages in East Zahle district - US\$ 32.9 million (CDR report)	<ul style="list-style-type: none"> - Drilling of two wells and equipping of the seven wells, building pumping stations in Shamseen, installation of pumping lines from these two stations to two central reservoirs on Mount Anjar and Mount Terbol; - Construction of the two mentioned reservoirs in addition to a reservoir in Majdel Anjar and another in Sultan Yacoub al-Tahta and - Construction of two local reservoirs in Jeb Jenin and Kamed el Laouz, installation of transmission line from these central reservoirs to local reservoirs in West Bekaa and East of Zahle villages, construction of transmission lines from the central reservoir in Baaloul to Jeb Jenin and 	No started yet	<p><u>Complementary</u></p> <ul style="list-style-type: none"> - CDR has been consulted to better understand their approach and local needs - Compliment CDR work (conventional water supply) by supporting sustainable and climate change resilient interventions <p><u>Non-Duplication</u></p> <ul style="list-style-type: none"> - Through coordination with CDR, overlap is avoided

	Kamed el Laouz reservoirs and the distribution networks in both towns		
CDR, national government - Rehabilitation and improvement of potable water systems in Zahle and surroundings (CDR report)	<p>Three tier project:</p> <ul style="list-style-type: none"> - Part 1: potable water networks in Haoush el Omara and Ksara (under USAID, US\$ 5 million) - Part 2: potable water networks in the city of Zahle which are fed from the potable water treatment plant; the cost of (Ministry of Energy and Water US\$ 5 million) - Part 3: potable water systems in East Zahle, Dhour Zahle, Touaite, Mouaalaka, Karak, Madina Sinaiya, Qaa El Reem and Hezerta (US\$ 16 million and is funded by the Kuwait Fund for Arab Economic Development, the budget of the Ministry of Energy and Water, the Lebanese Government and managed by the CDR.) 	- No started yet	<p><u>Complementary</u></p> <ul style="list-style-type: none"> - CDR has been consulted to better understand their approach and local needs - Compliment CDR work (conventional water supply) by supporting sustainable and climate change resilient interventions <p><u>Non-Duplication</u></p> <ul style="list-style-type: none"> - Through coordination with CDR, overlap is avoided
The International Bank for Reconstruction and Development (IBRD): Lake Qaraoun Pollution Prevention Project (2016-2023)	<ul style="list-style-type: none"> - Objective: reduction of sewage discharge into the Litani River and to enhance pollution management around Qaraoun Lake. - Project components: <ul style="list-style-type: none"> 1. Improvement of municipal sewage collection (IBRD - US\$50.5 million, GoL-US\$5 milion) - Promotion of Good Agricultural Practices (including Integrated Pest Management) (IBRD-US\$1.5 million) Solid Waste, Water Quality Monitoring, Capacity Building, and Project Management (IBRD-US\$3 million) 	-	<p><u>Complementary</u></p> <ul style="list-style-type: none"> - This project takes care of waste management around the Litani river, thus waste management approach in proposed project is limited <p><u>Non-Duplication</u></p> <ul style="list-style-type: none"> - Focused on waste management
AgriCAL- Climate Smart Agriculture: Enhancing Adaptative Capacity of the Rural Communities in Lebanon (2012-2017)	<p>Goal of the project: increase community resilience and adaptive capacity to climate change in Lebanon</p> <p>Objective: implement climate change adaptation measures in the agriculture sector in three highly vulnerable focus areas:</p> <p>The four outcomes of the project are:</p> <ol style="list-style-type: none"> 1. Increased water availability and efficient use through water harvesting and irrigation technologies 2. Increased adaptation to climate change for crop production 3. Increased resilience of shepherds and small ruminants to climate change through sustainable rangeland management 4. Climate index insurance initiated, policy influenced, and lessons learned and shared through a knowledge management system 	<ul style="list-style-type: none"> - Risk-coping agriculture techniques - Initiating a pilot climate insurance index 	<p><u>Complementary</u></p> <ul style="list-style-type: none"> - Assist communities in adapting by improving water harvesting and irrigation technologies - Introducing adapted crop varieties to future climate condition - Spreading awareness of expertise and skills <p><u>Non-Duplication</u></p> <ul style="list-style-type: none"> - Increase community resilience and adaptive capacity to climate change

H. Learning and knowledge management

The project will capture and disseminate lessons related to increasing ‘urban resilience’ to respond to a rapid influx of new and often long-term residents by conflict and climate change. The project will also capture and disseminate lessons related to use and implementation of innovative, low-cost water supply techniques and management of type 2 cities. Where possible, lessons will be integrated in 3RP programme plans, UN-ESCWA’s SDGs platform, RICCAR, ACWUA, Arab Centre on Climate Change Studies, the State of the Environment Reports in Lebanon and Jordan in addition to reporting to UNFCCC (National Communications, NDCs, etc.). Lessons would also be very relevant to include in regional assessments (e.g. UN Environment’s Global Environment Outlook). Moreover, project outcomes can be showcased by Jordan and Lebanon governments at major climate change events (such as the COP and Cities and Climate Change conferences).

A dedicated Component (4) is included to replicating the approach for managing type 2 cities, including techniques. Whilst this provides the cornerstone for capturing and disseminating lessons learned, other project components directly contribute to knowledge management mechanisms and dissemination of lessons learned (see table below). Capacities of government officials will be strengthened to replicate these approaches and techniques. Capacities of communities and vulnerable groups will be strengthened to operate and maintain techniques. Knowledge sharing tools used will include social media streams (twitter, Facebook, etc.) plans and guidelines. Also, videos will be produced.

Table 14: Learning and knowledge management

Expected Concrete Outputs	Learning objectives (lo) & indicators (i)	Knowledge products
<u>Output</u>		
1.1. Land use strategies and plans as a tool to assess and comprehensively / efficiently respond to water needs and availability water (taking into consideration both climate change and movement of DPs (which require studies and assessments) - Trainings on above (targetting municipal officers)	(lo): To use land use strategies and plans to better plan water (taking into consideration both climate change and movement of DPs (i): Number of plans; number of trainings	- Local spatial plans - Model / Guidelines, also shared internationally - Training toolkit on mainstreaming climate change and DPs considerations in land use planning to address water issues in type 2 cities - Training reports
<u>Output</u>		
2.1 Community level skill building and trainings conducted, and operation and maintenance plans developed, including participatory community-level planning processes to promote social exchange focused on implementing and replicating adaptation options to climate change	(lo): Build community and vulnerable groups skills to operate and maintain resilient water systems; identify best way to reduce (potential) tension between groups (i): Number of plans; number of trainings	- Maintenance plans - Model / Guidelines, also shared internationally - Training toolkit for building capacities at the community level in type 2 cities - Training reports - Video
<u>Output</u>		
4.1. Small-scale upstream river / flood water harvesting systems	(lo): showcase best practice information on low-cost and replicable innovative	- Model / Guidelines, also shared internationally - List of recommended

<ul style="list-style-type: none"> - Rooftop rainwater harvesting systems and storage options - Decentralized waste water treatment and reuse facilities to irrigate agriculture land and efficient water use options and permaculture 	techniques in context of high influx of DPs and climate change impacts (i): Number of techniques showcased	innovative and cost-efficient solutions to adapt to climate-induced water scarcity - Video
Output 4.1. 'Regional' urban risks and vulnerabilities assessment, planning and management approach model for type 2 cities developed, taking into account climate change and urban development trends, including DPs movements. The model can be replicated in similar context and feed into 3RP programming	(lo): understand how to address climate change impacts in type 2 cities context (i): Number of guidelines, recommendation papers	- Guidelines, also shared internationally - Recommendation papers for regional programming

I. Consultative process

For this concept stage, consultations have been conducted with key stakeholders, including representatives from the government, UN agencies, NGO's and vulnerable groups. Four type of consultations shaped this proposal. Consultations to:

- ☐ *Align with National priorities:* throughout the concept phase, UN-Habitat worked with the AF focal points and ministries which are mandated to work on water, agriculture and spatial planning. The target areas have been selected together and duplication with government projects avoided.
- ☐ *To avoid duplication with other projects* (government, UN agencies, NGOs, etc.) and use lessons learned
- ☐ *Identify specific needs and possible concerns of vulnerable groups,* in line with AF ESP and GP policies (see consultation plan in annex 5 + draft gender baseline and approach in annex 6). During the full proposal phase, an annex will be included to provide complete information on risk screening and impact assessment of all 15 AF safeguard areas per project activity.
- ☐ *Identify potential environmental and social risks and impacts,* in line with AF ESP and GP policies (see consultation plan in annex 5 + draft gender baseline and approach in annex 6). During the full proposal phase, an annex will be included to provide complete information on risk screening and impact assessment of all 15 AF safeguard areas per project activity.

During the pre-concept note stage, which was developed in close coordination with AF focal points and relevant ministries, national plans and strategies have been consulted to ensure addressing national priorities in both countries. Regional frameworks, mainly 3RP, have been reviewed in order to ensure robust regional approach. During the development of this concept note, consultation workshops have been conducted in each country, involving target municipality mayors, representatives of local authorities, as well as other international stakeholders and academia, to identify the main climate change issues, especially related to water and local needs and geographic coverage of other projects (see figures 13 and 14).

Also, "one to one" meetings targeting relevant government institutions, UN agencies, other international organisations and NGOs have been consulted (see table 15). Moreover, A total of 12 focus group discussions with vulnerable beneficiary groups have been organised across target areas identified as most vulnerable (full reports and attendance sheets can be shared on request). Some of

the community consultations were organised in collaboration with municipalities of Mafraq, Irbid and Zahle and others were organised with the help of NGOs and CBOs (i.e. World Vision, Norwegian Refugee Council) working in the target areas. The consultations aimed to identify the most hazardous climate change impacts on target communities and groups, their barriers to adapt to such impacts, their specific needs and their potential concerns regarding proposed interventions (see tables 1 and 2). Vulnerable groups consulted include: Syrian DPs, women, youth, children and disabled people by ensuring their representation in most of the discussions. Whenever possible and acceptable, focus groups for women only followed the main focus group to try and understand underlying vulnerabilities of women and children. In Lebanon, 4 key informant interviews were also held with organisations working in the target area to understand their perspective of the issue and their current contribution to address it.

The outcomes of these focus groups have shaped the interventions at this stage. Some of the proposed interventions were excluded due to cost inefficiency (in low density areas), non-feasibility due to e.g. environmental risks (e.g. groundwater use) and non-preference of beneficiary groups. In some discussions, new interventions were suggested by the communities (e.g. hydroponic agriculture), which will be further assessed during the full proposal development phase. Also, measures will be taken to respond to some concerns raised, especially those of Syrian DPs and women (e.g. in ITSs in Lebanon) – see tables 1 and 2.

Figure 13: Lebanon workshop to identify main climate change issues, needs and other projects in target municipalities. Attendance sheets can be shared on request.



Figure 14: Jordan workshop to identify main climate change issues, needs and other projects in target municipalities. Attendance sheets can be shared on request.







Figure 15: Example pictures of community consultations and women focus groups and representatives in Lebanon









Figure 16: Example pictures of community consultations and women focus groups and representatives in Jordan


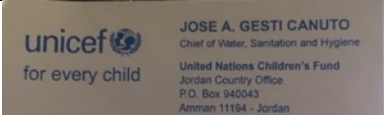







Table 15: Consultations and Meetings with key stakeholders



Stakeholder	Consultation objective	Outcome	Incorporation into project design	Evidence
Ministries (alignment with national priorities)				
<p>Samar Malek Acting Head of Service Environmental Technology</p> <p>Ministry of Environment (MoE) Lebanon</p>	<ul style="list-style-type: none"> - Briefing and debriefing C (as MoE is DA) - Align with priorities and needs of the ministry - Understand mandates - Mapping of relevant projects and lessons learned - Confirm approach and focus is in line with priorities 	<ul style="list-style-type: none"> - MoE supports project on water focused in water harvesting and waste water reuse - Zahle area is in high need but also complex environment - If intergrated water management approach / local adaptation plans are possible that would increase water use efficiency and better understanding and matching of demand and supply - Lessons (for replication) from city level climate change adaptation options are very much needed in the region and this project could be an important contribution 	<ul style="list-style-type: none"> - Focus on water supply of most vulnerable through water harvesting and waste water reuse - Explore feasibility and buy-in of local intergrated water management approach / local adaptation plans to better match demand and supply while taking into consideration climate change projections and impacts (e.g. change in water availability from snow) 	 <p>Date: 05-11-2018 Technique: discussion</p>  <p>Date: 09-11-2018 Technique: discussion</p>
<p>Randa Nemr Advisor to the minister</p> <p>Ministry of Energy and Water (MoE) Lebanon</p>	<ul style="list-style-type: none"> - Align with priorities and needs of the ministry - Mapping of relevant projects and lessons learned - Understand mandates 	<ul style="list-style-type: none"> - Main priority (National water master plan) is waste water reuse because far behind on targets - Water harvesting is possible when fit - Connection waste water reuse to agriculture would be efficient but would require a detailed irrigation study 	<ul style="list-style-type: none"> - Focus on water supply through water harvesting and waste water reuse in target area in line with National water master plan - Identify options for connecting waste water reuse to agriculture 	 <p>Date: 06-11-2018 Technique: discussion</p>
<p>Youssef karam Irrigation, water, sewage & infrastructure department manager</p> <p>Council for development and reconstruction CDR Lebanon</p>	<ul style="list-style-type: none"> - Align with priorities and needs of the ministry - Mapping of relevant projects and lessons learned - Understand mandates 	<ul style="list-style-type: none"> - Priority of ministry of water is to construct dams to profit from water - Projects with small check dams, to harvest and irrigate water, which is possible in Zahle area, is needed - Water from Zahle waste water treatment plant can be used for agriculture irrigation; however, irrigation study is needed - Studies required for project: impact of snow melt, impact of more rain in less time 	<ul style="list-style-type: none"> - Sub-projects with small check dams, to harvest and irrigate water in Zahle (also identified my mayor) - Water from Zahle waste water treatment plant can be used for agriculture irrigation. Irrigation study is needed - Studies within project: impact of snow melt, impact of more rain in less time 	 <p>Date: 16-11-2018 Technique: discussion</p>



Stakeholder	Consultation objective	Outcome	Incorporation into project design	Evidence
Dr Ahmad N. Abdel-Fattah General manager (AF project in Jordan)	<ul style="list-style-type: none"> - Identify lessons learned from AF project - Coordinate with MOPIC 	<ul style="list-style-type: none"> - Permaculture approach is promoting as adaptation measure, also in urban context - No national initiative for rooftop harvesting in Jordan while top priority in TNA – explore option for cooperation with water authority and municipality to set-up national programme with cost-sharing and possible tax measures to promote rooftop water harvesting - Awareness raising required, e.g. at schools 	<ul style="list-style-type: none"> - Permaculture in urban context and in farms considered as option - Explore options to set-up national initiative for rooftop rainwater harvesting, including on schools 	 <p>Date: 18-11-2018 Technique: discussion</p>
Colin Gleichmann Head of Environment & climate portfolio Rahel Hermann Project manager GIZ (in ministry of Environment Jordan)	<ul style="list-style-type: none"> - Mapping of relevant projects and lessons learned - Understand priorities in forthcoming NAP which is being developed by GIZ 	<ul style="list-style-type: none"> - Emerging issue and mentioned in forthcoming NAP are pressure of refugees on water services and floods 	<ul style="list-style-type: none"> - Refer to NAP in proposal 	 <p>Date: 18-11-2018 Technique: discussion</p>
Ms. Dina Kisbi, Director of Climate Change Directorate Ms. Sarah Al Haleeq, head of Adaptation Section, And Mr. Bilal Shaqareen Ministry of Environment	<ul style="list-style-type: none"> - Align with priorities and needs of the ministry - Mapping of relevant projects and lessons learned <p>Understand mandate and role</p>	<ul style="list-style-type: none"> - MoE is currently working on NAP with GIZ - Water harvesting is a top priority in the TNA - There is a lack of land use management plans that take into consideration climate change - Building codes is not compatible with climate change 	<ul style="list-style-type: none"> - Refer to NAP in proposal - Scale up rooftop rainwater harvesting - Mainstream climate change adaptation into local spatial plans. - Review building codes and incorporate rooftop rain water harvesting. 	 <p>Date: 24-10-2018 Technique: discussion</p>



Stakeholder	Consultation objective	Outcome	Incorporation into project design	Evidence
<p>Eng. Mohammad Al Dwairi, Acting Secretary General Assistant for Strategic Planning, and and Mr. Adel Alobeiaat and Dr. Basim Hassan, Strategic Planning Specialist.</p> <p>Ministry of Water& Irrigation</p>	<ul style="list-style-type: none"> - Align with priorities and needs of the ministry - Mapping of relevant projects and lessons learned - Understand mandate and role 	<ul style="list-style-type: none"> - Priority of ministry of water is to focus on rainwater harvesting. - Focus on water efficiency and invest in rainwater harvesting in remote areas and from rooftops. - The Ministry is currently working on drought assessment. 	<ul style="list-style-type: none"> - Rooftop rainwater harvesting at household level and in farms considered as option. - Identify options to incorporate water saving devices and raise public awareness. 	<p>Eng. Mohammad AL Dwairi, Acting Secretary General Assistant for strategic Ministry of Water& Irrigation 07 7574 4046</p>  <p>Date: 31-10-2018 Technique: discussion</p>
<p>Ms. Dalal Eliwah Study and Design Manager- technical Affairs, Yarmouk Water Compnay</p>	<ul style="list-style-type: none"> - Align with priorities and needs of the Yarmouk Water Company - Mapping of relevant projects and lessons learned - Understand mandate and role 	<ul style="list-style-type: none"> - Complement the needs of YW projects current and future projects - Contribute in reduction water demand of YW beneficiaries through providing additional water supplies resources 	<ul style="list-style-type: none"> - Increase rain water harvesting from rooftops - Increase the use of Water Saving Devices to conserve precious water resources - Enhance regular use of greywater treatment and reuse in public buildings to relief increasing demands on fresh water resources. 	 <p>Date: 3-12-2018 Technique: discussion</p>
<p>Eng. Lamia Sharif Al-Qawasmeh, Director of Planning and Development Department, Ministry of Municipal Affairs</p>	<ul style="list-style-type: none"> - Align with priorities and needs of the ministry - Mapping of relevant MSSRP projects funded by the WB and lessons learned - Understand mandate and role 	<ul style="list-style-type: none"> - Urban flooding is an issue in municipalities - Coordinate to avoid possible duplications of activities, e.g. constructing box culverts in Mafraq - Follow up on Innovation Fund outcomes in order to avoid \ complement and align the activities of the two projects (i.e. MSSRP and AF-Project) 	<ul style="list-style-type: none"> - Rehabilitation of exsiting water collection system such as existing ponds which colelcts runoff water from wadis and streets during winter time. Follow up on the relevant outcomes of the needs guide being prepared by the MSSRP. 	 <p>Date: 28-11-2018 Technique: discussion</p>
UN agencies (relevant projects, target area issues and needs and ESP and GP potential risks identification)				

Stakeholder	Consultation objective	Outcome	Incorporation into project design	Evidence
Olivier Thonet Chief of WASH UNICEF Lebanon	<ul style="list-style-type: none"> - Mapping of relevant projects and lessons learned - Understand needs and issues in target area - Consultations for AF ESP and GP compliance (gender approach) - Discuss possible cooperation / coordination 	<ul style="list-style-type: none"> - UNICEF follows MoE (National water master plan) and municipal needs to increase connections of settlements to water resources, especially ground water wells - UN-H can compliment UNICEF work with focus on climate change adaptation in target area 	<ul style="list-style-type: none"> - Compliment UNICEF work in target area by focus on water harvesting and reuse and consideration of climate change 	 <p>Date: 05-11-2018 Technique: discussion</p>
Jose A. Gesti canuto Chief of WASH UNICEF Jordan		<ul style="list-style-type: none"> - UN-H can compliment UNICEF work with focus on climate change adaptation in target area - UNICEF possible executing partner 		 <p>Date: 21-11-2018 Technique: discussion</p>
Renata Raad WASH Officer UNHCR	<ul style="list-style-type: none"> - Mapping of relevant projects and lessons learned - Understand needs and issues in target area - Consultations for AF ESP and GP compliance (equall access, vulnerable groups and human rights approach) - Discuss possible cooperation / coordination 	<ul style="list-style-type: none"> - Important to have a community approach to avoid social tension over water resources (equal access) - UNHCR has specific focus on women headed households, children without care and disabled - Water supply project require risk mitigation measures on waste and soil (to have access to water in environmentally friendly way) and water rights (since these are not clear - UN-H can compliment UNHCR work with focus on climate change adaptation 	<ul style="list-style-type: none"> - Design project so it avoids risks related to social tension over water resources, pollution and environmental unfriendly use (waste and soil) and water rights - Consider needs women headed households, children and disabled 	 <p>Date: 06-11-2018 Technique: discussion</p>
Vincent Dupin Senior technical officer Roelof Wentzel WASH officer UNHCR		<ul style="list-style-type: none"> - UNHCR has relevant refugee vulnerability profile related to livelihood and shelter - Issue identified: municipality has challenges providing enough water in dry season - Possible innovative technique: easy to dismantle and to be shipped to other location waste water treatment plant (in container) 	<ul style="list-style-type: none"> - Explore option of using possible innovative technique: easy to dismantle and to be shipped to other location waste water treatment plant (in container) – relevant for uncertain urbanization, e.g. with influx and departure refugees 	 <p>Date: 18-11-2018 Technique: discussion</p>




Stakeholder	Consultation objective	Outcome	Incorporation into project design	Evidence
<p>Vahakn Kabakian AF focal point, also working for UNDP</p> <p>UNDP Lebanon</p>	<ul style="list-style-type: none"> - Mapping of relevant projects and lessons learned - Understand needs and issues in target area 	<ul style="list-style-type: none"> - Focus on water supply of most vulnerable through water harvesting and waste water reuse 	<ul style="list-style-type: none"> - Focus on water supply of most vulnerable through water harvesting and waste water reuse 	 <p>Date: 09-11-2018 Technique: discussion</p>
<p>Nedal M.Al-Ouran Head of env. CC and DRR portf</p> <p>UNDP Jordan</p>		<ul style="list-style-type: none"> - GCF proposal under review – other geographic focus but UNDP and UN-H will coordinate proposal development - UNDP is piloting rainwater harvesting in public building - Suggest to identify unused or not properly used already existing water harvesting systems and make better used of these 	<ul style="list-style-type: none"> - Include focus on identifying unused or not properly used already existing water harvesting systems (make better used of these) - Conduct educational awareness programmes on climate related-water issues - Promote non-conventional water options and focus on alternative water sources such as grey water. - Contact and involve governance councils and boost their decentralisation role - Benefit and disseminate indigenous knowledge on water harvesting. 	 <p>Date: 19-11-2018 Technique: discussion</p>
<p>Nasredin Hag Elamin Representative in Jordan</p> <p>Talal Al-Fayez Programme expert</p> <p>FAO Jordan</p>	<ul style="list-style-type: none"> - Mapping of relevant projects and lessons learned - Understand needs and issues in target area - Consultations for AF ESP and GP compliance (lands and soil conservation) 	<ul style="list-style-type: none"> - FAO to share study on existing and potential water harvesting locations in Jordan - FAO to share best practice on water harvesting options in Mafrq 	<ul style="list-style-type: none"> - A sub-sector strategy for water harvesting is needed to ensure the continued development of this alternative in a way that is effective and sustainable. - Developing a sub-sector strategy on water harvesting and ensure equitable approach that benefits all groups. 	 <p>Date: 19-11-2018 Technique: discussion</p>

Stakeholder	Consultation objective	Outcome	Incorporation into project design	Evidence
			<ul style="list-style-type: none"> - Diversify agricultural water supply and to improve agricultural water security. - Water harvesting could be particularly useful in Mafraq Region for supporting the cultivation of fodder crops, given the existing importance of livestock in the area. 	
<p>Sarah El jamal Programme officer Regional office for Arab States</p> <p>ILO Lebanon</p>	<ul style="list-style-type: none"> - Mapping of relevant projects and lessons learned - Understand needs and issues in target area - Consultations for AF ESP and GP compliance (core labour rights) 	<p><u>Agriculture</u>: Lebanon and Jordan have both not ratified C129 - Labour Inspection (Agriculture) Convention, 1969 (No. 129)</p> <p><u>Construction</u>: Lebanon and Jordan have both not ratified C167 - Safety and Health in Construction Convention, 1988 (No. 167)</p> <p><u>Migrant workers</u>: Lebanon and Jordan have both not ratified C143 - Migrant Workers (Supplementary Provisions) Convention, 1975 (No. 143)</p> <p><u>Women</u>: Lebanon and Jordan have both not ratified P089 - Protocol of 1990 to the Night Work (Women) Convention (Revised), 1948</p>	<ul style="list-style-type: none"> - Refer to core labour rights, technical conventions for safety and health and CBA in any contract - Ensure safety and health measures are taken during project (especially for women and DPs) and are inspected during project - Coordinate with ILO on skills needs and ILO projects 	 <p>Date: 16-11-2018 Technique: discussion</p>
<p>Patrick Daru Country coordinator</p> <p>ILO Jordan</p>		<p>Main potential issue / risk in Jordan:</p> <ul style="list-style-type: none"> - Convention 81 – labour inspection convention. Although ratified there is limited inspection capacity - Increase in child labour (because refugees often work with whole family) - Safety / harassment issues for women <p>Figures:</p> <ul style="list-style-type: none"> - Not many women in construction, but many in agriculture <p>Improvements and projects:</p> <ul style="list-style-type: none"> - Collective Bargaining Agreement (CBA) by 2019 - Shawish (mediator) protect wage of Syrian refugees 		 <p>Date: 19-11-2018 Technique: discussion</p>

Stakeholder	Consultation objective	Outcome	Incorporation into project design	Evidence
		<ul style="list-style-type: none"> - Flexible work permit for Syrian refugees (not dependent on one employer) 		
<p>Faten Tibi Programme Manager Women and Youth Empowerment Programme in Host communities</p> <p>UN Women Lebanon + Syria</p>	<ul style="list-style-type: none"> - Mapping of relevant projects and lessons learned - Understand needs and issues in target area - Consultations for AF ESP and GP compliance (gender approach) 	<ul style="list-style-type: none"> - Many women (incl. Beduin) work in agriculture + food processing. Men work in agriculture, transport and markets - Education of women is in general more modest than men - Syrians only work in agriculture (allowed) - In women empowerment project there are no issues between Syrian and Lebanese women - Need to ensure secure / safe environment (i.e. protection) for women during work since gender-based violence can still be an issue in the region 	<ul style="list-style-type: none"> - Consider women roles in agriculture and water handling when designing the project - Ensure women protection measures are in place for the project (when needed) 	 <p>Date: 08-11-2018 Technique: discussion</p>
<p>Hazar Asfoura Programme Analyst, Women's Economic Empowerment Resilience and Empowerment Unit.</p> <p>UN Women Jordan</p>		<ul style="list-style-type: none"> - Many women are working in agricultural sector in Jordan and thus affected by water scarcity. - Due to water scarcity women who are engaged in agricultural sector are moving from one place to another following water availability - Water scarcity is one of the reasons that prevent women from getting decent working opportunities in agricultural sector. - Rural women's existing theoretical knowledge and understanding of climate change and adaptation remain limited, impeding their ability and willingness to act and find long term adaptive solutions. When asked about the services they would like better access to, only 25% of Women reported wanting better access to water compared to 37% of men. This is mainly influenced by gendered household roles. 	<ul style="list-style-type: none"> - Raising rural women's awareness on conservation techniques and climate change processes, proper greywater re-use and water harvesting techniques to strengthen climate-change adaptation processes. - Strengthening rural women's leadership capacities so that they better engage in adaptive responses to climate change. - fostering rural women's capacities to act and make significant achievements in adapting to climate change 	 <p>Date: 30-12-2018 Technique: Discussion</p>

Stakeholder	Consultation objective	Outcome	Incorporation into project design	Evidence
Mazan Shaqoura Deputy regional representative OHCHR Lebanon	<ul style="list-style-type: none"> - Mapping of relevant projects and lessons learned - Understand needs and issues in target area - Consultations for AF ESP and GP compliance (human rights) 	<p>Jordan and Lebanon have both not ratified core Human right⁶³</p> <p>CMW - International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families.</p> <p>Therefore, the project needs to ensure DPs (and Lebanese) have equal access to work options and are equally treated / rewarded.</p>	<ul style="list-style-type: none"> - Include measures and clauses in contract to ensure on the left 	 <p>Date: 16-11-2018 Technique: discussion</p>
Ali Hayajneh Water and CC programme IUCN regional (Lebanon and Jordan)	<ul style="list-style-type: none"> - Mapping of relevant projects and lessons learned - Understand needs and issues in target area - Consultations for AF ESP and GP compliance (natural habitats, biodiversity and soils) 	<ul style="list-style-type: none"> - IUCN is developing water security action plans at municipal level - IUCN helped to identify potential (sub-project risks related to natural habitats, biodiversity and fragile soils in target areas - Irbid and Mafrq are located within two eco-regions, there is one national designed protected area in Irbid (Yarmouk forest reserve) and there are some important bird areas - Zahle district and surrounding municipalities are part of two eco-region. Zahle district includes 5 Hima areas; Kafer Zabad 20km2 , Anjar 20km2, Kherbet kanfar 21.4km2, Ainzebe5.5Km2, Tarshish 10km2, these area are important for the local communities as they provide a common practice of grazing and Agriculture production. There are also some important bird, mammal and flora areas close-by 	<ul style="list-style-type: none"> - The target areas are located in eco-regions with some vulnerable protected areas and animals. Proposed interventions are planned in urban areas and are expected to don't negatively interrupt these because of limited disruption of water flows (of seasonal streams) and land / soil interventions. However, during the full proposal, this will be studies and assessed in detail. 	 <p>Date: 19-11-2018 Technique: discussion</p>

⁶³ <https://www.ohchr.org/EN/Countries/MENARegion/Pages/JOIndex.aspx>

Stakeholder	Consultation objective	Outcome	Incorporation into project design	Evidence
<p>Sally Zgheib Water supply & sanitation specialist;</p> <p>Amal Talbi Senior Water Resources Management Specialist</p> <p>Shafick Hoosseini Head of Environment and natural resources of Mashreq regions (Washington D.C)</p> <p>World Bank</p>	<ul style="list-style-type: none"> - Mapping of relevant projects and lessons learned - Understand needs and issues in target area - Discuss possible cooperation / coordination 	<ul style="list-style-type: none"> - Ensure to avoid social tension between groups and areas, also by understanding impact on interventions upstream and downstream – use integrated water management approach - Using treated waste water from Zahle plant is a good option to increase water use efficiency. 	<ul style="list-style-type: none"> - Avoid social tension and negative impacts of interventions through impact assessment (full proposal) - Use integrated water resource management approach if agreed by national government and local authorities 	 <p>Date: 08-11-2018 Technique: discussion</p>
<p>Mirage for Waste Management & Environmental Services Zahle waste water treatment plant operator. Lebanon</p>	<ul style="list-style-type: none"> - Understand needs and issues in target area and how waste water can be used for agriculture 	<ul style="list-style-type: none"> - Waste water is currently being directed to Litani river but could be used for agriculture, especially in low(er) lying areas to avoid much pumping - Feasibility waste water reuse for agriculture depends on crop and level of treatment 	<ul style="list-style-type: none"> - Design option for waste water reuse from Zahle waste water reuse plant for agriculture use and specific type of crops (fruit) 	 <p>Date: 07-11-2018 Technique: discussion</p>
<p>Aya Housheimi WASH Coordinator – Zahle-Lebanon Norwegian Refugee Council Lebanon</p>	<ul style="list-style-type: none"> - Mapping of relevant projects and lessons learned - Understand needs and issues in target area - Consultations for AF ESP and GP compliance (human rights and ILO standards and approach for Syrian refugees) 	<ul style="list-style-type: none"> - The refugees rely on agricultural boreholes and shallow boreholes for household water supply. Due to drought those boreholes are getting drier, and more contaminated. - Diseases, as a result of lessened personal hygiene, and household hygiene. - Safety Protection Risks: Refugees, mainly women and children, travel long outside ITS looking for other water resources, which puts them in danger. 	<ul style="list-style-type: none"> - Rain water harvesting 	 <p>Date: 07-12-2018</p>

J. Justification of funding request

Urban resilience provides a comprehensive response framework. Although there is little exploration of how urban systems respond to a rapid influx of new and often long-term residents by conflict and climate change, it is manifest and critical to build resilient communities and institutions that are equipped to respond to shocks and stresses arising from displacement. This project explores and collects evidence of approaches and best practice techniques that effectively respond to urban areas that face a combination of high DP influx (i.e. type 2 cities) challenges and climate change impacts.

The project will support implementation of national priorities as well as responding to local needs, especially of the most vulnerable, and will provide added value to national plans and approaches through implementation of innovative and low-cost technical interventions. The proposed project components also fully align with AF outcome areas. This alignment has resulted in the design of a comprehensive approach to address climate change related water challenges in a type 2 host cities context.

There is a need for concrete adaptation actions in the water sector in the targeted cities in Jordan and Lebanon focusing on the most vulnerable groups. Since most Syrians in Lebanon and Jordan work in the water-dependent agriculture sector and have limited access to water, increasing water scarcity, exacerbated by climate change, is a big challenge. The actions are crucial for the cities to cope with current and future climate change impacts exacerbated by influx of Syrian DPs. The Third National Communications to the UNFCCC of Jordan and Lebanon stated clearly that financial constraints are among the barriers to adaptation and that there is a clear need for funding and capacity building to support national and municipal climate action. As mentioned earlier, the target cities were selected because of a combination of existing and projected climate change-related water challenges, high pressure on water resources due to high influx of DPs and lacking resources and capacities to address these climate change-related water issues and specific needs of DPs, which includes access to affordable water.

From a regional perspective, the programme will support the 3RP regional and national programming, for which budget gaps exist for the development of an integrated regional approach focused on addressing especially WASH and social cohesion and livelihoods issues,¹ in 'host' cities exacerbated by both the influx of DPs and climate change impacts.

The project aims to maximizing the funding amount for the concrete adaptation component (component 3; USD 8,25 million); funding allocation to the other components is required to better manage water and strengthen related capacities, including for operating, maintaining and replicating concrete adaptation measures proposed under component 3.

The table below provides a justification for funding requested, focusing on the full cost of adaptation reasoning, by showing the impact of AF funding compared to no funding (baseline) related to expected project outcomes.

Table 16: Overview of impact of AF funding compared to no funding (baseline) related to expected project outcomes

Project outcomes	Baseline (without AF)	Additional (with AF)	Comment and alternative adaptation scenario's
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¹ 3RP Regional Quarterly Dashboards March 2018. Online: <https://data2.unhcr.org/fr/documents/download/63820>

<p>1.1.1. Strengthened municipal institutional capacity to manage urban risks, impacts and vulnerabilities related to both climate change and the movement of DPs, also considering urban – rural linkages (in line with AF outcome 1 and 2)</p>	<p>In Jordan and Lebanon, water is managed at the district scale, by looking at current demand and supply needs, with limited consideration of climate change and population trends.</p> <p>Most of the response in target areas is still humanitarian; therefore, a sustainable approach is lacking;</p>	<p>The activities related to this outcome will allow municipal governments to assess, plan and manage climate change and DPs influx related risks and vulnerabilities, especially related to water, in a participatory, integrated, sustainable and climate change resilient way;</p> <p>Displacement and climate change are increasingly important factors driving urban growth trends. Taking into account the scale, scope and impacts of displacement and climate change in the existing urban planning and policies will help local governments respond to the challenge effectively</p>	<p>Municipal governments lack the capacity and financial resources to execute activities related to this outcome without support</p> <p>Without sustainable and climate change resilient approaches, target areas will become more water scarce, resulting in negative effects for poverty reduction targets and livelihood security and possible tension over scarce resources.</p> <p>Alternatively, water is managed through IWRM approaches, but this is not in line with national priorities / practices</p>
<p>2.1.1. Strengthened DPs and host communities local-level awareness and ownership of adaptation actions and processes + capacities strengthened to operate and sustain proposed adaptation actions, including skills building (in line with AF outcome 3)</p>	<p>Target communities have very limited options (capacity – skills and technically - and financial resources) to protect their people and assets against climate change impacts, especially lack of water. Rising social tensions between host communities and DPs, pose risks and threats to development gains</p>	<p>The activities related to this outcome will enable communities and vulnerable groups to operate and sustain systems and to assess, plan and manage these together. It will also increase livelihood / income security;</p> <p>Inclusive approaches that promote social cohesion need to be an integral part of displacement responses, especially around scarce resources</p>	<p>Communities and vulnerable groups lack the capacities to operate and sustain systems and to assess, plan and manage these together.</p> <p>Without sustainable and climate change resilient water management approaches at community level, target areas will become more water scarce, resulting in negative effects for poverty reduction targets and livelihood security and possible tension over scarce resources.</p> <p>Alternatively, livelihoods could be diversified more, but as water is an urgent issue, this has been prioritized.</p>

3.1.1. Increased adaptive capacity within the water sector through resilient and sustainable water supply, using innovative, cost-effective, climate change resilient water supply techniques, which are suitable for high DPs influx context and replicable and mostly benefit vulnerable groups (in line with AF outcome 4)	Municipal governments invest very little in sustainable and climate change resilient urban water services, considering most cities in Jordan and Lebanon are already suffering from inadequate service provision. Displacement and climate change exacerbate the situation by adding extra pressure on services, often becoming a source of tension with discontent and competition around services.	The activities related to this outcome will increase the sustainability and climate change resilience of water-related services and livelihoods dependent on water. Taking into consideration the DP and climate change context, techniques selected can be implemented rapidly and will be flexible in use.	Large scale interventions have the risk of not being community driven and appropriate and will also not respond to the situation (i.e. urgent needs and flexibility of systems required). Alternative adaptation scenarios are ad hoc humanitarian responses, which would respond to urgent needs, but not in a sustainable and climate change resilient way.
4.1.1. Strengthened National and international institutional capacity to manage urban risks, impacts and vulnerabilities related to climate change and DPs movements, including lessons learned collected and options to replicate approaches and techniques shared regionally	National governments in the Mashriq region have limited capacity (available models, tools, techniques and financial resources) to develop and replicate a model that effectively respond to urban challenges of combined high DP influx (i.e. type 2 cities) and climate change.	The activities related to this outcome will allow the government to replicate the approach / model of responding to a combination of high DP influx (i.e. type 2 cities) and climate change challenges internationally	Without activities related to this outcome, there is a risk that interventions won't be replicated and sustained and demand for adopting similar approaches is not generated; and high-level and international support and engagement for the proposed approach is not mobilized.

K. Sustainability

The project sees that the main way to sustain the achievement of the project in the long run is by linking the adaptation initiatives and lessons to the establishment of an institutional framework, which supports climate resilience building at different levels, but especially at the urban level, and its further replication – see components 1, 2 and 3.

The project will be sustained by the strong linkage to national priorities (i.e. national buy-in), by mainstreaming outcomes into (inter)national and city-level strategies and their monitoring framework and through the engagement of local affected communities in planning, maintenance and training activities. Alignment with regional plans and strategies, such as the 3RP and the Arab Strategy for Water Security, continued cooperation on the issues addressed through this project after it comes to an end, is guaranteed. It is also sustained through the involvement and capacity building of national and municipal governments, local communities and vulnerable groups (e.g. skills development and

maintenance plans) and other stakeholders during the processes and through development of knowledge products and sharing of lessons.

By fully engaging communities and vulnerable groups in project activities, including assessments, planning and decision-making processes, the project aims to achieve building of communities' awareness and capacities and furthermore ownership and leadership in the area of water management – see component 2. Specific emphasis is given to community capacity strengthening to operate, maintain and replicate the systems (including the development of maintenance plans). Also, through the participatory approach, the project activities aim to contribute to avoid potential future tension over scarce resources.

Investing in increasing the resilience of vulnerable assets and livelihoods is a sustainable economic approach. It will not only avoid future costs related to climate change and disaster impacts, but it will also secure livelihood options, improve the health and security of the community – see component 3. With all four components, the project aims to support sustainable development in target areas in Jordan and Lebanon and the wider region, compared to a currently humanitarian / emergency driven approach.

During the full proposal development phase, sustainability / maintenance arrangements for all proposed activities will be identified / established.

L. Environmental and social impacts and risks

The proposed project seeks to fully align with the Adaptation Fund's Environmental and Social Policy (ESP), and its 15 safeguard areas, Gender Policy (GP), Further to Section II.F above on compliance with national technical standards, outlined below is a summary of the findings of the initial screening process to identify and evaluate potential environmental and social risks and impacts of proposed project actions, and based on that, of the entire project. With this information, the entire project has been categorized. As shown in section II.I and annex 5, consultations have been conducted to identify potential environmental and social risks and impacts and to identify specific groups needs and possible concerns. A draft gender baseline and approach has been inserted as annex 6. Details will be completed and more consultations required to do this conducted during the full proposal development phase. An annex to show how the project complies to the AF ESP and GP in detail will also be included in the full proposal document. However, some more background on the risks and impacts screening is already provided in annex 5.

Normative, planning and capacity development activities (i.e. non-concrete interventions) under components 1, 2 and 4 consist of plan development and capacity development. The project will ensure beneficiary groups will be equally represented and equal benefit from the project activities. In the full proposal document, measures will be proposed to ensure that no negative environmental or social impacts can occur.

Activities under components 3 are 'concrete' adaptation actions. Because of the scope of the proposed actions, which are numerous, small scale and very localized, and proposed and managed by municipalities and communities where possible, who have a stake in avoiding environmental and social risks and impacts, potential direct impacts are limited, and indirect impacts and transboundary impacts are highly unlikely. Given this, cumulative impacts are also unlikely. Because of this, the entire project is regarded as a medium risk (Category B) project. During the full proposal development phase, all proposed activities will be detailed so that potential risks and impacts can be fully identified, and if a risk exist, measures proposed to mitigate these. A PFG has been submitted to AF to conduct feasibility studies and impact assessments and to conduct consultations to support the process.

The project is designed to generate positive economic, social and environmental impacts, using inputs from especially women and youth and DPs and host communities in target communities and by incorporating best practices from other projects. During the full proposal development phase, all

required consultation will be completed. The adaptation actions proposed have been selected together with mayors, communities and vulnerable group representatives, making sure they are culturally appropriate and local.

Table 17: Overview of the environmental and social impacts and risks. For more details see section II.I and annex 5

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>	x	
<i>Access and Equity</i>	Complete assessments during full proposal development phase, including completed 'gender' annex	
<i>Marginalized and Vulnerable Groups</i>		
<i>Human Rights</i>	x	
<i>Gender Equity and Women's Empowerment</i>	Complete assessments during full proposal development phase, including completed 'gender' annex	
<i>Core Labour Rights</i>	x	
<i>Indigenous Peoples</i>	x	
<i>Involuntary Resettlement</i>	x	
<i>Protection of Natural Habitats</i>	x	
<i>Conservation of Biological Diversity</i>	x	
<i>Climate Change</i>	Complete assessments during full proposal development phase	
<i>Pollution Prevention and Resource Efficiency</i>		
<i>Public Health</i>		
<i>Physical and Cultural Heritage</i>	x	
<i>Lands and Soil Conservation</i>	x	

PART III: IMPLEMENTATION ARRANGEMENTS

UN Habitat will be the implementing entity for the project providing specific technical support in urban development and resilience related areas. With support from the Regional Office for Arab States (ROAS), UN-Habitat country offices in Jordan and Lebanon will facilitate the coordination between the government entities. In Jordan and Lebanon, national executing entities will be the ministries responsible for climate change, which will coordinate with the ministries responsible for water resources, spatial planning and DPs.

Lebanon: Ministry of Environment; Ministry of Energy and Water; Line departments in municipalities; UNICEF and NGO partners

Jordan: Ministry of Environment, Ministry of Water and Irrigation;; Line departments in municipalities; UNICEF and NGO partners

At the city level, partners will be municipal line departments in target cities. For the execution of community-level concrete adaptation actions and community involvement, local partners will be confirmed during the full proposal phase, but as UNICEF is the lead agency on water in both countries, UNICEF is tentatively proposed as executing entity for concrete interventions. There will be coordination between municipal authorities in both countries on technical issues (e.g. spatial planning) and communication of lessons learned during implementation.

The two countries are already under a number of common frameworks by the League of Arab States such as the Arab Strategy for Water Security and the Arab Strategy for Housing and Sustainable Urban Development 2030. On DPs specifically, Jordan and Lebanon are already cooperating under the 3RP framework. This ensures that the coordination of the project will be continuous, efficient and sustainable.

PART IV: ENDORSEMENT BY GOVERNMENTS AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government²

<i>Nayef Hmeidi Al-Fayez, Minister, Ministry of Environment, Jordan</i>	<i>Date: August 5, 2018</i>
<i>Tarek El Khatib, Minister, Ministry of Environment, Lebanon</i>	<i>Date: August 6, 2018</i>

Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.



Ministry of Environment

Ref.No 7.2.7793
Date 5-8-2018

**To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5**

Subject: Endorsement for "Increasing the resilience of displaced persons (DPs) to climate change-related water challenges in urban host settlements"

In my capacity as designated authority for the Adaptation Fund in Jordan, I confirm that the above regional project proposal is in accordance with the government's National Adaptation Plan including the priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country. It is also well aligned with Jordan's Climate Change Policy and Intended Nationally Determined Contribution (INDC). The regional approach shall also enhance management of water challenges and pressure on resources regionally and foster our cooperation with Lebanon under the Regional Refugee and Resilience Plan 2018-2019.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by UN-Habitat and executed by the relevant local executing entities.

Sincerely,

Minister of Environment

Nayef Hmeidi Al-Fayez

Eng. Ahmad Al-Qataneh
Secretary General



REPUBLIC OF LEBANON
MINISTRY OF ENVIRONMENT

Beirut, 06/08/2018
Our Ref: 4206/B

The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for project: Increasing the resilience of displaced persons to climate change related water challenges in urban host settlements

In my capacity as designated authority for the Adaptation Fund in Lebanon, I confirm that the above national project/programme proposal is in accordance with the government's national and regional priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Lebanon.

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme proposal will be implemented by the UN Habitat and executed by the Ministry of Environment.

Sincerely yours,


Tarek El Khatib
Minister of Environment

AA-F-16-V1-1/1

Cc:

- Mrs. Nancy Khoury, Acting Head, Department of Public Relations & External Affairs, MoE
- Mrs. Samar Malek, UNFCCC Focal Point, Service of Environmental Technology

B. Implementing Entity certification

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans including INDCs, NAP, TNCs and the regional 3RP, subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

For Rungtong OIC.

*Raf Tuts,
Director Programme Division, UN-Habitat*

Date: January 3rd, 2019 | raf.tuts@un.org

Project Contact Person: Tarek Abdel Monem

Tel. And Email: +20237618812 tarek.abdel-monem@un.org

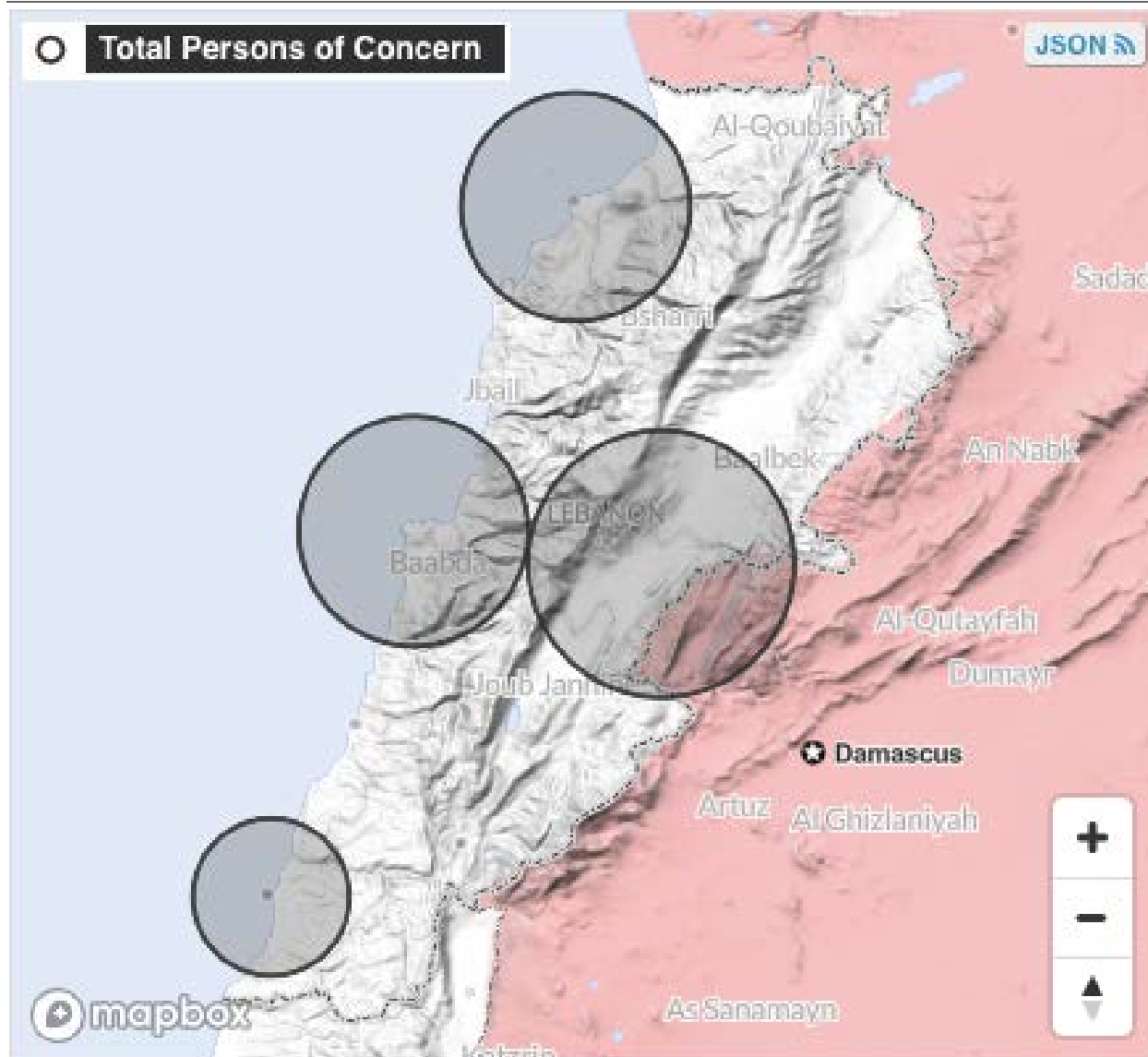
Annex 1: DPs in Lebanon and Jordan

Lebanon⁶⁶

Total Persons of Concern

952,562

Location name	Source	Data date	Population
Bekaa	UNHCR	30 Sep 2018	35.5% 338,577
Beirut	UNHCR	30 Sep 2018	26.3% 250,161
North Lebanon	UNHCR	30 Sep 2018	26.1% 248,225
South Lebanon	UNHCR	30 Sep 2018	12.1% 115,599



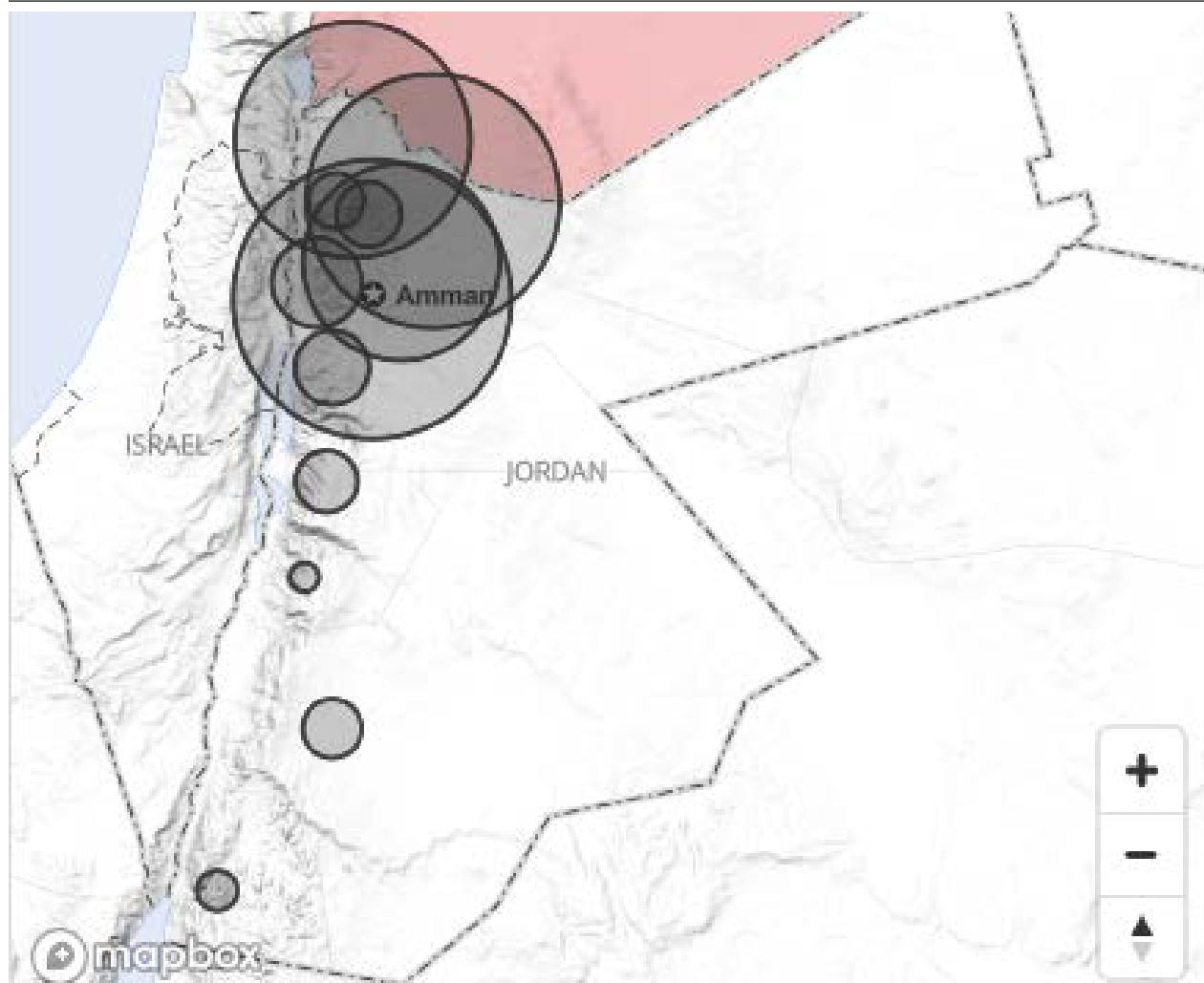
⁶⁶ https://data2.unhcr.org/en/situations/syria/location/71#_ga=2.248854471.1978193527.1540994637-1966626473.1540994637

Jordan⁶⁷

Total Persons of Concern

672,578

Location name	Source	Data date	Population	
Amman Governorate	UNHCR	24 Oct 2018	29.4%	197,670
Mafraq Governorate	UNHCR	24 Oct 2018	24.3%	163,474
Irbid Governorate	UNHCR	24 Oct 2018	21.0%	140,943
Zarqa Governorate	UNHCR	24 Oct 2018	14.5%	97,393
Balqa Governorate	UNHCR	24 Oct 2018	2.9%	19,563
Madaba Governorate	UNHCR	24 Oct 2018	2.0%	13,258
Jarash Governorate	UNHCR	24 Oct 2018	1.5%	9,891
Karak Governorate	UNHCR	24 Oct 2018	1.3%	8,980
Maan Governorate	UNHCR	24 Oct 2018	1.2%	8,194
Ajlun Governorate	UNHCR	24 Oct 2018	1.1%	7,155
Aqaba Governorate	UNHCR	24 Oct 2018	0.5%	3,571
Tafilah Governorate	UNHCR	24 Oct 2018	0.3%	1,730



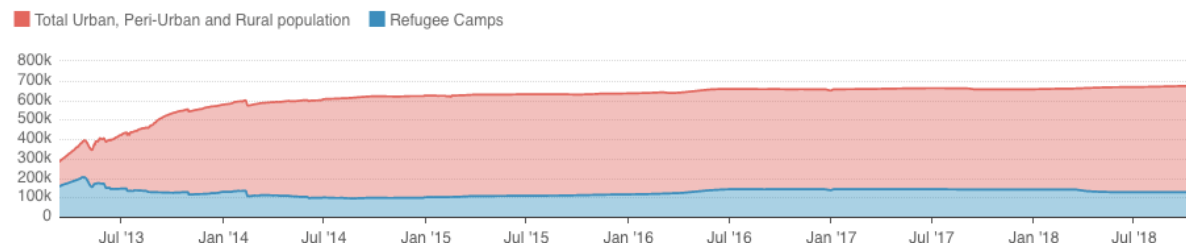
⁶⁷

https://data2.unhcr.org/en/situations/syria/location/36#_ga=2.22371195.1978193527.1540994637-1966626473.1540994637

Total Urban, Peri-Urban and Rural population in Jordan: 521,611
Refugee Camps: 107,517
Total: 629,128

Refugees from Syria by date

[CSV](#) [JSON](#)



Source – UNHCR

3RP 2016 REGIONAL FUNDING OVERVIEW AND SELECTED INDICATOR PROGRESS⁶⁸



WASH

948,326 individuals benefiting from improved access to adequate quantity of safe water
705,185 individuals assisted to access to appropriate sanitation facilities and services



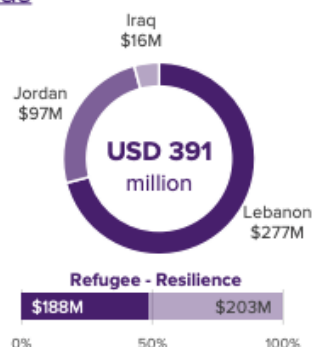
Total Requirements
USD 382 million (Agencies)
 Funding Status: **USD 157 million**



REGIONAL SECTOR RESPONSE SUMMARY

2017 target	Indicator
544,500	# of people with access to adequate quantity of safe water through temporary provision
3,923,800	# of people benefiting from access to adequate quantity of safe water through improved longer-term water systems
992,500	# of people with access to appropriate sanitation facilities and services
1,685,800	# of people who have experienced a hygiene promotion/ community mobilization session
348,000	# of people attending public spaces and institutions have access to safe, gender appropriate water and sanitation facilities and services and hygiene promotion activities

2017 Inter-agency needs



2017 Targeted Population



⁶⁸ <https://data2.unhcr.org/en/documents/download/53693>

Annex 2: Overview of urban resilience building needs / approach:⁶⁹

- ☐ **Moving from emergency approaches to more development-oriented, medium-to-long term approaches is pivotal.** Emergency approaches to displacement and natural disasters and climate change are necessary but insufficient. The protracted nature of displacement and climate change, and the fact that host areas and communities often face similar challenges in terms of living conditions and opportunities, require medium-term solutions that target both the displaced and the host communities.
- ☐ **Urban displacement and climate change and their associated trends and impacts need to be integrated into urban planning and policies.** Forced displacement and climate change are increasingly important factor driving urban growth trends. Taking into account the scale, scope and impacts of displacement and climate change in the existing urban planning and policies will help local governments respond to the challenge effectively.
- ☐ **Managing urban growth is beneficial in the long run.** Large influxes of refugees often lead to sub-optimal patterns of urban growth that will determine long-term urban resilience and sustainability of cities, since housing, street, and public spaces are not easily changed once established.
- ☐ **Urban service provision is extremely critical for improved living conditions and building trust with local authorities.** Local governments should invest in urban services, considering most cities in Mashreq are already suffering from inadequate service provision. Displacement and climate change exacerbate the situation by adding extra pressure on services, often becoming a source of tension with discontent and competition around services.
- ☐ **Promoting social cohesion is crucial for sustaining positive development outcomes.** Rising social tensions between host communities and refugees, and among the displaced, pose risks and threats to development gains. Therefore, inclusive approaches that promote social cohesion should be integral part of displacement responses.
- ☐ **Urban resilience provides a comprehensive response framework.** Although there is little exploration of how urban systems respond to a rapid influx of new and often long-term residents by conflict and climate change, it is manifest and critical to build resilient communities and institutions that are equipped to respond to shocks and stresses arising from displacement.

⁶⁹ World Bank et al (2017, p21, policy note September 14): Refugees in the middle east. Bringing an urban lens to the forced displacement challenge.

Annex 3: project theory of change

What is the problem to solve?	What is the key audience	Entry point to reach audience?	What steps are needed to bring about change?	What is the measurable effect (output)?	What are the benefits (outcomes)?	What is the long-term impact?
Risk of livelihood loss (agriculture) and access to basic water supply due to reduction in water availability caused by climate change (i.e. less rain, fast melting snow, high temperature and evaporation, droughts) and exacerbated by high pressure on service delivery because of high influx Syrian DPs (i.e. rapid urban growth)	Policy makers (ministries working on:) <input type="checkbox"/> Environment / climate change <input type="checkbox"/> Water management <input type="checkbox"/> Displaced Persons	<input type="checkbox"/> Water master plan <input type="checkbox"/> Spatial master plan <input type="checkbox"/> Agriculture plan <input type="checkbox"/> 3RP - Regional Refugee & resilience plan	Better matching (future) demand and supply through integrated water and spatial planning and management, considering climate change projections and impacts, especially on vulnerable groups	<input type="checkbox"/> Land use strategies and plans as a tool to plan water (taking into consideration both climate change and movement of DPs)	Component 1: <input type="checkbox"/> Strengthened municipal and governorate institutional capacity to manage urban risks, impacts and vulnerabilities related to both climate change and the movement of DPs	<input type="checkbox"/> Water resource use efficiency – sustainable water supply <input type="checkbox"/> Comprehensive planning <input type="checkbox"/> Lessons learned can be used in the region, especially for urban / municipal approach (which does not really exist)
	Urban managers (Municipalities working on) <input type="checkbox"/> Mayors <input type="checkbox"/> Water manager <input type="checkbox"/> Planners <input type="checkbox"/> Agriculture / irrigation	<input type="checkbox"/> Urban master plan <input type="checkbox"/> Water planning <input type="checkbox"/> Spatial strategies <input type="checkbox"/> Agriculture plan <input type="checkbox"/> Capacity building			Component 4: <input type="checkbox"/> Strengthened National and international institutional capacity to manage urban risks, impacts and vulnerabilities related to climate change and DPs movements <input type="checkbox"/> Share lessons on approaches and techniques in region with similar problems	
	Vulnerable groups (communities and associations) <input type="checkbox"/> Poor / informal (host) <input type="checkbox"/> Displaced Persons <input type="checkbox"/> Indigenous <input type="checkbox"/> Women	<input type="checkbox"/> Community and vulnerable groups planning and capacity building <input type="checkbox"/> Water demand for o Households o Agriculture / livelihood (farmer associations)			Component 2: <input type="checkbox"/> Strengthened DPs and host communities local-level awareness and ownership Component 3: <input type="checkbox"/> Increased adaptive capacity within the water sector	
Key assumptions	Key assumptions	Key assumptions	Key assumptions	Key assumptions	Key assumptions	Stakeholders
<input type="checkbox"/> Rainwater and snow-melt season is only 3 months and reducing <input type="checkbox"/> Water demand is increasing	<input type="checkbox"/> Mayors for main decision making <input type="checkbox"/> Combined water and spatial planning are required <input type="checkbox"/> Most of water is used in agriculture	<input type="checkbox"/> Water management (supply, demand, techniques) is not integrated <input type="checkbox"/> Water and climate change trends and projection are not integrated in spatial strategies <input type="checkbox"/> DPs and informal areas don't have official water connections <input type="checkbox"/> Majority of DPs, poor and women work in agriculture sector, which depends on water	<input type="checkbox"/> Water interventions are scattered and mainly focus on groundwater use, which is often polluted <input type="checkbox"/> Climate change and water integrated spatial strategies are tools to guide development <input type="checkbox"/> Studies (e.g. irrigation) may be required	<input type="checkbox"/> Effects plans is difficult to measure	<input type="checkbox"/> Good practices and lessons on innovative techniques such as water harvesting and waste water reuse are scarce in the region <input type="checkbox"/> Rainwater harvesting and treated waste water reuse can be cost effective techniques, especially when groundwater is not an alternative due to pollution	

Annex 4: Best practice examples of innovative climate change related water adaptation techniques + costs and maintenance needs

Relevant water resource management adaptation needs	Relevant adaptation measures Identified / confirmed per municipality (by mayors)	Possible innovative techniques (identified by Dutch water experts)	Cost-effectiveness (total cost / beneficiaries) - consider capacity in M3 per 24 hours for waste water treatment	Sustainability / maintenance arrangement (durability in years technique + cost for maintenance	Proven technique (project example (preferably in MENA region)
Reduce water losses, reduce water leakage from canals	Separate water for drinking and other uses (network)	Mobile Black Water Treatment Unit: horizontal placed container units for wastewater treatment, mobile and up-scalable system. Is able to collect black, yellow and grey water separately for different ways of treatment and re-use purposes. Mobile Black water treatment unit (BWTU): 8000 users (20ft unit), Connect to sewage or influent input via vacuum trucks, In front of the system we install a drinking water unit (cleans surface water into drinking water, water also used for flushing and washing) 450 m3 per day (Nijhuis Semilla)	Output BWTU (per day): 1 m3 waste; 4 m3 compost (or 367 m3 methangas) , compost for soil treatment, 385 m3 disinfected irrigation water (30.000 kg fertilizers)	Options: Digester for methangas (instead of composting unit), Containerized (or boxframe), Self-sufficient via solar panels; Operation & Maintenance, Monitoring; Sanitation (family units = shower, urinoir and toilet with 3 m3 storage waste water), Hydroponics system (preferable), Vertical farming	
		Purify surface water and/or harvested rainwater, with our hand- or solar (or grid) powered water treatment devices: Villagepump 500. Each Villagepump purifies up to 500 liter water per hour, using an ultrafiltration membrane in combination with a (patented) automatic back-wash system that by cleaning the membrane app every 10 minutes, extends the lifetime of the precious UF membrane up to 1 - 2 years. By Villagepump treated water will meet WHO standard regarding removal of bacteria, viruses and turbidity. With an optional Activated Carbon filter, taste and color can be improved (Villagepump)	The Villagepump produces safe clean drinking water at a price per liter between 0,2 and 0,3 €ct, including all capital and operational expenses. Each Villagepump provides up to 500 liter per hour and has an expected overall production of clean water during lifetime of app 300.000 M3.	The expected economic lifetime of each Villagepump is 5 yrs. based on an average production of 2M3 clean water per day, which could serve a community of 250 people or in case of emergency up to 1.000 people. Preventive maintenance schedules are available and consists roughly of carry out activities that takes app 1-2 hr every 4 weeks. Maintenance activities can be done by low-skilled staff who only have to follow a one-day training course provided by Villagepump.	In the MENA region, we have an installed Villagepump 500 in a refugee camp in Lebanon, runned by Solidarites International (and funded by UNICEF). This unit is operational for more than 1 year. Due to the success of these unit, two more units have just been ordered and arrived last week in Beirut.
Raising water use efficiency, supporting water harvesting projects and using high efficiency irrigation methods	Drip system / micro irrigation, subsurface, etc.	Drip irrigation, surface and subsurface irrigation Broere Hortitech)	Drip irrigation give a water volume reduce from 75% against overhead irrigation.	Investment/ha. € 350- €1100,- Year cost: 75%	For more than 10 years al over Europe and other areas
		Climate smart water lifting technique (solar irrigation) for shallow groundwater (IHE Delft)	target is return on investment <3yrs for smallholder farmer in SSA	the technique is still in development and cost and sustainability are being improved	http://www.fao.org/3/i9047en/i9047EN.pdf
		Growboxx/Waterboxx Intelligent bucket that provides water to a tree and vegetables/ bushes/ flowers while creating a healthy micro- climate. Helps the roots of planted trees to reach over 3m depth within the first year(s) after which trees can survive on their own (tap the available groundwater in the soil). Allowing to restore degraded land for agroforestry or eco-system restoration; 90% less use of water 90% less costs in comparison with drip irrigation 90% higher survival rates (Goasis)	Groasis Waterboxx pallet prices (300 units) = 13.99 Euros per unit. 20ft container= 9.99 Euros per unit. 40ft container= 8.99 Euros per unit. Wicks= 0.20 cent per wick. Growboxx pallet price= 5.99 Euros per unit 20ft/40ft containers= 4.49 Euros per unit Prices are ex-works.	Groasis Technology doesn't use groundwater to plant trees. There is no need to drill a well or install a pump and a water pipe network and have electric installation. Groasis doesn't use any energy and you can use saplings. Drip irrigation uses 15 liters of water per day while Groasis Technology 60 liters of water for the rest of the plant's life.	Patented in over 100 countries IP consists of technical inventions, models, brand & domain names.. Proven technology planted more than 200.000 trees in over 40 countries, with up to 12 years of continuous growth in a wide variety of

					climatological conditions. Search for Groasis on youtube
	Rain or stream water harvesting + storage at farms	<p>Rainwater harvesting</p> <p>DeltaX (modular) water storage); irrigation by subsurface. The space will be used in the underground to store the flooding water during heavy precipitation. DeltaX is space efficient: above-ground surface can be used for e.g. parking, storage, and buildings (up to a certain weight). This makes the system suitable for use in refugee camps under tent dwellings or in urban areas farms or industrial zones where space is limited. The underground storage also prevents the evaporation of the water. If needed, stored water can be used (depending on level of treatment) for irrigation or other purposes. Due to the modular and flexible system DeltaX can be reused, unlike the conventional concrete solutions (Deltae)</p>	Typically, 0.50 - 1.50 €/m3	Typically, 0.15 - 0.30 €/m3	The DeltaX system is proven and installed in The Netherlands.
	Other	<p>Sub laterals use PE by irrigation instead of gravitating canals (Broere Hortitech)</p> <p>Mulching to save water and improves the yield (Saline farming group)</p> <p>Fresh water-saline water irrigation. This results in a 50% fresh water use reduction (Saline farming group)</p> <p>Dairy sector. It is possible to reduce the water use by 50 % (Yuniko)</p>	<p>An expected reduce in loss of water from minimum of 20%</p> <p>20-40% water savings, 30-100% yield increase in total</p>	<p>Less water, healthy crop, less crop protection needed.</p>	<p>For more than 10years al over Europe</p> <p>https://securingwaterfood.org/innovators/salt-tolerant-potato-metameta-saltfarmtexas/</p>
Promote the use of non-conventional water resources (treated wastewater); pilot treatment plants for villages, spatial treatment plants for small communities and water production	Mobile wastewater treatment plants (+ irrigation connections)	<p>Compact wastewater treatment plant (Aqualine) for SBR = 200 m3/day (MODEL SBR 1000) for MBBR = 500 m3/day (MODEL MBBR 40 DC)</p> <p>1 25,000 p -> 25 sets x SBR1000 or 10 sets x MBBR 2. 15,000 p -> 15 sets x SBR1000 or 6 sets x MBBR 3. 14,000 p -> 14 sets x SBR1000 or 6 sets x MBBR 4. 6,000 p -> 6 sets x SBR1000 or 3sets x MBBR 5 1000,000 p -> 1000 sets x SBR1000 or 400 sets x MBBR</p> <p>Decentralised waste water treatment units Bever IIIA unit => this is a vertically placed container unit for decentralised wastewater treatment. They are mobile and up-scalable. Kind of prefab septic tanks (Afmitech)</p> <p>Mobile Black Water Treatment Unit: horizontal placed container units for wastewater treatment, mobile and up-scalable system. Is able to collect black, yellow and grey water separately for different ways of treatment and re-use purposes. Mobile Black water treatment unit (BWTU): 8000 users (20ft unit), Connect to sewage or influent input via vacuum trucks,</p>	<p>SBR set = 21,500 USD/1 Set EXW-Antalya and for MBBR the price = 150,000 USD/1 Set EXW-Antalya</p> <p>€ 250.000 / 40 cbm/daily</p> <p>Output BWTU (per day): 1 m3 waste; 4 m3 compost (or 367 m3 methangas) , compost for soil treatment, 385 m3 disinfected irrigation water (30.000 kg fertilizers)</p>	<p>At a minimum 10 years lifetime of main components: container, motor +reductor +aerator, process control. Membrane filtration tubes needs to be replaced every 2,5 years. Maintenance costs around 4% of total investment.</p> <p>Options: Digester for methangas (instead of composting unit), Containerized (or boxframe), Self sufficient via solar panels; Operation & Maintenance, Monitoring; Sanitation (family units = shower, urinoir and toilet with 3 m3 storage</p>	<p>The Bever IIIA principle is used in >130 installations in the Netherlands, Belgium, Kenya, Mozambique, Romania, Panama</p>

		In front of the system we install a drinking water unit (cleans surface water into drinking water, water also used for flushing and washing) 450 m3 per day (Nijhuis Semilla)		waste water), Hydroponics system (preferable), Vertical farming	
		Pre-fab septic tanks connected to a Small Bore Sewerage system followed by treatment in an Anaerobic Baffle Reactor followed by Vertical Flow Constructed wetland (or trickling filter) followed by irrigation (waste)	USD 200 - 400 per household of 10 persons	USD 5 - 10 per household of 10 persons per year. Lifetime > 15 years.	Tamale (Ghana), Zata'ri refugee camp (Jordan) https://iwaponline.com/washdev/article-abstract/7/3/521/31630/Developing-water-and-sanitation-services-in?redirectedFrom=fulltext
	Other	Treatment of waste water made ready for irrigation, with the use of paper filters, aerate systems, reverse osmosis and a pre-mixer for irrigation water (Broere Hortitech)	Mobile Solar Irrigation unit, total of grid, steering by a mobile phone.	€ 18.000, - for 18ha. Maintenance: 5%	For more than 8 years in NL and in 2018 also in Lebanon.
Improved agricultural practices (changing sowing dates, drought tolerant crops, conservation agriculture, extension and rural extension services)	Drought tolerant crops / trees	Salt tolerant crops (Saline farming group)	20-40% water savings, 30-100% yield increase in total		https://www.saline-farming.com/
	Permaculture	See Groasis Technology above	See Groasis Technology above	GT allows simultaneous planting of a productive tree with 4 vegetables which creates immediate income or produces food to eat; tree is a bonus that provides long term income GT allows simultaneous planting of a productive tree with 4 bushes / wildflowers which drastically reduces costs and increases speed of re-establishing forest cover	Desert tulip Company based in Amman have been Groasis Technology Experts and distributor in the MENA Region for more than 7 years

Annex 5: Consultation plan to comply to AF Environmental and Social Policy (ESP) and Gender Policy (GP)

Environmental and social principles	To do / consultation required to comply to AF ESP and GP	Consulted (see section II.I for outcomes)	Risk screening and impact assessment process
<i>Compliance with the Law</i>	<ul style="list-style-type: none"> - Identify relevant rules, regulations and standards, including procedures to comply to these for proposed interventions - Identify national legal framework and guidelines for conducting EIAs for relevant projects – see format in ToR (done during CN) 	Environmental directorate MoLAE	Relevant laws and how to comply have been identified (see section II.F)
<i>Access and Equity</i>	<ul style="list-style-type: none"> - Identify needs and potential issues related to proposed project actions - Include specific questions in vulnerable groups survey (done during CN and will be completed during full proposal) 	Vulnerable groups	Detailed stakeholder mapping has been conducted and consultations with identified vulnerable groups conducted
<i>Marginalized and Vulnerable Groups</i>		UNHCR; Vulnerable groups	Detailed stakeholder mapping has been conducted and consultations with identified vulnerable groups conducted; UNCHR has been consulted to understand specific needs and possible concerns of DPs (see section II.I)
<i>Human Rights</i>		OHCHR; Vulnerable groups	Detailed stakeholder mapping has been conducted and consultations with identified vulnerable groups conducted; UN-Habitat checked what core human rights have been ratified; OHCHR has been consulted to identify possible project human rights risks (see section II.I)
<i>Gender Equity and Women's Empowerment</i>		UNICEF; UN Women; Vulnerable groups	Detailed stakeholder mapping has been conducted and consultations with identified vulnerable groups conducted; UN Women and UNICEF have been consulted to understand specific needs and possible concerns of DPs (see section II.I). A gender baseline and approach has been included.
<i>Core Labour Rights</i>		ILO; Vulnerable groups	Detailed stakeholder mapping has been conducted and consultations with identified vulnerable groups conducted; UN-Habitat checked what core Labour rights have been ratified; ILO have been consulted to identify possible project human rights risks (see section II.I)

<i>Indigenous Peoples</i>		Vulnerable groups	Some Bedouins are now official Lebanese and Jordanians
<i>Involuntary Resettlement</i>		Municipalities ; Vulnerable groups	Resettlement will be avoided in all cases. All proposed activities are on public land or at household level where the household would agree with the intervention
<i>Protection of Natural Habitats</i>	- Identify any protected areas in target area (done during CN)	IUCN	UN-Habitat checked the IUCN Red list and consulted IUCN regional office (see section II.I)
<i>Conservation of Biological Diversity</i>	- Identify potential endangered species in target area (done during CN)	IUCN	
<i>Climate Change</i>	- Identify potential emissions from proposed interventions (partly done during CN)	Studies during full proposal	All proposed interventions are small-scale; Energy use (for e.g. waste water systems) will be produced through PV
<i>Pollution Prevention and Resource Efficiency</i>	- Identify if considered interventions will use large quantity of energy		
<i>Public Health</i>	- Include specific questions in vulnerable groups survey (done during CN)	Vulnerable groups	All interventions will support clean water supply in accordance with international standards
<i>Physical and Cultural Heritage</i>	- Identify heritage sites (done during CN) - Include specific questions in vulnerable groups survey	UNESCO website	No heritage sites have been identified in target areas
<i>Lands and Soil Conservation</i>	- Map any fragile and valuable lands in target area (done during CN)	IUCN; studies	Proposed interventions will support sustainable land/ soil use and avoid degradation

Annex 6: Gender approach and baseline

Purpose

The purpose of developing a specific gender approach and baseline is to provide an overview of what measures have been taken to ensure that women and men and vulnerable groups will have equal opportunity to build resilience, address their differentiated vulnerabilities and increase their capability to adapt to climate change impacts through project implementation (by providing a baseline with targets). Moreover, it also shows how, in this project, women and youth groups are recognized as “agent of change” in building community resilience.

Project preparation process

An UN-Habitat headquarter gender specialist is involved in the project preparation to ensure compliance with the Gender Policy. The project design and approach are ‘gender-responsive’ because, during the project preparation phase, gender equality and women’s empowerment have been considered during initial data collection focused on issues, needs and perceptions, activity prioritization and the identification and verification of specific ‘gender’ related risks and impacts. This has been done through desk research, surveys, focus group discussions and community decision-making processes.

Specific steps and considerations

1. Determinants for gender-responsive stakeholder consultation

Focus group discussions with women and youth have been conducted during the concept note development phase, especially to identify specific needs and possible concerns regarding proposed interventions. Besides that, UN agencies have been consulted. Relevant government institutions will be consulted during the full proposal to discuss execution modalities.

Table x: Stakeholders consulted for gender approach

Type of stakeholder	Specific stakeholder
National government (to be consulted during full proposal)	<ul style="list-style-type: none">- Jordanian National Commission for women- Lebanon Office of the Minister of State for Women Affairs (OMSWA)
UN agencies	<ul style="list-style-type: none">- UN Women- UNICEF
Community level	<ul style="list-style-type: none">- Community consultations and focus groups with women and youth

See part II.I

2. Initial Gender Assessment

The following has been identified / determined:

- ☐ Data baseline – overview of disaggregated data (beneficiaries) in target areas. Per activities see section II.D

Table x: Data baseline – overview of disaggregated data (beneficiaries) in target areas

Population / direct beneficiaries (Disaggregated)	
Lebanon	Jordan
>90,800 women >36,391 youth To be defined for trainings / skill building	>99,360 women >38,266 youth To be defined for trainings / skill build

- ☐ Differentiated climate change impacts on men and women and their differentiated capacities do adopt to these, gender division of labour and gender-based power structures.

Table x: Differentiated climate change impacts on men and women

	Labour sector	CC impact	Vulnerability	Capacity to adapt
Lebanon	Agriculture	Drought / less work	High dependency on agriculture sector for income; cultural and traditional barriers to negotiate salary and work conditions	Women organization
	Water (domestic)	Drought / less work	Time consuming and involves safety risk (including harassment) to collect water and high financial burden to get water	Collect water in ITS
Jordan	Agriculture	Drought / less work	High dependency on agriculture sector for income; cultural and traditional barriers to negotiate salary and work conditions	Women organization
	Water (domestic)	Drought / less work	Time consuming to collect water and high financial burden to get water. Physical and psychosocial stress to do house work (cleaning, laundry, etc.) once a week and mostly at night.	Collect water at home
	Employment	Flooding	Higher safety risk for women. Women have to stay at home with children and so it affects their income.	Flood water harvesting

- ☐ Analysis of legal status of women in the country/region

Lebanon

Article 8 of the Lebanese Constitution asserts the equality of rights and duties of all citizens, regardless of gender.[1] Lebanon ratified the Convention on the Elimination of All forms of Discrimination against Women (CEDAW) in 1997 with reservations to Article 9(2), regarding nationality; several subparagraphs of Article 16(1), related to personal status laws; and Article 29(1), on the settlement of disputes.[2] Lebanon has published CEDAW in the official Gazette, giving it primacy over national laws, one of the few Arab countries to do so. The country has not yet ratified the Optional Protocol.⁷⁰

Jordan

Jordan has seen important changes with regards to gender equality over the last decades. Work on women's rights reached new levels following the ratification of the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) in 1992 and the establishment of the Jordanian National Commission for women (JNCW) in the same year. The indicators for women's education and health show notable improvements. However, women's participation in the formal labour market is low. Moreover, women are still not equal to men before the law. There have been several reforms of the Personal Status Law

⁷⁰ <https://www.genderindex.org/country/lebanon/>

(the latest reform took place in 2010). Violence against women is not sufficiently addressed. The gender gap in politics persists despite introduced quotas for women.⁷¹

- ☐ Analysis of cultural/religious status of women in the country/region

Lebanon

Country falls into group 5 countries: has low equality in HDI achievements between women and men: absolute deviation from gender parity greater than 10 percent (HDI 80 out of 189)⁷² and scores 'high' on level of discrimination of women on the OECD gender index (with especially access to resources being an issue).⁷³

Jordan

Country falls into group 5 countries: has low equality in HDI achievements between women and men: absolute deviation from gender parity greater than 10 percent (HDI 95 out of 189) and scores 'high' on level of discrimination of women on the OECD gender index (with access to resources, civil liberties, and son bias).⁷⁴

- ☐ Opportunities for promoting a 'women' and 'youth' as agents of change
 - Strengthen women organization
 - Women to lead water harvesting and efficient use at home / in settlement and develop business cases
 - Youth to work with women to lead water harvesting at home / in settlement and develop business cases (women and youth to be trained to do enable them).
 - Women to lead permaculture activities as consultations have shown that they see it as a source of income and can develop business cases.
 - Youth to lead greywater reuse in public buildings (e.g. mosques and schools) and women to lead greywater reuse at household level.
 - Youth to lead awareness raising campaigns on adaptation to water scarcity.

3. Project planning and design (to be completed during full proposal phase)

The following has been identified / determined:

- a. Program goals/objectives and target groups
 - ☐ Key gender goals (to improve gender equality)
 - ☐ Entry points to integrate gender considerations (how to empower women and youth)
 - ☐ Suitable interventions to meet specific needs and built on women skills and knowledge
- b. Design of intervention activities:
 - ☐ Promoting an enabling environment for gender equality
 - ☐ Specific roles and needs women (and men) and youth
 - ☐ Involvement women (and men) and youth in activities
 - ☐ Additional activities needed to ensure gender perspective, incl. risk mitigation measures

Table x: gender baseline, goals and roles

Scale	Disaggregated beneficiaries, gender specific issues and	Key goals, entry points and suitable interventions (see 3a)	Specific roles and activities to ensure gender perspective (see 3b), incl. potential risk mitigation measures
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⁷¹ <https://www.genderindex.org/country/jordan/>

⁷² <http://hdr.undp.org/en/composite/GDI>

⁷³ <https://www.genderindex.org/country/lebanon/>

⁷⁴ <https://www.genderindex.org/country/jordan/>

	needs (see 2) / baseline		
State / municipal			
Focus area / community			
(Concrete) intervention			

c. Executing entities:

- ☐ Commitment to gender equality
- ☐ Capacity building objective

d. Project outputs

- ☐ Specific for women and youth
- ☐ Measuring how the environment will enable gender equity

e. Gender responsive indicators

- ☐ Indicators towards fulfilment of goals / objectives
- ☐ Gender disaggregated
- ☐ Targets toward equality

f. Budget

- ☐ Allocation for mainstreaming?

Table 24: gender perspective, targets, indicators and budget

Component and outputs	Gender perspective selected executing entity (see 3c)	Specific 'gender' targets (when specific 'gender' output) (see 3d and e)	Specific 'gender' Indicators (see 3e)	Budget required and allocated (see 3f)

4. Implementation

- Adaptive management
- Gender expertise and focal points
- Are partner organizations aware
- Sustainability of gender response/on-going engagement of women
- Strategy for capacity building for local women

5. Performance Monitoring and Evaluation

- Gender responsive management response in place, including participatory monitoring?
- Methods, tools and budgets needed to collect 'gender data'?

6. Knowledge Management, Information Sharing and Reporting

- Gender considerations (inequalities, needs, etc.)
- Lessons learnt and best practice



ADAPTATION FUND

Project Formulation Grant (PFG)

Submission Date: 07-01-2019

Adaptation Fund Project ID:

Country/ies: Jordan and Lebanon

Title of Project/Programme: Increasing the resilience of displaced persons and host communities to climate change-related water challenges in Jordan and Lebanon

Type of IE (NIE/MIE): MIE

Implementing Entity: UN-Habitat

Executing Entity/ies:

Lebanon: Ministry of Environment; Line departments in Zahle; UNICEF (tentative)**Jordan:** Ministry of Environment; Line departments in Irbid and Mafraq; UNICEF (tentative)**A. Project Preparation Timeframe**

Start date of PFG	01-04-2019
Completion date of PFG	31-12-2019

B. Proposed Project Preparation Activities (\$)

Describe the PFG activities and justifications:

List of Proposed Project Preparation Activities	Output of the PFG Activities	USD Amount
1. Conduct feasibility and required hydrology and irrigation studies and impact assessments / risk screening of proposed interventions / (especially relevant for larger projects which may require an EIA by law	Risk screening and impacts assessments reports	60.000
2. Conduct community and vulnerable group consultations to comply to the AF ESP and GP	Consultation reports	13.200
PSC	8.5%	6.800
Total Project Formulation Grant		80.000

C. Implementing Entity

This request has been prepared in accordance with the Adaptation Fund Board's procedures and meets the Adaptation Fund's criteria for project identification and formulation

Implementing Entity Coordinator, IE Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Raf Tuts	<i>for</i> <i>Raf Tuts</i> OIC.	07/01/2019	Tarek Abdel Monem	+20237618812	tarek.abdel-monem@un.org