PROJECT PROPOSAL

GENERAL INFORMATION

Name of Organisation/Country of registration/ Registration number/ Charter organization to be attached: United Nations Relief and Work Agency (UNRWA)

Title of the project: Remediation and Upgrading of Camp Water Supply Networks in Seven Palestine Refugee Camps in Lebanon

Area of intervention: Seven Palestine refugee camps in Lebanon

Start and end dates of the project (work plan in Annex): 18 months upon receiving the fund.

Overall project cost and requested funds: US$ 2,626,216

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1. Situation

1.1 General

Water is essential for sustaining life and access to drinking water is a fundamental need and a human right, vital for health and well-being. The health and economic benefits of improved water supplies to households and individuals (especially women, children and older people) are well documented, particularly if the target population is characterised by high levels of poverty, social exclusion and a lack of civil rights.

Within the Palestine refugee camps in Lebanon, thousands of families continue to live in chronic and dire social housing conditions, in rundown and hazardous shelters and with decaying infrastructure. This includes a lack of adequate drinking water, leaking sewerage pipes and deteriorating and congested roads and alleyways. Considering that Palestine refugees in Lebanon do not have the right to own property, it is crucial that they are provided with a safe, dignified and habitable environment in the camps in which they reside.

One of the most acute needs of the Palestine refugee community in Lebanon is access to potable water within the camps. Although several functioning water sources exist in each refugee camp, the quantity of water provided is insufficient to meet the daily domestic requirements of the refugees. Additionally, in some of the camps the water is unsuitable for drinking due to high salinity rates as reflected in the levels of Total Dissolved Solids (TDS) that fall far beyond World Health Organisation (WHO) standards. As a result, people are forced to buy water for drinking and domestic use from small water treatment plants located in and around the camps or from privately owned stores. The quality of this water is not guaranteed. This imposes an additional financial burden on refugees which many cannot always afford.

With this intervention, UNRWA proposes to assist Palestine refugee community residing in seven camps in Lebanon (Shatila, Burj el-Barajneh, Mar Elias, Dbayeh, Beddawi, Mieh Mieh and Wavel camps). In three of the camps located in the Central Lebanon area (Shatila, Burj el-Barajneh and Mar Elias camps), the following measures are proposed:

1) Planning and implementation of works to improve water production at source;
2) Planning and implementation of water treatment systems subject to undertaking feasibility studies as required; and
3) Training for local community representatives in the operation and maintenance of the upgraded water plants.

In relation to Dbayeh Camp (also in Central Lebanon area), Beddawi Camp (located in the North of Lebanon), the proposed interventions consist of improving the water network connections and increasing water production at source.

For Mieh Mieh Camp (located at the South of Lebanon) and Wavel Camp (located in the Beqaa Valley), the proposed interventions consist of upgrading and enhancing the electricity supply (relating to the national supply from Electricite du Liban and backup generators).

The goal of the project is to ensure a long and healthy life by preventing and controlling diseases through the provision of access to safe drinking water.

1.2 Specific (concerning the project)

Palestine refugees in Lebanon continue to endure difficult and deplorable living conditions, arising principally from their widespread social exclusion and lack of civil rights. As a result, the Palestinian population experiences high levels of unemployment, chronic ill-health and associated social problems. In the absence of achieving a comprehensive resolution to their long-standing plight, the overall situation of Palestine refugees shows no sign of improvement in the foreseeable future.

According to the recent socio-economic survey undertaken in 2010 by the American University of Beirut and commissioned by UNRWA, more than two-thirds of Palestinians in Lebanon are poor (live on less than $6 per day) while 6.6% of Palestine refugees are extremely poor (living on less than $2.17 per day). In addition, the survey revealed that 56% of Palestine refugees are jobless, 31% of Palestinians are estimated to have chronic illnesses, and 95% of the refugee population is without health or social insurance. In accordance with many other international research studies, the AUB / UNRWA report shows the close correlation between a poorly built environment and endemic health burden. In this context, contaminated water supplies contribute to the dissemination of gastrointestinal diseases among the population, which disproportionately affects young children and people with deficient immune systems.

However, the provision of adequate water supply services in terms of quality and quantity is not so much a technical issue, but a financial one. In recent years, UNRWA has initiated a range of infrastructural improvements including the upgrading of water supply systems. As part of this process, this proposal is making the case for priority water intervention projects to be carried out in five of the worst affected Palestine refugee camps.

The three proposed interventions in the Central Lebanon Area form part of the “Beirut Camps Potable Water Production Global Project” which will increase access to an adequate supply of potable water for the population of the three camps concerned.

In the three camps concerned (Shatila, Burj el-Barajneh and Mar Elias), the situation regarding access to potable water is similar. The three camps have been partially or totally cut off from the Beirut water supply network since the time of the civil war (1975 – 1990). Temporary measures were undertaken by UNRWA at the time to supply non-potable water though the drilling of shallow boreholes, systems that are still in place today.
The current situation with regard to these camps remains very sensitive. Notwithstanding the fact that significant efforts have been made to improve the water supply networks, the camp residents spend a large portion of their already meagre budget to buy potable and domestic water to meet their needs. Further investment is therefore required to ensure an adequate supply of potable water and reduce both the economic and health burden of the affected population.

**Shatila camp**: Located in southern Beirut, Shatila camp was established in 1949. For the 13,000 Palestine refugees currently residing in the camp, water is supplied from two local water wells that are managed by the camp’s Popular Committee (the representative body for all camp inhabitants and the official interlocutor for UNRWA). The water from both wells is both undrinkable and unsuitable for domestic use. Shatila camp residents purchase potable and domestic water for their daily needs from local water providers located inside and outside of the camp. The camp suffers from a chronic shortage of water (the deficit is estimated at 75% of the camp’s needs).

A hydro-geological study conducted in November 2010 in Shatila and Burj el-Barajneh camps financed by SDC confirmed that there is no viable source of fresh water in both camps. The only option is therefore to increase the supply of brackish water from the unconfined aquifer through the use of additional shallow boreholes and to treat the produced water with pre-filtration and reverse osmosis systems.

**Burj el-Barajneh camp**: The camp was established in 1949 and is situated in the southern suburbs of Beirut. As of June 2011, 17,072 Palestine refugees are registered as residing in the camp and it is estimated that the camp water supply needs to be able to cater for 28,000 persons, taking into consideration non-registered persons living in the camps and adjacent areas. There are more than 10 local wells managed by the Popular Committees which provide around 95% of the residents with non-potable water. The majority of persons depending on water produced from the camp boreholes are forced to find their own source of potable and domestic water. The two main sources are shops located inside and outside of the camp as well as local organizations that distribute water throughout the camp. Water supplied by local organizations is often left in uncovered tanks, potentially compromising water quality. The water deficit in the camp is estimated to be as high as 43% of the camp’s requirements.

**Mar Elias camp**: The smallest refugee camp in Lebanon, Mar Elias camp was founded in 1952. There are currently 637 refugees registered as living in the camp, although it is estimated that the camp water supply needs to cater for a population of 2,000 persons, when other non-registered persons residing in or adjacent to the camp are taken into account. The camp’s Popular Committee manages two local water wells which supply water to households, although the water supply provided is inadequate and not potable. It is estimated that the camp’s present water supply meets only half of the camp’s needs. Residents purchase their own water for drinking and other domestic use from water shops and commercial providers.

It should be noted that in both Burj el-Barajneh and Mar Elias camps some families living at the edges of the camps have subscriptions and are connected to the Lebanese Water Network from which they receive a sporadic supply of non-potable water.

**Beddawi camp**: The camp was established in 1955 and located in the northern suburban area of Tripoli, North Lebanon. There are currently 18,342 Palestine refugees registered as residing in the camp. The camp has a rich supply of potable water, but the quantity supplied from the existing wells is insufficient to meet the demand of the estimated population of 27,000 people who depend on the camp’s water supply. This includes over 2,000 families
who continue to be displaced from Nahr el-Bared camp and who currently reside in or around the camp and also utilise its networks. The over-pumping of underground water sources puts the local wells at constant risk. Additionally, as a result of flaws within the water supply network, water is not equally distributed amongst camp residents. During the summer, water supplies dwindle, meeting only 30% of the camp’s needs.

**Dbayeh camp:** Situated on a hill 12 kilometres east of Beirut, Dbayeh camp was established in 1956. The official number of Palestine refugees registered as residing in the camp is 4,259. In the beginning of the 1990s, the camp was connected to the Timish water supply network. In 2008 and 2009 a new water network was constructed including an elevated water tower. The new water supply network fails to supply adequate quantities of water to the camp, however. The main technical reasons behind the failure of the water supply can be summarized as follows:

- The Timish water pipeline is of insufficient diameter to convey the daily water needs as specified in the original network design;
- Frequent power cuts pose an extra challenge to the borehole’s daily operation; and
- The lack of water pressure in the Timish feeder does not enable the water to reach the elevated water tank without intermediary boosting.

**Mieh Mieh camp:** Situated at the East of the city of Saida, this camp was established in 1954. The official number of Palestine refugees registered as residing in the camp is 5,078. Recently, a second borehole has been drilled and equipped to provide a backup to the existing operating borehole. Although the borehole has been commissioned, it is not operational due to the inadequate power supplied from Electricite du Liban (EDL) and the backup generator.

**Wavel camp:** The camp was established in 1948 in the ex-French military barracks of Baalbeck in the Beqaa Valley. In 1999, a new deep borehole was drilled, equipped and commissioned to supply the 7,347 registered Palestine refugees in the camp. The borehole which is backed up by the old water supply network of the Municipality of Baalbeck had some contamination problems which have been solved through the interventions financed by the SDC Back-Pack Project. The limited funds available for the new borehole did not allow for the upgrading of the electrical supply and priority has been given to supplying power through a new generator, a decision necessitated by the endemic electricity cuts in the Baalbeck municipality and surrounding region.

### 1.3 Agency activities during the last years (experiences)

In spite of their longstanding presence in Lebanon, Palestine Refugees remain excluded from key aspects of social, political and economic life in this country. The United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) provides education, health, relief and social services and infrastructure improvements within each of the twelve camps in Lebanon.

In coordination with UNRWA, the Lebanese Government launched an initiative in 2005 to improve the living conditions of Palestine refugees in Lebanon. The program is known as the Camp Improvement Initiative (CII). In response, UNRWA developed a comprehensive plan to address the critical infrastructure needs, including water and sanitation, of the Palestine refugee camps in Lebanon.

UNRWA entered into a number of partnerships to expand access to water supply and to improve water quality, and has already carried out crucial interventions to tackle water-related issues in the camps. Projects include the drilling of additional boreholes, construction
of water tanks and the rehabilitation or replacement of water supply systems. In spite of this, however, additional interventions are still needed to ensure adequate availability and quality of water supplies in the Palestine refugee camps in Lebanon.

Recently in Shatila camp, new water supply networks were installed, a shallow water well was drilled and an elevated water tower reservoir (500m³) was constructed. Notwithstanding these works, however, additional boreholes still have to be drilled or modified; connections between boreholes and the elevated water tank have to be completed together with the installation of a water treatment plant, in order to ensure an adequate potable water supply for camp inhabitants.

In Burj el-Barajneh and Mar Elias camps, an infrastructure project including the construction of new water supply networks, elevated water tanks and connection of the existing sewerage systems to the Municipal networks has been underway since 2009. The project is in its last stages, with all works in Mar Elias camp completed and approximately 85% of the works in Burj el-Barajneh camp finished. However, rehabilitation and connection of seven of the existing boreholes to the elevated water tank where a water treatment plant must be installed still need to be completed in order to guarantee an adequate potable water supply to the camp.

In relation to Beddawi camp, work commenced in 2010 to increase the potable watersupply. One deep borehole was drilled, but pumping equipment was not installed due to insufficient funds on the part of the donors concerned. In order to mitigate this, an existing borehole was upgraded as the first of a two-phase project, the second phase of which will comprise the upgrading of pumping equipment and associated plant (including the acquisition of a new transformer with switch panel and backup generator). Upon completion, both boreholes will be connected to the existing elevated water tank.

In Dbayeh camp, commencing in 2009 and ending at the beginning of 2010, a new water and sewerage network was constructed. The sewerage network has been connected to the municipal mains, but it has not been possible to connect the water feeder line to the municipal network due to technical and administrative issues. The remaining interventions will be the construction of a line connector including a boosting station, as well as commissioning the new water supply network.

Currently, in the Mieh Mieh camp the electrical power supply from EDL and the backup generator are too weak and don’t meet the requirements of the new borehole plant. These two electricity sources could have been improved as part of the works to construct the new borehole, however, due to the restrictive budget only the basic plant and the connection to the existing elevated tank have been provided. The present action will permit the installation of an adequate electricity transformer and generator with associated electrical works to permit the operation of each borehole on an alternating basis in order to supply a fresh water feed to the elevated tank.

In Wavel camp, following the decontamination of the borehole, the borehole will remain the only water source permanently connected for the supplying water to the camp. The connection to the old water supply network of the Municipality of Baalbeck will remain as a backup solution until other alternatives become available (a complicated situation due to the combination of a fragile aquifer vulnerable to contamination and a municipality which is not in position to improve its existing water supply network due to lack of funds). Therefore, even with the frequent electricity cuts, the energy costs incurred in operating the borehole will be considerably reduced through the provision of an adequate transformer.

UNRWA’s priorities for action, related to improving access to water for Palestine refugees in Lebanon, are contained within the Lebanon Field Implementation Plan (FIP), a biennial
plan prepared by UNRWA which sets out four broad goals as well as specific targets for service development and infrastructure renewal. For the planning period 2012-13, projects in relation to water supply feature among the top priorities. Goal One of the FIP is to promote a long and healthy life, with the prevention and control of disease through ensuring access to safe and potable water a key outcome.

Ensuring the availability of safe and potable water for the seven aforementioned camps will have a major beneficial impact on the environmental health conditions of over 76,000 Palestine refugees. When neighbouring Lebanese communities are taken into account, these interventions will benefit more than 100,000 vulnerable persons.

This project will result in a major reduction of water-related health risks to children, elderly and people with weakened immune systems. In addition, the interventions will help Palestinians and other vulnerable persons to feel less marginalized and will thereby contribute to the overall stability of Lebanon. Instilling a sense of hope in Palestine refugees is contingent on providing them with the means and opportunity to live dignified and healthy lives.

Furthermore, as part of the United Nations system, UNRWA’s proposed project contributes towards the Millennium Development Goal (MDG) relating to drinking water and sanitation (MDG 7, Target 7c), which is to: "Halve, by 2015, the proportion of people without sustainable access to safe drinking-water and basic sanitation".

1.4 Aim of the project/programme and expected results (logframe in Annex)

The goal of the project is to ensure a long and healthy life by preventing and controlling diseases through the provision of sufficient access to safe drinking water.

UNRWA strategy for water supply in Palestine refugee camps

In addition to the project goal mentioned above, UNRWA works towards achieving a transfer of responsibility for managing the water supply network from the Agency to the resident representatives in each camp, with UNRWA retaining the role of technical support in partnership with the resident representatives. Furthermore, UNRWA seeks to provide a long term bridging role pending the ultimate negotiation with the relevant Lebanese authorities in charge of provision of affordable access to water (connections and supply) to the Palestine refugee camps. Finally, the Agency will ensure that all implemented interventions not only support the Palestine refugees, but also relieve the pressure on other vulnerable people living in the adjacent areas of the camps which are currently benefiting from the camp water supply networks.

During the course of 2009, UNRWA-Lebanon Field Office (LFO) approached SDC to request the appointment of an Environmental Health Specialist to act as a support to the Agency in addressing impediments to achieving the two main goals of the UNRWA Environmental Management Policy, which are:

- To improve the environmental conditions experienced by the Palestine refugees, to minimize the risk of negative environmental effects due to the construction and operation of UNRWA installations and infrastructures, and to reduce the climate effects due to UNRWA’s consumption of energy and use of materials.
- To ensure sustainability of the environmental management process in UNRWA installations and camps by developing and implementing appropriate environmental management tools and guidelines and by developing partnerships to implement environmental management initiatives.
Both goals have the objective of assisting the UN collectively to achieve climate neutrality, through systematic, sustained, and measured reductions in the consumption of electricity, water, fuel, and materials where possible and in all areas of operation that are under its direct control.

For UNRWA–LFO in particular, Environmental Health is about improving the quality of life of the Palestine refugees in all camps and ensuring livelihood in safe and healthy environments. “Environmental management” per se refers to minimizing the negative environmental impacts that may be caused by any of the activities of the Agency and optimizing the opportunities to generate net environmental benefits. It also includes promotion of public awareness with regard to the environmental management initiatives that can be implemented by the clients and/or stakeholders that the organization works with.

The seconded SDC Environmental Health Specialist has been involved in a wide range of environmental issues, including water. Arising from a survey of water-related needs in the 11 Palestinian Refugees Camps in Lebanon (excluding Nahr el-Bared) it has been possible to identify, prioritize and plan a range of strategic interventions, from which those contained in this Project Proposal are drawn.

The seven specific actions identified in this proposal have been selected on the basis that they would achieve a positive impact within a short timeframe (Fast Track Interventions) and to a large beneficiary population. Other projects, which had been identified have been excluded due to their complexity or to the timeframe required for implementation. The proposed actions in Shatila, Burj el-Barajneh, Mar Elias, Beddawi and Dbayeh will contribute to the significant improvement in water quality and supply. For Mieh Mieh and Wavel, the proposed actions will secure the electricity sources. The improvement resulting of the proposed actions in the seven camps can be classified as long-term, sustainable and robust solutions.

Through the interventions in Shatila, Burj el-Barajneh and Mar Elias camps, the “Beirut Camps Potable Water Production Global Project” will be completed. These three camps will benefit from an affordable source of potable water which will sustain the population until municipal supplies become available at a competitive price. In relation to Beddawi and Dbayeh, the interventions will constitute a long-term, safe and sustainable solution to ensuring the delivery of adequate supplies of potable water. In Mieh Mieh and Wavel, the interventions will secure the electricity power supply sources.

1.5 Description of project/programme

The seven interventions defined in the Project Proposal can be classified as four different project types.

For Shatila, Burj el-Barajneh and Mar Elias, the interventions are of a similar nature. Each camp project is designed according to the specific requirements of each situation and the appropriate works to be undertaken are defined. This ensures the completion of each project according to the appropriate set of standards and that the facilities fit the intended purpose with a view to guaranteeing a long-term and sustainable solution.

According to the specificities of each camp, the activities planned are as follows:
A. Civil and Electromechanical Works

**Shatila**
- Construction of an underground water buffer tank which will receive and mix the water coming from five boreholes located inside the camp;
- Modification and extension of the facilities constructed under the elevated water tank with the aim of facilitating the installation of a reverse osmosis water treatment system, including pre-filtering and raw water gravity feeder tanks;
- Modification of an existing borehole which will be plugged at a predetermined level, re-cased and equipped with an accurate pumping system;
- Drilling of a new shallow borehole;
- Connection of all the five shallow boreholes (three existing and the two mentioned above) to the underground buffer tank;
- Installation of a reverse osmosis water treatment system, including pre-filtering and raw water gravity feeder tanks;
- Modification of an existing borehole which will be plugged at a predetermined level, re-cased and equipped with an accurate pumping system;
- Installation of the necessary electrical facilities (electricity transformer, backup generator and partial solar generation through photovoltaic panels) to permit the operation of the new boreholes and other pumping systems including the reverse osmosis water treatment;
- Installation of the necessary electricity panels to monitor the supply to the different electrical consumers;
- Possible installation of boosting stations (to be identified during the final commissioning of the water supply network) in some of the water distribution sub-networks;
- Installation of a telemetric monitoring system to ensure remote follow up of the entire potable water production and distribution;
- Selection of water treatment and water supply operators followed by the operation of the system.
- Global Training of the selected water treatment and water supply operators. This “Global Training” includes the transfer of technology through specific training related to the operation of the entire water supply system of the camp and which depends on the management of the raw water supply (operation and maintenance of the shallow boreholes), the management of the water treatment system (management of the water to feed the pre-filtration and reverse osmosis water treatment), the management of the water supply by sector of the camp (regulation of the feeding of the distribution sector networks, potential operation of boosting system, etc…). The training for preventive and corrective maintenance which do not require external technical and technological support and other specific trainings in administration and procurement for the supply of spare parts and consumables.
- Provision of continuous technical support over two years is also planned to ensure an adequate transfer of technological knowledge.

**Burj el-Barajneh**
- Modification and extension of the facilities constructed under the elevated water tank in order to facilitate the installation of a reverse osmosis water treatment system, including pre-filtering and raw water gravity feeder tanks;
- Rehabilitation of existing borehole (3-5 boreholes, depending of the results of a project currently being implemented) by:
  - Controlling the borehole water flow with the equipment installed
  - Removal of the pumping line and survey of the borehole casing by CCTV camera
  - Internal cleaning of the borehole and internal re-casing if necessary
  - Change of the pumping line (pump and pipe according to the new needs parameters)
Installation of a by-pass to ensure connection to the central water treatment plant and retaining the possibility of using the borehole independently from the central system
- Rehabilitation of the electricity connection and electrical panel
- Improvement of the borehole head chamber

- Drilling and equipping of a new shallow borehole beside an existing borehole which cannot be rehabilitated and decommissioning the old borehole;
- Complete the connection of all the shallow boreholes (seven) to the newly constructed elevated water tank;
- Installation of a reverse osmosis water treatment system, including pre-filtering and raw water gravity feeder tanks;
- Installing the necessary electricity facilities (electricity transformer and backup generator) to permit the operation of the boreholes and other pumping systems including the reverse osmosis water treatment;
- Installation of the necessary electricity panels to monitor the supply to the different electrical consumers;
- Possible installation of boosting stations (to be identified during the final commissioning of the water supply network) in some of the water distribution sub-networks;
- Installation of a telemetric monitoring system to ensure remote follow up of the entire potable water production and distribution
- Selection of water treatment and water supply operators followed by the operations of the system.
- Global Training of the selected water treatment and water supply operators. This "Global Training" to include the transfer of technology through specific training related to the operation of the entire water supply system of the camp which depends on the management of the raw water supply (operation and maintenance of the shallow boreholes), the management of the water treatment system (management of the water to feed the pre-filtration and reverse osmosis water treatment), the management of the water supply by sector of the camp (regulation of the feeding of the distribution sector networks, potential operation of boosting system, etc…). The training for preventive and corrective maintenance which do not require external technical and technological support and other specific training in administration and procurement for the supply of spare parts and consumables.
- Provision of continuous technical support over two years is also planned to ensure an adequate transfer of technological knowledge.

Mar Elias

- Modification and extension of the facilities constructed under the elevated water tank to facilitate the installation of a reverse osmosis water treatment system, including pre-filtering and raw water gravity feeder tanks;
- Connection of all the existing two shallow boreholes to the water treatment facilities under the new elevated water tank;
- Installation of a reverse osmosis water treatment system, including pre-filtering and raw water gravity feeder tanks;
- Installing the necessary electricity facilities (electricity transformer and backup generator) to permit to operate the boreholes and other pumping systems including the reverse osmosis water treatment;
- Installation of the necessary electricity panels to monitor the supply to the different electrical consumers;
- Possible installation of boosting stations (to be identified during the final commissioning of the water supply network) in some of the water distribution sub-networks;
Installation of a telemetric monitoring system to ensure remote follow-up of the entire potable water production and distribution.

Selection of water treatment and water supply operators followed by operating the system.

Global Training of the selected water treatment and water supply operators. This “Global Training” will include the transfer of technology through specific training related to the operation of the entire water supply system of the camp which depends on the management of the raw water supply (operation and maintenance of the shallow boreholes), the management of the water treatment system (management of the water to feed the pre-filtration and reverse osmosis water treatment), the management of the water supply by sector of the camp (regulation of the feeding of the distribution sector networks, potential operation of boosting system, etc…). The training for preventive and corrective maintenance which do not require external technical and technological support and other specific training in administration and procurement for the supply of spare parts and consumables.

Provision of continuous technical support over two years is also planned to ensure an adequate transfer of technological knowledge.

Beddawi

The Beddawi interventions mainly entail improvements to the boreholes. The first action will be the equipping and connection of a recently drilled borehole to the existing elevated water tank supplying potable water to the majority of the camp. The borehole was not equipped at the time of its drilling due to shortage of donor funds. The second intervention will be the completion of an UNRWA project of borehole improvement which was commenced in 2010 and stopped during its initial phase, which entailed the extension of the drilling and repositioning of the submersible water pump. The second phase of the project will entail the change of equipment (submersible water pump, rising main, electric transformer, electricity switch and monitoring panel and new backup generator) and the connection of the borehole to the existing elevated water tank.

Dbayeh

The Dbayeh intervention will permit the commissioning and initiation of the new water network with elevated tank which was completed at the beginning of 2010. According to the agreement made between UNRWA and the Beirut Water Authority, a connection to an existing raw water feeder coming from the municipality of Dbayeh will be implemented. This operation will include the construction of a boosting station at the lowest part of the camp and the extension of the water pipeline to the recently constructed elevated water tank. After the initiation of the water feeder line, the entire water supply network will be commissioned and any corrective action required will be taken.

Mieh Mieh and Wavel

The Mieh Mieh and Wavel interventions will ensure the provision of an economical and safe electricity supply with adequate backup facilities. In both camps, the improvement of the electricity supply network, connections and monitoring will considerably enhance the operation of the boreholes, ensuring at the same time a long-term solution.

B. Capacity Building and Transfer of Knowledge

The capacity Building and Transfer of Knowledge will form part of the project’s main results. The overall project summarized main results are:
The provision of an adequate supply of potable water over the long-term for the seven camps identified;

Incorporation of UNRWA Engineering Department in the study and development of the seven approaches to solve these chronic water problems;

Empowerment of the respective camp communities (Shatila, Burj el-Barajneh and Mar Elias) by transferring responsibility for the production and distribution of potable water to the camp Popular Committees (PCs);

Transfer of Knowledge and Technology in Shatila, Burj el-Barajneh and Mar Elias through the training of selected persons from each camp;

Ensuring a long-term safe and affordable operation of water production, water treatment and supply systems.

For Shatila, Burj el-Barajneh and Mar Elias camps, changing the position of UNRWA-LFO from being a service provider and permit the institution to become a technical partner with the respective camp PC’s.

A Communication Officer will be recruited to facilitate and ensure the accurate project communication to the community and the design and coordination of the awareness campaigns within the community.

The project’s technical team will be accommodated in offices in each of the three camps of Beirut.

N.B.: In any case, UNRWA-LFO remains ultimate responsibility as guarantor of the water facilities installed and will continue to provide backup in relation to all water supply systems.

1.6 Project/programme implementation

Please refer to Annex III: Work Plan

In addition of the overall Work Plan in annex III, separate work plans are set out for each sub-project showing the breakdown by activities and packages. This will allow a contract per package or, depending on the capacity of the invited contractors, the bidders could offer their services for more than one package keeping low overheads cost.

The separate work plans are included in “Other project support documents” in the Annexes.

N.B. The order of operations specified in the sub-project work plans will remain the same during the sub-project implementation. However, the number of contracts could be reduced according to the statement above.

1.7 Set-up and Partner organisations

As part of the strategy for Shatila, Buj el-Barajneh and Mar Elias projects, separate partnerships between UNRWA-LFO and the PC’s of each camp will be established.

In relation to Beddawi, it is premature to envisage a partnership between UNRWA-LFO and the camp PC’s due to a temporary situation created by the people coming from Nahr el-Bared camp after its destruction during the 2007 crisis. Given the current situation and until
the total reconstruction of Nahr el-Bared camp is completed, no negotiations in relation to establishing a partnership with the camp PC's are conceivable.

In the case of Dbayeh, the camp will become dependent on the water services of the Beirut Water Authority, which officially is the only authorized entity to supply water in that area of Beirut.

Mieh Mieh camp will remain dependent on its own water supply facilities for at least the next twenty years. In the near future, it is foreseeable that the operation of the water system could be transferred to the camp PC.

Wavel camp has similar conditions to those in Mieh Mieh camp with the difference that the backup water supply comes from outside of the camp and is dependent on a third party which is the Baalbeck Municipality. The possibility of have a reliable municipal water supply is remote and the actual formula maybe keep for a long period.

1.8 Sustainability and/or exit strategy

In the specific case of UNRWA-Lebanon, it is difficult to discuss sustainability and exit strategy because there are effectively no alternatives in relation to the supply of water in the camps other than the system which is currently in place and the improvements contained in this proposal. Indeed, the Lebanese entities responsible of water production and water supply are struggling to cope with current demands in Lebanon and it is envisaged that it will take up to two decades to address this issue. Related to this situation, only three camps (Shatila, Burj el-Barajneh and Mar Elias) would be in a position to facilitate the design and implementation of an “Exit Strategy” for UNRWA-LFO which by agreement would remain in any case the guarantor of the planned “Sustainable Water Systems”.

Taking as an example Shatila Camp, the pre-project study demonstrated the sustainability and affordability that this long-term solution with robust equipment should facilitate. Currently, the spending average per family per month to access potable and domestic water in Shatila is about 30 USD. With this amount of money each family have bottled potable water to drink and cook, domestic water in gallon drums for domestic use and brackish water to flush toilets and other services. The improvements proposed by the project will provide the same families with about 50 litres of potable water per day per person at an estimated cost of between 16 USD to 20 USD per month (each cubic meter of potable water will cost between 1.8 to 2 USD). In this estimated cost, all expenses will be included (production of raw water, water treatment, water distribution, personnel to operate the entire system, administration, etc...), including reserve funds for periodical renewal of equipment reaching the end of its lifespan.

In Shatila, UNRWA subsidises the supply of brackish water since several decades, which is facilitated through two shallow boreholes which were recently rehabilitated.

The same scenario with different figures applies for Burj el-Barajneh and Mar Elias camps. When the improvements of the water production and water supply of the three camps will be completed (Shatila, Burj el-Barajneh and Mar Elias), UNRWA will contract a specialist to supervise the three water supply systems instead of subsidizing the PC for the operation of the boreholes. UNRWA will also take care of the long-term maintenance of the systems by outsourcing regular survey campaigns to be carried out by an external specialist (the possibility of contracting with the company which had installed the system will be examined) who will review the equipment, provide refresher courses for operators and make recommendations in relation to maintenance.

In line with the transfer of responsibilities to the camp PCs, related training activities will also be implemented. Trainings will be customized according to the specific context of each camp and appropriate water supply monitoring systems will be designed. To ensure the compliance with existing protocols, ongoing technical supervision will be provided by UNRWA and punctual surveys will be undertaken by an external specialist who will review
the equipment, provide refresher training for operators and make recommendations in relation to maintenance issues.

From the nine other camps that are not yet in a position to become autonomous, it is envisaged that two of these – Dbayeh and El Buss – will reach this position shortly, pending the completion of negotiations to officially benefit from connections to municipal water supply systems. For the seven other camps, group to which Beddawi, Mieh Mieh and Wavel belongs, a long procedure including water supply system improvements, awareness campaigns and other related actions will be necessary to ensure streamlined access to potable water. In these seven camps (Nahr el-Bared, Beddawi, Ein el-Hilweh, Mieh Mieh, Burj el-Shamali, Rashidieh and Wavel), it will be difficult for UNRWA to reduce its actual financial support, unless the status of the Palestine refugees in Lebanon is positively reconsidered by the Lebanese Authority.

1.9 Transversal themes [Cross-cutting Issues]

The “Beirut Camps Potable Water Production Global Project”, which includes the interventions in Shatila, Burj el-Barajneh and Mar Elias camps, is a project with different cross-cutting themes.

In these three projects, women and children, who are identified as being key actors to guarantee the efficiency and sustainability of the project, will be specifically targeted through awareness-raising interventions on efficient management of water resources. Therefore, the gender balance will be reached thanks to the participation of women involved in the camp NGOs programs. The children will be sensitized through civic education at school and youth associations.

Awareness-raising interventions on efficient management of water resources will be targeted at both population groups. The camp NGOs and school teachers will also be trained accordingly.

Through the completion of the “Beirut Camps Potable Water Production Global Project”, including Shatila, Burj el-Barajneh and Mar Elias, the human right to water and sanitation will be reestablished. The water quality delivered in each of the three projects will meet WHO standards and at an affordable price. Special assistance will be made available to the most vulnerable families, which comprise about 7 % of the camp population, through means-testing.

1.10 Visibility strategy

UNRWA will write a press release and invite journalists from Lebanese national press to the inauguration ceremony at the camps’ premises in close coordination and cooperation with the SDC representatives in Lebanon.

The project and its progress will be reflected regularly in UNRWA’s weekly donor updates. Additionally, project sign boards will be installed in the five targeted camps before project kick-off and will be visible throughout the implementation period.

1.11 Risk Management

As with all infrastructure projects, regular maintenance operations and works can be negatively affected by disruptions to the security situation in Lebanon and any violent eruptions can derail progress at any point. This can be mitigated by successful monitoring of the situation, and taking necessary stabilizing action to avoid potential delay in the implementation.
The Lebanese Authorities are in charge of granting the necessary security clearances for entering contractors and building materials into the camps. They have often in the past proven to be reluctant, or prone to delay, in doing so. UNRWA’s Infrastructure & Camp Improvement Programme and Legal Office have experience in dealing with this; the risk will be mitigated through continuous dialogue with the Lebanese Army, the Lebanese-Palestinian Dialogue Committee, and necessary municipalities.

Potential community frustration from within the camp is dealt with by community participation and ongoing dialogue with stakeholders. This is procedural, and performed pre-emptively so as to avoid any eruptions of frustration. UNRWA’s communication office will design, publish and distribute regular newsletters on the local communities with regular updates about the project and its implementation.

Beyond the project implementation per se, the risk of an unexpected increase in construction material prices (steel, concrete, etc) as well as an increase in the price of oil remains. These factors can negatively affect the estimated budget of the intervention. In such an event, the donor will be informed immediately if the rise in prices is expected to affect the activities of the project.

With regard to the ongoing operation of the water supply systems of Shatila, Burj el-Barajneh and Mar Elias camps, following completion of upgrading works, the success of each project will be totally dependent on the effectiveness of the strategy. The major risks remain the failure of beneficiaries to make regular payments in relation to water service charges, failure by the Popular Committees to effectively operate the water supply systems, together with other inherent risks, related to this environment.

In mitigation of this, such scenarios were anticipated during the project pre-design and formulation of the strategy to manage such water supply systems as part of the model. Accordingly, the level of water production can be adjusted in order to ensure operating costs are matched with received income, subject to ensuring minimum requirements are met. This will provide the necessary leeway to enable a return to full production and distribution of potable water supplies.

In order to mitigate the risk of insufficient human resource capacity on the part of the Popular Committees in relation to the operation of the water supply system, UNRWA will be in a position to step in with its own staff who will also receive the necessary training to ensure continued operation. The overall operation of the water supply system will also be monitored on an ongoing basis by a trained UNRWA supervisor.

2. Finances

2.1 Budget of the project (detailed budget in Annex)

The total cost of the project is US$ 2,626,216. Please Refer to Annex II: Budget Breakdown.

3. Steering and quality control

3.1 Monitoring

Each of the interventions will be considered as separate projects. The “Beirut Camps Potable Water Production Global Project” including Shatila, Burj el Barajneh and Mar Elias will have common actions related to training, but the three interventions will be monitored separately based on the scope of each project and their respective implementation schedules. The same will apply in relation to Beddawi, Dbayeh, Mieh Mieh and Wavel camps.
UNRWA, through technical support from SDC specialist(s) assigned to assist UNRWA will oversee the different stages of implementation and reporting.

3.2 Evaluation
According to the nature of the entire project, which comprises several separate interventions implemented in “Fast Track Actions”, the possible project evaluation would be undertaken through project monitoring at each step of completion.

At the end of the project, UNRWA will conduct a technical and financial review in the aim of establishing a record of lessons learned, specifically concerning the massive water treatments made through reverse osmosis which could provide a model for project replication.

3.3 Coordination
Due to the specificity of the project, project coordination will be undertaken by UNRWA in coordination with SDC technical specialist(s) assigned to assist UNRWA. The different tendering and administrative issues will remain the responsibility of UNRWA and will be implemented in collaboration with the SDC representatives.

Any necessary coordination with Lebanese authorities will be organized by UNRWA.

Annexes:

Budget
Logframe
Work plan