

WASH in Informal Tented Settlements: Seeking Solutions in Restrictive Contexts, Bekaa Valley in Lebanon

Project name	Providing WASH support to Syrian refugees in informal tented settlements
Project region	Bekaa Valley, Lebanon
Summary	Sustainable WASH solutions in informal settlements

Context Description

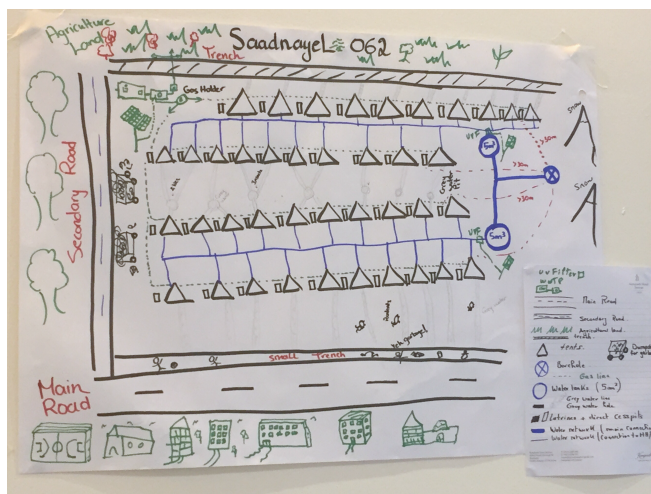
Approximately 360,000 Syrian refugees have found shelter in some 5,000 informal tented settlements in Lebanon's Bekaa Valley resulting from the refugee crisis in Syria. Seven years into the Syria crisis, the context has changed from emergency to a transitional stabilization phase. Many humanitarian agencies have provided WASH services to the refugees, however a significant share of the refugee communities remains vulnerable.

Problem Statement

The Lebanese government does not recognize Syrian refugees. As a result, official camps are not permitted and refugee communities in Bekaa reside on private (agricultural) lands. This informal, decentralized and organic response lead to WASH projects implementation challenges for humanitarian agencies. Moreover, as governmental restrictions do not allow informal tented settlements to be connected to the municipal water or sewage networks, WASH infrastructure services remains temporary and high-priced. If agricultural irrigation wells are available and can be used, a risk of microbiological contamination from human waste or agricultural activities must be considered. Solid waste management, rare recycling activities and poor landfill management are additional difficulties in terms of environmental sanitation. With decreased funding, this case study tried to identify appropriate and sustainable solutions for an informal community of 40 tents and 200 individuals. Stakeholders were mapped, and community feedback has shown that safe water supply, sanitation and solid waste management were the main challenges.

Solution (including developed graphics)

In terms of safe water supply, a local borehole was connected to two elevated tanks with 5m³



Location Map

storage capacity each. As chlorinated water is culturally not accepted, the well water is treated with UV filtration before reaching the households through small gravity flow water distribution system. Pumping costs are included in the rent paid by the refugees to the land owner. Black water entering the sanitation system through pour-flush latrines is transported through simplified sewer network to a communal septic tank for primary treatment. The effluent is disposed in a leach field, while the fecal sludge is emptied by vacuum truck and transported to a nearby wastewater plant operating with activated sludge technologies and a sedimentation/ thickening pond, before solid matter is dried on unplanted drying beds. The leachate is further treated in a horizontal flow constructed wetland before disposal, while the dried fecal matter is disposed in a sanitary landfill due to cultural constraints.

A drainage network for storm and grey water, leading to a soak away pit, has been installed during the water network construction phase to reduce costs. Solid waste management is addressed by introducing an organic/inorganic waste sorting approach. Organic waste is processed in anaerobic biogas reactor to generate biogas for lighting and cooking. Inorganic waste is collected by a local NGO and further processed in their recycling facility. Some quantities of solid waste, however, continue to be transported to the nearby landfill.