CONSOLIDATED PRELIMINARY RAPID DAMAGE ASSESSMENT

Sector 2 — Water: Networks, Wells, Pumping Stations & Reservoirs

Six Pilot-Zone Villages

Burj Qalaouiyeh · Froun · Ghandouriyeh · Qalaouiyeh · Srifa · Zawtar al-Gharbiyeh

Lebanon Emergency Assistance Project (LEAP)

Council for Development and Reconstruction (CDR) — LEAP PMU

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1. Purpose and Basis of this Report

This report brings together, in a single document, the water-sector findings of the preliminary rapid damage assessments carried out for the six pilot-zone villages of the Lebanon Emergency Assistance Project (LEAP). The present document extracts Sector 2 — Water: Networks, Wells, Pumping Stations & Reservoirs from the latest issued version of each of those six reports and reproduces it here without alteration, so that the South Lebanon Water Establishment can review the whole of the recorded water damage in one place.

2. Water Sector — Overview of the Six Villages

The table below reproduces, for each village, the water-sector severity rating and the assets carried in the source report, together with the baseline description of the water assets as recorded in that report from the SLWE registry and the field visit.

3. Baseline water assets as recorded in the source reports

Village	Existing water assets (baseline)
Burj Qalaouiyeh	South Lebanon Water Establishment (SLWE). One well (36 m3/h, 450 m depth), an elevated circular reservoir of 280 m3, a 36 m3 break tank, ~48 km of distribution network, and solar arrays at the well and the booster
Froun	South Lebanon Water Establishment (SLWE). Registry: 1 well (280 m depth), 1 elevated circular tank 300 m³ ('Froun 1'), ~48 km distribution network, solar arrays at well (370 solar panels ~244 Kwp) and booster (28 panels)
Ghandouriyeh	South Lebanon Water Establishment (SLWE). Two wells, a 64 m3 break tank, an elevated reservoir of 150 m3 and ~46.5 km of distribution network. No solar generation on the village's water system
Qalaouiyeh	South Lebanon Water Establishment (SLWE). Two wells, an elevated hexagonal reservoir of 180 m3, a ground circular reservoir, ~45 km of distribution network, and a solar array of 278 panels at the well
Srifa	South Lebanon Water Establishment (SLWE). Registry: four wells under the 'Srifa–Niha' scheme (individual well flows 25–60 m³/h, depths 380–508 m), one 300 m³ elevated tank, approximately 51 km of distribution network, and a 315-panel solar array at Well 1.
Zawtar al-Gharbiyeh	South Lebanon Water Establishment (SLWE). Pre-war: 1 well (Hay El Jiran), flow 49 m³/h, depth 600 m; Tank 01 (underground rectangular) 50 m³ and Tank 02 (elevated rectangular) 200 m³; distribution network ~25 km; booster pumping station; solar PV 150 kWp — 462 PV panels

4. Village Findings — Sector 2: Water

A. Burj Qalaouiyeh — Sector 2: Water — Networks, Well, Pumping Station & Reservoir

Sector severity: Moderate

Existing Water Assets (Baseline)

Before the damage findings below, the existing water supply assets serving Burj Qalaouiyeh are summarised as a baseline against which the recorded damage is assessed. Water service in the village is provided by the South Lebanon Water Establishment (SLWE). The registry records 1 well, 2 storage tanks totalling 316 m3 and approximately 48 km of distribution network. The tables below set out those assets as held in the registry.

Water Wells

Well Name	Flow Rate (m3/h)	Well Depth (m)
Borj Qalawiyeh	36	450

Water Storage Tanks

Tank Name	Tank Type	Capacity (m3)
Borj Qalawiyeh	Elevated Circular	280
Qalawiyeh Break	Break Tank	36

Distribution Network

Network	Total Length (km)
Burj Qalaouiyeh	48

Solar Farm

Name	Number of Panels
Well	96
Booster	224

Damage Findings

Asset ID	Asset	Sev.	Finding / quantity
S2-1	Solar pumping system	Moderate	Ground-mounted solar photovoltaic array serving the artesian-well pump. The array carries ~280 panels, of which 40 are to be replaced; the mounting frames and the remainder of the array are intact, so output is reduced rather than lost. The well site is shared with the neighbouring village, each village having its own separate array. BOQ item 2.04.2, Well Solar Array (S2-1): 40 replacement photovoltaic modules of not less than 545 Wp.
S2-2	Elevated water tank	Moderate	The village's elevated water tank is a reinforced-concrete tank carried on a ring of columns with cross

Asset ID	Asset	Sev.	Finding / quantity
			bracing. A section of the tank shell is broken open on one face and the concrete around the underside of the tank has spalled over much of its circumference, with shrapnel pitting across the columns and the bracing beams. The supporting frame stands plumb and undamaged and the tank retains its form BOQ — items 2.02.1 to 2.02.5, Elevated Water Tank 280 m³ (S2-2
S2-3	Water well	**Minor**	The artesian well serving Burj Qalaouiyeh, reported at ~400 m depth, stands in a fenced compound holding the wellhead and discharge pipework, a generator enclosure, a control cabinet and storage tanks. All of this equipment is in place and undamaged, and no damage to the well itself was identified. The visible defects are limited to corrosion of the perimeter fence and its posts. BOQ — item 2.02.6, Water Well Compound (S2-3): 110 lm of 2.00 m high galvanised chain-link perimeter fencing.
S2-4	Water distribution network	**Moderate**	The registry records approximately 48 km of distribution network serving the village. Estimated in the BOQ — items 2.01.1 to 2.01.9 Distribution Network (S2-4): estimated 2,400 lm each
S2-5	Booster station solar photovoltaic array	**moderate**	The baseline registry records 224 panels at the booster array, against 96 at the well. BOQ— item 2.04.1, Pumping Station Solar Photovoltaic Array (S2-5): 130 replacement photovoltaic modules matching the rating of the existing modules.

S2-1 — Solar pumping system (33.25854, 35.41270)

S2-2 — Elevated water tank (33.26082, 35.41960)

S2-3 — Water well (33.25854, 35.41273)

B. Froun — Sector 2: Water — Networks, Well, Pumping Station & Reservoir

Sector severity: Major

Asset ID	Asset	Sev.	Finding / quantity
S2-1	Water pumping station	Moderate	The artesian-well pumping station is around 300 m depth. A section of its perimeter wall and gate is breached, the concrete facade is pockmarked with shrapnel, and the equipment room housing the pump and solar control panels has broken window glass and bent metal fragments on the floor. The building remains structurally sound; repairs concern the perimeter wall, gate, glazing and equipment-room fit-out. BOQ— items 3.02.1 to 3.02.6, Pumping Station (S2-1):
S2-2	Solar array — well/pumping station and alternative power solution	Severe	The Froun artesian-well pumping station was equipped with approximately 370 photovoltaic panels, providing a total installed capacity of about 244 kWp. The solar array has sustained extensive damage: a significant section of the panel-canopy structure is visibly warped, and numerous panels are punctured across the array. The system is currently non-operational, and 333 panels are carried for replacement in the BOQ. In the absence of solar power generation, the pumping station is being operated using a 350 kVA generator rented by the municipality to maintain water services. The generator is supplied by two fuel tanks, each with a capacity of 2,000 litres; both tanks have also sustained multiple punctures and require replacement.
S2-3	Drinking-water storage tank (Froun 1)	Moderate	Standing on its concrete column frame, the 'Froun 1' drinking-water tank — elevated circular, 300 m³ per the SLWE registry — An opening in the tank was reported by the field team. The storage compartment needs repair. Further structural assessment is needed BOQ— items 3.02.12 and 3.02.13, Drinking-Water Storage Tank ‘Froun 1’ 300 m³ (S2-3):
S2-4	Water treatment (below tank)	Moderate	The facility site covers approximately 25 m² Cracking runs horizontally through the walls of the treatment and booster station under the tank, plaster has fallen away at the wall-column junctions, and the plant-room ceiling is spalled. The reverse-osmosis skid, its pressure vessels and the booster pump stand in place and appear undisplaced; broken glass, plaster and stone debris cover the floor of the plant room, the adjoining room and the tiled draw-off point alike.

Asset ID	Asset	Sev.	Finding / quantity
			The structure is serviceable, and works concern crack treatment, replastering, glazing and a full clean-out
S2-5	PV system —treatment station	**Severe**	Ten photovoltaic panels were installed on the roof of the elevated water reservoir to power the reverse osmosis (RO) system. The PV installation has been completely damaged and is currently non-operational BOQ— item 3.04.5, Treatment Station Photovoltaic System (S2-5): 10 replacement photovoltaic modules of not less than 550 Wp.
S2-6	Water distribution network	**Moderate**	No damage is visible along the roads — no surfacing water and no broken segments were seen on the surveyed stretches — and the underground network was reported sound overall. The network is around 48 km; the BOQ carries estimated 2,400 lm of reinstatement as a provisional quantity subject to remeasurement.

S2-1 — Water pumping station (33.28405, 35.43227)

Solar pumping System — well/pumping station (33.28405, 35.43227)

S2-2 — Solar array — well/pumping station & alternative Power solution to operate the pumping station with damaged fuel tank (33.28405, 35.43227)

S2-3 — Drinking-water storage tank (Froun 1) (33.29144, 35.42947)

S2-4 — Water treatment/booster station (below tank) (33.29144, 35.42947)

S2-5 — Solar array — booster/treatment station (33.29144, 35.42947)

C. Ghandouriyeh — Sector 2: Water — Networks, Well, Pumping Station & Reservoir

Sector severity: Major

Existing Water Assets (Baseline)

Before the damage findings below, the existing water supply assets serving Ghandouriyeh are summarised as a baseline against which the recorded damage is assessed. Water service in the village is provided by the South Lebanon Water Establishment (SLWE). The registry records 2 wells, 2 storage tanks totalling 214 m3 and approximately 46.5 km of distribution network. The registry records no solar generation on this village's water system. The tables below set out those assets as held in the registry.

Water Wells

Well Name	Flow Rate (m3/h)	Well Depth (m)
Ghandouriye	30	265
Wadi Al Hjeir	44	280

Water Storage Tanks

Tank Name	Tank Type	Capacity (m3)
Ghandouriah 01	Wadi Al Hjair Break Tank	64
Ghandouriah	Elevated Rectangular	150

Distribution Network

Network	Total Length (km)
Ghandouriyeh	46.5

Damage Findings

Asset ID	Asset	Sev.	Finding / quantity
S2-1	Water reservoir	Moderate	Elevated water reservoir tank, part of the village's piped drinking-water network. The tank remains carried on its supporting frame, which shows spalling, cracking and loss of coating; the field team reported the frame as severely damaged. The extent of the structural damage to the frame must be further inspected on site. BOQ— items 4.02.1 to 4.02.3
S2-2	Village well	Destroyed	The village well has been destroyed. It stands outside the pilot area, in ground that remained occupied at the time of the visit. The village's piped supply depends on this well.
S2-3	Water treatment filter room	Minor	Filter room of the village potable-water treatment facility. The wired glazing of the steel entrance door and of the internal window is shattered and the room stands open to the weather; the motor control panel

			inside is in place and undamaged. The rating is Minor because the treatment equipment is intact and the loss is confined to the door and window glazing. BOQ— items 4.02.4 and 4.02.5,
S2-4	Standby generation for the pumping system	**Moderate**	BOQ— item 4.03.19, Standby Generation for the Pumping System (S2-4): one diesel generator package set with enclosure rated 100 kVA,
S2-5	Water distribution network	**Moderate**	BOQ— items 4.01.1 to 4.01.9, Distribution Network (S2-5): estimated 4,650 lm

S2-1 — Water reservoir (33.27107, 35.43141)

S2-3 — Water treatment filter room (33.27107, 35.43141)

D. Qalaouiyeh — Sector 2: Water — Networks, Well, Pumping Station & Reservoir

Sector severity: Moderate

Existing Water Assets (Baseline)

Before the damage findings below, the existing water supply assets serving Qalaouiyeh are summarised as a baseline against which the recorded damage is assessed. Water service in the village is provided by the South Lebanon Water Establishment (SLWE). The registry records 2 wells, 2 storage tanks and approximately 45 km of distribution network. The tables below set out those assets as held in the registry.

Water Wells

Well Name	Flow Rate (m3/h)	Well Depth (m)
Qalaouiye 1	-	-
Qalaouiye 2	16	450

Water Storage Tanks

Tank Name	Tank Type	Capacity (m3)
Qalawiyeh 1	Elevated Hexagonal	180
Qalawiyeh 2	Ground Circular	-

Distribution Network

Network	Total Length (km)
Qalaouiyeh	45

Solar Farm

Name	Number of Panels
Well	278

Damage Findings

Asset ID	Asset	Sev.	Finding / quantity
S2-1	Solar power for water pumping	Moderate	The solar array powering the village water pumping comprises approximately 278 panels, of which about 20 are damaged. The damage is confined to individual panels; the array's supporting structure and the balance of the installation are unaffected, which is why the rating is Moderate rather than Major. Output is reduced in proportion to the damaged panels rather than lost. BOQ — item 5.04.1, Well Solar Array (S2-1): 20 replacement photovoltaic modules
S2-2	Water filtration plant	N/A	The village water filtration plant occupies a tiled room housing a storage tank, a filtration skid with pressure vessels and membrane housings, a chemical dosing tank and a booster pump. The room, its

Asset ID	Asset	Sev.	Finding / quantity
			finishes and the plant equipment are undamaged. The plant needs a power source before it can operate. No damage was recorded and no item is carried in the BOQ for this asset. The power supply the plant requires is restored through the works to the solar arrays (S2-1 and S2-3) and to the pumping station (S2-5).
S2-3	Solar array for the sub-network pump	**Moderate**	A rooftop array of ~35 solar panels powers a single pump that supplies part of the village through a sub-network. Of these, 7 panels are damaged; the mounting frames, the roof slab and the rest of the array are intact. Output is reduced in proportion to the damaged panels rather than lost, which is why the rating is Moderate. BOQ— item 5.04.2, Sub-Network Pump Rooftop Solar Array (S2-3): 7 replacement photovoltaic modules of not less than 545 Wp.
S2-4	Elevated water tank	**Minor**	The main water tank for the village is an elevated hexagonal reinforced-concrete tank carried on a four-column frame and fed from the well. Concrete has spalled from the underside haunches of the tank in two areas, exposing the reinforcement mesh, and the tank roof is damaged. The columns, the bracing beams and the riser pipework are sound and no leakage is evident, so the loss is of concrete cover rather than of structural section — which is why the rating is minor BOQ— items 5.02.1 to 5.02.4, Elevated Water Tank ‘Qalawiyeh 1’ 180 m³ (S2-4):.
S2-5	Water pumping station	**Major**	The pump room serving the water tank stands but is out of service. The pump motor lies detached from its bed on the floor among broken concrete and loose cabling, the delivery pipework and valves are disturbed, and the room walls are cracked. The control panel and the drive unit remain mounted and intact, so the works are re-setting and repairing the pumping set rather than rebuilding the station — which is what the Major rating records. BOQ — items 5.02.5 to 5.02.8,
S2-6	Water distribution network	**Moderate**	BOQ — items 5.01.1 to 5.01.9, Distribution Network (S2-6): estimated 2,000 lm

S2-2 — Water filtration plant (33.24793, 35.41974)

S2-3 — Solar array for the sub-network pump (33.24793, 35.41974)

S2-4 — Elevated water tank (33.24793, 35.41974)

S2-5 — Water pumping station (33.24793, 35.41974)

E. Srifa — Sector 2: Water — Networks, Well, Pumping Station & Reservoir

Sector severity: Major

Existing Water Assets (Baseline)

Before the damage findings below, the existing water supply assets serving Srifa are summarised as a baseline against which the recorded damage is assessed. Water service in the village is provided by the South Lebanon Water Establishment (SLWE). The scheme draws on four wells under the Srifa–Niha field, feeds a single 300 m3 elevated circular storage tank, and is distributed through approximately 51 km of network, with a 315-panel solar array installed at Well 1. The tables below record the wells, storage, distribution length and solar capacity as held in the registry.

Water Wells

Well Name	Flow Rate (m3/h)	Well Depth (m)
Srifa-Niha 1	25	380
Srifa-Niha 2	60	505
Srifa-Niha 3	30	508
Srifa-Niha 4	32	-

Water Storage Tank

Tank Name	Tank Type	Capacity (m3)
Srifa	Elevated Circular	300

Distribution Network

Network	Total Length (km)
Srifa	51

Solar Farm

Name	Number of Panels
Well 1	315

Damage Findings

Asset ID	Asset	Sev.	Finding / quantity
S2-1	Water distribution network	**Moderate**	The Municipality confirmed that the networks is in good condition some provision shall be taken for the distribution area where buildings have been totally destroyed and might affect the surrounding network. Some areas where repair was ongoing need and stopped the 2026 war need to be completed as shown in the pictures BOQ — items 6.01.1 to 6.01.9, Water Distribution Networks (S2-1): estimated 2,500 lm

S2-2	Water reservoir for irrigation	**Minor**	Elevated circular 300 m^3 with minor visible damages with no visible leakage. More investigation should be required to confirm BOQ— items 6.02.1 to 6.02.3, Drinking-Water Storage Tank 300 m^3 (S2-2):
S2-3	Village water well and pumping station	**Major**	The village well is not delivering water. The field engineer reported that its pump (150 hp) is damaged and needs replacement; the chlorine dosing room and the standby generator stand alongside, and the installation. Connections onward to the village tank were reported in good shape, which places the failure at the well head rather than in the distribution network. Intervention Carried out by others

S2-1 — Water distribution network (33.28090, 35.39675)

S2-2 — Water reservoir (33.27501, 35.39954)

S2-3 — Village water well and pumping station (33.27639, 35.39294)

F. Zawtar al-Gharbiyeh — Sector 2: Water — Networks, Well, Pumping Station & Reservoir

Sector severity: Severe

Asset ID	Asset	Sev.	Finding / quantity
S2-1	Well (Hay El Jiran) & well head	**Destroyed**	Well head destroyed. Requires dismantling the well submersible pump and reconstruction of the line from pump to reservoir and to the booster pumps (900 lm carried in the BOQ). Well itself needs maintenance/ reconstruction . [Pre-war: 1 well, flow 49 m³/h, depth 600 m.] Update: well in under maintenance
S2-2	Pumping station (USAID/BALADI solar)	**Minor**	Pumping station building and equipment NOT significantly affected — needs only minor rehabilitation. Cannot operate because the connecting network is damaged. 7 Pannels damaged .
S2-3	Reservoirs / storage tanks	**Major**	Elevated reservoir standing but showing cracks. Feeder and distribution lines from well head to station to reservoir severely damaged. [Tank 01 (underground rectangular) 50 m³; Tank 02 (elevated rectangular) 200 m³.] Bill № 7 carries no item for crack treatment or structural repair to the elevated reservoir.
S2-4	Distribution & transmission network	**Severe**	Network from well head to pumping station to reservoir destroyed; multiple internal lines damaged (documented line-by-line in the water annex). [Pre-war distribution network ~25 km.] The BOQ carries 900 lm of the pump-to-reservoir-to-booster transmission line and 5,000 lm of distribution network, both provisional quantities subject to remeasurement.

Asset ID	Asset	Sev.	Finding / quantity
S2-5	Solar PV panel (at pumping station)	**Severe**	Solar pumping panel severely reduced — only ~130 panels remain of ~462 pre-war. Intervention completed by others

S2-2 — pumping station interior: equipment, only minor rehabilitation needed

S2-2 / S2-5 — pumping station building and solar panel location

S2-3 — elevated reservoir standing but showing cracks

S2-1 / S2-4 — destroyed well head and network from well head to station/reservoir

S2-1 — well requires maintenance

S2-5 — solar PV panels damaged near the pumping station