



## WASH Sector: Risk of water shortages this summer

Beirut, 26 January 2014

The renewable water resources per capita estimate was already slightly below the deficiency threshold before the Syrian crisis<sup>1</sup>. With an approximately 20% increase in the overall population in the last two years this value might now be significantly below the threshold. Surface water, which accounts for approximately 80% of the water resources, is largely exploited. Furthermore, groundwater resources are already significantly stressed mainly through the many tens of thousands of private wells.

Precipitation mostly occurs during the 6 months period of October to March of which only two months remain. Lebanon has four dry months – June, July, August and September – during which water availability is limited due to the<sup>2</sup>:

- Very low water storage capacity (such as dams),
- Difficulty of capturing water close to the sea (there are limitations on storing rainfall and surface water plus over-abstraction of groundwater has led to seawater intrusion and subsequent reduction of exploitable groundwater sources), and
- Shortcomings of the existing water delivery systems and networks; such as limited water network coverage (79% pre-crisis), low continuity of water supply service and large water losses from the systems partly due to over 50% of it being past its useful life.<sup>3</sup>

The current wet season that started in October 2013 is so far considered to be comparatively dry: It was reported that in Beirut, the average rainfall up to 20<sup>th</sup> January of last year was 455mm while the general average in the past 30 years was around 440mm. But this year's average so far is a mere 238mm<sup>4</sup>. This will have significantly adverse effects on the water sources and inevitably water supply, if the current trend continues. In addition the mountain snow cover at present – good recharge for spring – is relatively insignificant. Above 2,000m, precipitation is essential to sustain a base yield (production) for about 2,000 springs during the dry period.

<sup>1</sup> National Water Sector Strategy, Ministry of Energy and Water, March 2012.

<sup>2</sup> Vulnerability, adaptation and mitigation chapters of Lebanon's second national communication, MOE/UNDP, October 2010.

<sup>3</sup> National Water Sector Strategy, Ministry of Energy and Water, March 2012.

<sup>4</sup> Marc Whyabi, the head of the Meteorological Department at Rafik Hariri "International Airport in Drought puts agriculture, tourism at risk, by Wassim Mroueh, The Daily Star, January 21, 2014. <http://www.dailystar.com.lb/News/Lebanon-News/2014/Jan-21/244724-drought-puts-agriculture-tourism-at-risk.ashx#axzz2rGHmntlF>

If there is no above average rainfall during the next 2-3 months the following is likely to happen over summer and autumn:

- Water availability will drop considerably,
- Water quantity (production) will be severely affected,
- Water quality will reduce further (higher abstraction rates coupled with lower recharge rates for groundwater will increase seawater intrusion),
- Conflict/ tension at water points (and beyond) would be registered.
- Potential unregulated over-exploitation of existing sources and unregulated development of new sources to keep providing expected quantities of water.
- Some already poor resources could dry up and new, unforeseen water needs in areas previously served may arise.

### Proposed preparedness and mitigation actions:

1. **Update and improve on mapping** undertaken last summer to identify areas where water deficiency is expected and affects the most vulnerable.
2. **Liaise with Water Establishments** to help develop a database of groundwater wells (identifying those whose productivity could be increased and those that are already over-exploiting). There were 650 public wells and over 43,000 private wells pre-crisis<sup>55</sup>. Unfortunately the majority of wells have no hydraulic characteristics available.
3. Continued and aggressive **water level monitoring** in all water sources through flow-meters but also chemical analysis to check any change in their characteristics, especially turbidity.
4. Well development of key water sources to **improve on performance and draw-down condition**.
5. Where possible and appropriate and in consultation with Water Establishments, **identify those water storages in areas most at risk of drastic water reduction** that could be either rehabilitated or augmented. Where possible undertake this work.
6. Where possible and appropriate and in consultation with Water Establishments, **increase water supply by extending pumping hours** (may involve provision of fuel, consumables and electromechanical equipment).
7. **Provide technical support** to Water Establishments and other water source owners.
8. Advocate for Government implementation of a domestic water tariff structure which encourages water saving.
9. Advocate for and implement, where possible, **improved environmental management of wastewater** to minimise impact on surface and groundwater quality.
10. **Reinforce water conservation campaigns** in order to inform communities on possible scenarios or results of a 'dry winter' and reduce water consumption in vulnerable areas.
11. If situation worsens, **revise minimum standards** for water supply (i.e. l/p/d).

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<sup>5</sup> National Water Sector Strategy, Ministry of Energy and Water, March 2012.

12. Explore the **possibility of using alternative water sources** not exploited so far (e.g. brackish water) through installation of appropriate treatment systems.
13. Extreme measures may imply water rationing for non-essential activities (e.g. watering of big public spaces, irrigation - if possible, highly water-consuming industrial activities). This should be carefully discussed with concerned Authorities.
14. **Prioritise projects that would improve water systems' efficiency** (especially at production and conservation level) such as: cleaning of boreholes (clogged screens may result in a far lower yield) and repair networks with highest degree of leakages. Agencies with available funds for longer-term projects could focus on this.

#### **Actions taken to date:**

1. Last year, in consultation with the Water Establishments, a number of areas or locations in different Governorates that are at risk of being water deficient during summer were mapped. These areas typically required water trucking or increased pumping hours to increase water supply.
2. In the South, in conjunction with the Water Establishment, a number of areas or locations that have poor water supply service and contain a high proportion of refugees and poor Lebanese were targeted in a pilot project that provided fuel for generators for a limited period to boost pumping hours and subsequent water supply.
3. Water Establishments have been provided with key electro-mechanical equipment (pumps, generators, etc.) to restore a number of pumping stations to proper working order and subsequently increase potential overall water supply to their respective service areas.
4. Inventories and water sources assessment is planned in Bekaa for ACF (US\$50,000 requested).

Prepared by the WASH sector in Lebanon. For more info consult:

[http://data.unhcr.org/syrianrefugees/working\\_group.php?Page=Country&LocationId=122&Id=6](http://data.unhcr.org/syrianrefugees/working_group.php?Page=Country&LocationId=122&Id=6)