

# MANAGEMENT OF POTABLE WATER SUPPLIES IN LEBANON



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The management of potable water supplies in Lebanon, and over the past 20 years, is still challenged by the major issues and critical concerns relating to the following:

## Water Quality Protection (Watershed Management)

Watershed management remains very critical to control exposure of water sources to domestic sewage, leachate of solid waste dump sites, agricultural runoff (excessive use of pesticides and fertilizers) and industrial waste (solid and liquid).

## Water Treatment:

Currently water treatment is highly limited in scope and mostly restricted to chlorination as such focus should be directed to:

- Upgrade water treatment plants and pool water resources for proper treatment.

- Implement proper disinfection of the water sources to insure that the free residual chlorine levels are monitored continuously to detect exposure of the network to contamination. Currently, maintenance of networks is highly restricted to direct damage, and control of chlorination leads

either to deficient chlorination or haphazard excessive addition of chlorine.

- \* The chlorine demand test should be conducted, and accordingly, the chlorine dose should be adjusted to reduce on the formation of combined residual form given the increase in the total organic content of water sources. Additionally, high free residual chlorine levels are rejected by communities and enhance the use of complementary water sources (water springs, bottled water, vended water and water from water shops) with undetermined and uncontrolled water quality.

- \*The free residual chlorine should be checked on daily basis along the distribution lines and accordingly, chlorine re-dosing stations should be installed.

- Carbon beds should be added as a pre-chlorination step



to overcome the formation of combined residual chlorine levels that maybe potentially carcinogenic.

## Water Quality Monitoring

Currently water quality monitoring programs are restricted to activities rather than clearly defined and sustained programs. As such it is critical to:

- Provide adequate resources (technical and monetary) to upgrade and implement proper potable water quality control.
- Design and implement comprehensive water quality monitoring programs based on (a)

The World Health Organization (WHO) recommendations relating to point sources and distribution network, (b) the complexity of distribution networks and (c) water quality data base reflecting on change in water quality,

- Detect and monitor trace metals. Metals resulting from the corrosion of pumps and related fixtures, and the exposure of water sources to agriculture runoffs, especially for spring water sources, are of major concern as levels are building up. As such, monitoring trace metals should become part of a properly designed and documented monitoring program (this is an added concern which did not constitute a major risk before).

- Develop water safety plans to continuously assess risk and prose risk management strategies (this is essential for emergency preparedness).

- Establish a clear mechanism to communicate water complaints and develop a documented response system.

- Disseminate information on the importance of water safety and associated health risks in collaboration with the Ministry of Public Health. This is critical to enable the end user of making informed decisions on water safety and water management.

- Develop a computerized quality control data base to reflect on the change in water quality with time. This is essential to project on required treatment or additional treatment required to secure the physical, chemical and microbiological safety of the water sources feeding distri-



bution networks.

- \* Publish the results of the water quality monitoring on a special electronic site to inform end-users about the water quality, and hopefully reinstate trust and use for all types of domestic activities including drinking and food preparation.

- \* Establish a clear mechanism to communicate water complaints, and develop a Documented Emergency Response System.

It's time for action and the provision of sustainable adequate access to safe drinking water is no longer an option but a commitment to be honored.