



*Osamah Abu Al-Rub with his family on their farm in Jenin Governorate, West Bank. With assistance from USAID's Compe Project, Al-Rub now utilizes a computerized system that regulates water and fertilizer levels — leading to a significant increase in his strawberry production since 2014.
Photo credit: Bobby Neptune Photography LLC*

Improving Water Services for a More Water-Secure Middle East

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Home to 12 of the world's 15 most water-scarce countries, the Middle East has struggled for decades with water insecurity and the resulting social and political tensions. As a key development partner, USAID's substantial and sustained investments are helping to maintain stability, foster cooperation, and transform water and sanitation services in the region.

In May, I visited Jordan, Lebanon, and the West Bank and Gaza region for an up close look at our programs and the work being done to meet regional water needs to both maintain public health and produce food. It was impressive to see how these projects are supporting regional governments as they work to bring water and sanitation to marginalized populations.

Jordan — Integrating Water for Health and Food

With Jordan's increasing population and the influx of refugees from Syria, the coun-

try is straining to meet growing water and sanitation needs. USAID Jordan's water programs are a blend of infrastructure and capacity development, with a strong emphasis on capacity building and governance in institutions, such as water utilities and municipal water services.

An excellent example of this work is the As-Samra wastewater treatment plant, a joint effort between USAID and the Millennium Challenge Corporation (MCC). I visited this plant along with representatives from MCC and the USAID Jordan Mission to see how sharing best practices is improving the way municipalities deal with wastewater. As-Samra provides 10 percent of Jordan's agricultural water in the form of reused, highly treated wastewater. By using the treated wastewater for irrigation, Jordan is able to better utilize its precious freshwater resources for domestic water needs. This successful effort is a great example of how sustainable systems can work, and is opening the door to integrated approaches to urban water, sanitation and hygiene (WASH) and water-related rural agricultural programming. Investments like As-Samra are in line with the Sustainable Development Goals' (SDGs) emphasis on integrated approaches to water resource management, and also link the SDGs involving water and food.

While in Jordan, we also visited a hydroponic tomato farm in Mafraq, 80 kilometers north of Amman. Hydroponic greenhouse farming is transformative in areas where rainfall and soil conditions cannot support profitable crop production. The technology allows for greater water conservation, reducing water usage by up to 40 percent for crops, and yielding as much as 10 times more than standard farming techniques for the same amount of space. This technology could potentially reduce water consumption and improve food production in other arid lands in the Middle East and North Africa, as well.

Lebanon — Protecting Water Resources through Governance

My next stop was Lebanon, a country under enormous stress to meet its water and sanitation needs. Like Jordan, Lebanon is experiencing an inflow of refugees, population growth, and the impacts of climate change. Few households enjoy 24-hour, seven day a week access to water. On average, water is available intermittently for just eight hours a day and only eight percent of the population is connected to a central sewage system.

To address these stresses, USAID Lebanon is assisting public utilities — the four regional water establishments and the Litani Water Authority — that are entrusted to provide water (potable, wastewater and irrigation) services in Lebanon under the new \$65 million Lebanon Water Project (LWP). This assistance includes billing and collections support, capacity building, community engagement, non-revenue water reduction, strategic planning (including crisis management) and provision of complementary water infrastructure and equipment support. The program will also work with local municipalities to fill service gaps when needed and appropriate.

Strengthening water services is especially important during unforeseen crises such as the current situation with Syrian refugees. LWP will develop models for community water and sanitation improvements to help utilities and municipalities improve services and address increasing water demand challenges. USAID will use grants and

local subcontracts to support the implementation of these activities.

USAID Lebanon also supports small to medium-scale infrastructure projects that complement its capacity building assistance to water institutions. One such project is the newly installed potable water network in Deddeh, a village in the Koura District, which I visited along with representatives of the USAID Lebanon Mission, LWP, and the Regional Water Establishment. USAID replaced 45 kilometers of potable water networks and constructed a 200 cubic meter local storage reservoir under this project.

Despite the fact that a large percentage of Lebanese people are connected to official water supplies, they receive unreliable water services. Because of this, nearly one in three Lebanese buys alternative sources of drinking water, usually from mobile water trucks or in bottles. Water purchased from tanker trucks is of questionable quality and can cost much more than water piped into homes. Those who cannot afford to purchase their water fall through the cracks, relying on poor-quality water for their households. While there, we also saw the USAID-renovated water pump station in Jeita, which now provides regular potable water supply to 100,000 people.

West Bank and Gaza — Improving Water Resource Management

I concluded my Middle East visit in the West Bank and Gaza region. Since 2000, USAID has invested more than \$300 million for hundreds of water and wastewater projects in the West Bank and Gaza to ensure a sustainable supply of potable water and to increase the capacity of distribution networks throughout the region. Program implementers observe an increase in shared responsibility between husband and wife at the household level (e.g., chores) as well as a marked increase in joint decision-making. Future activities can build upon this important behavioral change to social and gender norms, for example, by promoting women's leadership in the cooperative structure.

Both the West Bank and Gaza face WASH challenges. Political tensions in the region exacerbate water scarcity in the West Bank and make it difficult to address water quality issues in Gaza. Although more than 95 percent of those living in the West Bank and Gaza have piped connections in their homes, household water availability hovers at 79 liters per person per day in the West Bank. Average consumption rates mask the absolute scarcity in many communities, where consumption dips as low as 37 liters per person per day. When this happens, households tend to purchase water from unregulated water tanker trucks.

The United Nations estimates that 90 percent of the water in the aquifer on which Gaza is dependent is unsafe for human consumption without treatment. High salinity and nitrate levels are due to seawater intrusion and agricultural practices.

USAID continues to be the largest international donor to the Palestinian Authority for developing water and sanitation infrastructure in the West Bank and Gaza. Political issues continue to plague the region and make addressing water issues difficult. Palestinians are unable to develop additional water sources, making our work there even more vital.

The Deir Sha'ar Main Pipeline in the Hebron Governorate, completed in 2015, is an important example of our work in the region. This infrastructure project has led to substantial improvements in the volume, quality, and reliability of water service for 260,000 Palestinians.

In addition to building shared infrastructure, including large pipelines and regional reservoirs, we are using cutting edge technology to improve water resources management. USAID installed 48 flow-monitoring devices, linking them with a central Supervisory Control And Data Acquisition (SCADA) system in Ramallah. Our team toured the West Bank Water Department SCADA room and saw how this technology is being used to monitor 95 percent of all water managed by the Palestinian Water Authority (PWA). This system allows the PWA to more accurately measure water resource utilization, bill customers, and identify leaks in the system.

Living Up to Our Reputation

USAID has earned a reputation for achieving results and has become a trusted partner to host governments throughout the Middle East. We, along with MCC, have dramatically changed the wastewater sector in the Jordanian capital — our work together is serving an estimated 3 million people. Our water programs have provided improved access to water for 1 million Palestinians in the West Bank and Gaza, and we have provided improved access to water services for 3 million citizens in Lebanon.

We will continue to share best practices, employ new technologies and approaches, and work to improve the governance of utilities and municipalities that provide water in the Middle East. We are living up to our reputation.

By Christian Holmes, Deputy Assistant Administrator in USAID's Bureau for Economic Growth, Education and Environment, and the Agency's first Global Water Coordinator



Additional Resources:

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