

MARCH 2014

TAPPED OUT:

Water Scarcity
and Refugee Pressures
in Jordan

ABOUT MERCY CORPS

Mercy Corps helps people turn the crises they confront into the opportunities they deserve. Driven by local needs, our programs provide communities in the world's toughest places with the tools and support they need to transform their own lives. Our worldwide team in 42 countries is improving the lives of 19 million people. For more information, see mercycorps.org.



45 SW Ankeny Street
Portland, Oregon 97204
888.842.0842
mercycorps.org





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EXECUTIVE SUMMARY

JORDAN, one of the world's driest countries, is dumping much of its water into the sand.

Aging infrastructure is the culprit. Of all the water Jordan pumps, billions of liters never reach a family's tap. Instead it gushes out of broken pipes. The amount of water lost nation-wide could satisfy the needs of 2.6 million people – more than a third of Jordan's current population.

It is a tragedy of waste. Meanwhile water scarcity is slated to worsen, threatening health and stability in one of the Arab world's most durable states. According to a forthcoming study, years of over-pumping have put Jordan on schedule to exhaust underground fresh water as early as 2060.

But even that estimate is based on figures that predate the current crisis. Few doubt that after Syria's bloody civil war pushed 600,000 people across the border, refugee pressures have sped up the clock. Groundwater depletion has accelerated; water tables are dropping precipitously. And as water levels decline, salinity rises, rendering what remains less and less drinkable.

In the current crisis over water, Jordan faces a perfect storm of pressures. Refugee demands layer over long-standing challenges of scant supply, unsustainable management, and out-of-date infrastructure. But refugees also bring new challenges. These range from poor conservation habits to an overwhelming volume of human waste that, improperly treated, threatens to pollute groundwater.

In past years, large-scale investments – deeper wells, bigger pipelines – have bought Jordan time. But now room for maneuver has dramatically narrowed.

Throughout refugee-affected areas shortages have hit emergency levels and badly affect both host and refugee – particularly in the hot, dry summers. Syrian refugee numbers are equivalent to about a tenth of Jordan's pre-crisis population, but they are overwhelmingly concentrated in the North. In some communities, water demand has quadrupled. Supply has not kept pace. Weeks might elapse before a drop comes out of the tap.

Increasingly, families don't have enough water to drink. A supply of 80 liters a day is necessary to meet a Jordanians' needs. By over-exploiting groundwater, the Government of Jordan was able to meet this. But no more. Those communities hardest-hit by refugees have seen the average supply drop below 30. At that level, sanitation standards decline, diseases rise, subsistence crops wither, and children go thirsty. Yet while scarcity worsens, conservation remains a challenge: Whereas Jordanians have rationed water since the 1980s, refugees from comparatively water-rich Syria lack basic habits of water management.

Jordanian resentment towards refugees has grown. It is an environment ripe for scapegoating. While hard feelings are mitigated to some extent by kinship – many refugees share blood ties with their hosts – and a "culture of hospitality," Jordanian patience is wearing thin.

Just as troubling is Jordanians' growing frustration with their government. The Government of Jordan has been a generous host to beleaguered Syrians, but the institutions responsible for providing water have been unable to meet rising demand. Anger over water scarcity is increasingly directed at Amman. In some cases, tensions have already ignited.

There is no way to “fix” water scarcity in Jordan, which is, according to one study, the third most water insecure country in the world. But dangerous trends can be arrested. The multi-faceted nature of Jordan’s water crisis requires an integrated response, one that coordinates across actors – the Government of Jordan, donors, and NGOs – to address immediate problems. Future efforts, however, must be implemented with an eye to long-term sustainability. Simply pumping more water out of Jordan’s aquifers may address today’s need, but at the cost of a drier tomorrow.

Mercy Corps has been working in Jordan’s water sector since 2006, and based on our experience, we recommend future efforts stand on three pillars:

• **PILLAR ONE:
Invest in long-term development.**

Assistance flows to Jordan have increased with the Syrian crisis, but the vast majority of the increase has focused on refugee response. To relieve pressures on host communities and protect pre-crisis development gains, development dollars must be strategically increased – with a focus on upgrading and maintaining existing infrastructure.

• **PILLAR TWO:
Bridge the governance gap.**

Government actors are under-resourced and under-manned; their capacity badly needs an upgrade. Jordan’s front-line water utility is emblematic. Responsible for an area larger than Hawaii and with a Jordanian and Syrian population of millions, it is paralyzed by lean operating budgets and a staff of six engineers. These shortcomings must be addressed. Investing in infrastructure makes little sense if new projects are handed over to agencies that have neither the resources nor expertise to run and maintain them.

• **PILLAR THREE:
Address conflict and conservation.**

Crises are inflection points. They can result in deteriorating social conditions, resource mismanagement, and violence. Yet a crisis can also foster opportunities to transform attitudes and, in an environment of scarcity, promote sustainable practices. Conflict must be mitigated and conservation promoted. In Jordan, Mercy Corps has found that empowering Syrian and Jordanian communities can head off violence and shift attitudes on sustainability.

**THE AMOUNT OF WATER
LOST NATION-WIDE COULD
SATISFY THE NEEDS OF
2.6 MILLION
PEOPLE – MORE THAN
A THIRD OF JORDAN’S
CURRENT POPULATION**



**“And have you seen the water that you drink?
Is it you who brought it down from the clouds, or
is it We who bring it down? If We willed, We could
make it bitter, so why are you not grateful?”**

– QUR’AN 56: 58-70

1

INTRODUCTION

THROUGHOUT the Qur’an, water symbolizes Allah’s benevolence. Water infuses daily rituals of ablution – wudhu and ghusl – and informs Muslim contemplations of their responsibilities to both God and land: the Qur’an reminds one that humankind is but a steward of the fragile earth. Water is unlike other resources. A culturally laden symbol, it is both vital to life and, in dry climates, distressingly finite. Groundwater basins – like the twelve on which Jordan depends – are a resource accumulated over thousands of years. When those basins are depleted, it may take many lifetimes for them to recharge. In Jordan, water challenges are multi-layered. Chronic scarcity has for years been made much worse by poor infrastructure, climate change, and under-resourced government actors. In the words of a government official, “There was already a water crisis.”

Then civil war embroiled Syria.

Based on UNHCR figures, refugees currently number around 600,000 – and counting – but government sources argue this understates the pressures. Beyond registered refugees, they say, there are hundreds of thousands of non-refugee Syrians in the Kingdom. These might be wealthy Syrians who fled to Amman, or perhaps footloose traders who once moved back and forth across the borders but are now, because of the crisis, living permanently in Jordanian towns. According to a government report, the total number of Syrians crowding the Kingdom approaches 1.4 million, all of them additional water users.¹ By those estimates, the number of Syrians in Jordan ranges from about ten percent to almost a quarter of the pre-crisis population.

This massive, sudden population boost overturned Jordan's carefully-laid plans to manage its water. The Kingdom's 2008 water strategy assumed consistent population growth, from about

5.87 million in 2008 to over 7.8 million by 2022. But with the influx of Syrians, the population of Jordan in December 2013 already approached 8 million.² And so the best laid plans go to waste.

To date, the international response to Jordan's refugee crisis has been spirited. Dozens of international NGOs have set up shop. Donor money has flooded in for humanitarian assistance: USD 920 million in 2013, about a tenth of which is for water, sanitation, and hygiene (WASH).³ Development assistance, including substantial contributions by the US, has also increased. Still, there are gaps. Over the next three years, Jordan estimates that WASH needs in refugee-affected areas run to the tune of USD 750 million.⁴

Yet among the most glaring challenges facing international actors today is not just breadth of need – which is massive – but how to prioritize projects, coordinate hundreds of millions in aid, and ensure that the dozens of international actors currently at work in Jordan enhance, rather than undermine, the common goal of delivering much-needed support.

The challenges outlined in "Tapped Out" are not unique to Jordan's water sector. Schools and hospitals are overcrowded, housing is scarce, and the labor market is glutted, pushing down wages.

Neither is this story limited to Jordan. Overwhelmed countries throughout the Middle East, hosting unsustainable numbers of refugees, are tapped out, too: Lebanon faces a particularly grave challenge, but Iraq and Turkey also host large numbers of refugees.

The Syrian crisis is about to enter its fourth year. Unfortunately, there is no sign the drain on host country resources is about to abate. If anything, the pressures appear to be mounting.

THE KINGDOM'S 2008 WATER STRATEGY
ASSUMED CONSISTENT
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OF SYRIANS, THE POPULATION OF
JORDAN IN DECEMBER 2013
ALREADY APPROACHED
8 MILLION

Methodology

This research is based on interviews conducted in three northern governorates in Jordan: Amman, Mafrqa, and Irbid. These represent the areas hardest-hit by Syrian refugees, and are the focus of Mercy Corps' host community response. Semi-structured and key informant interviews were paired with focus group discussions. To assess the impact of refugees on water scarcity, interviews were conducted with Mercy Corps program staff, other NGOs, international donors (USAID, UNICEF, GIZ), Jordan's Ministry of Water and Irrigation (MWI), Yarmouk Water Company (the water utility serving the north), water specialists from the University of Jordan, community-based organizations (CBOs), and beneficiaries – both Jordanian and Syrian – of Mercy Corps-implemented programs. Interviews were conducted in January 2014.

Limitations

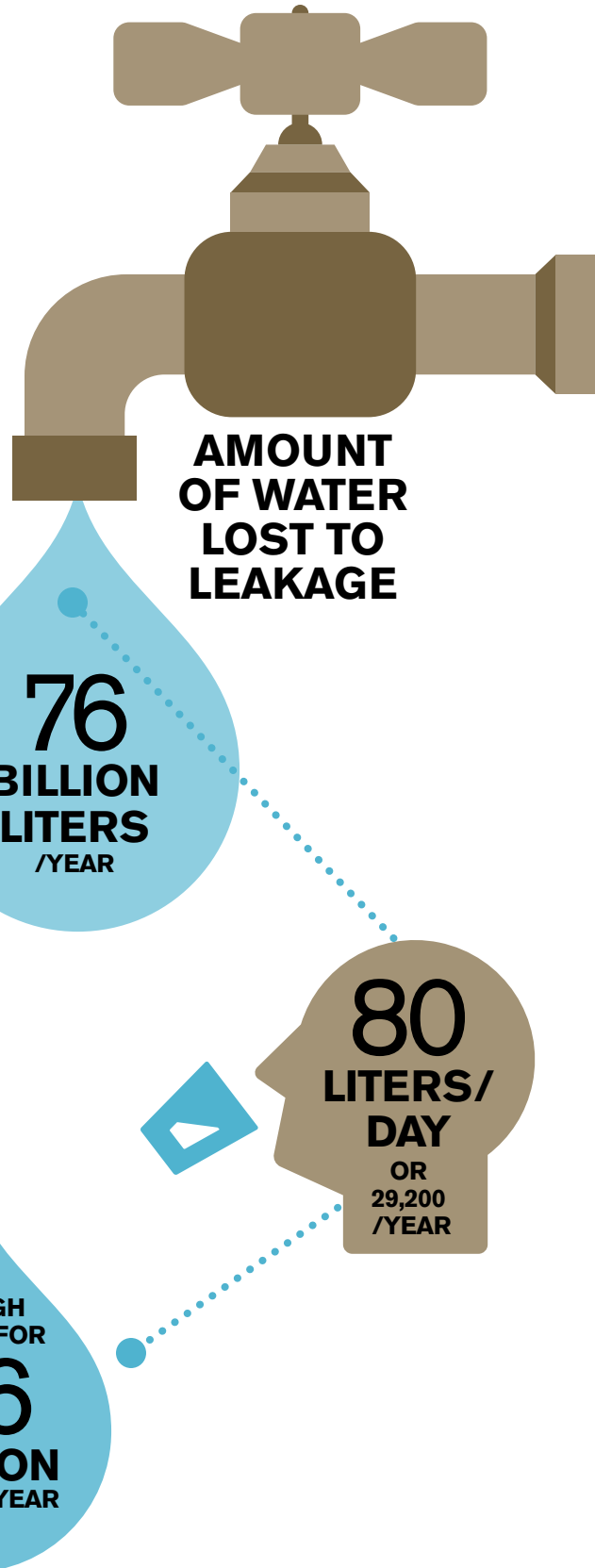
This report's findings are based on information gathered from a wide array of sources. This report outlines the challenges and opportunities identified by Jordanians, Syrians, and international actors. This report does not, however, claim to be definitive. An exhaustive account of Jordanian water scarcity in the face of the Syrian crisis would require a far lengthier treatment. Nevertheless, by summarizing some key themes, it is hoped this report will be a useful addition to ongoing conversations.

¹Ministry of Water and Irrigation and Ministry of Planning and International Cooperation (2013), Quantification of the impact of Syrian Refugees on the Water Sector in Jordan, High Level Conference on Jordan's Water Crisis, Government of Jordan, December 2.

²Ibid., p. 11.

³Data compiled from OCHA's Financial Tracking Service (FTS). Data accessed February 18, 2014. Estimate based on a line-item review of FTS indicated that USD 62 million is allocated to WASH. However, in addition to the USD 62 million, some other line items may include WASH spending while not being identified as such.

⁴Ministry of Planning and International Cooperation (2013), National Resilience Plan: 2014-2016, Government of Jordan, January 8.





“Water scarcity is an existential threat to Jordan.”

– MARWAN AL-MUASHER,
former deputy prime minister of Jordan

2

WATER SCARCITY IN JORDAN

WHEN March 2011 protests turned violent in the Syrian city of Dara'a, just a few miles from Jordan's border, many in the Kingdom held their breath. For years, the country had been a destination of choice for refugees. Over half the population is Palestinian, and hundreds of thousands of Iraqis fled to Jordan in the 2000s after their own country was ripped apart by war. Many such refugees never return home: the Palestinian camp of Baqa'a outside Amman is now a city of crowded houses, minarets, and narrow streets. • The vast majority of Syrian refugees have settled in Jordan's northern governorates, adding profound new pressure to local infrastructure and resources. Nowhere is this more apparent than with water.

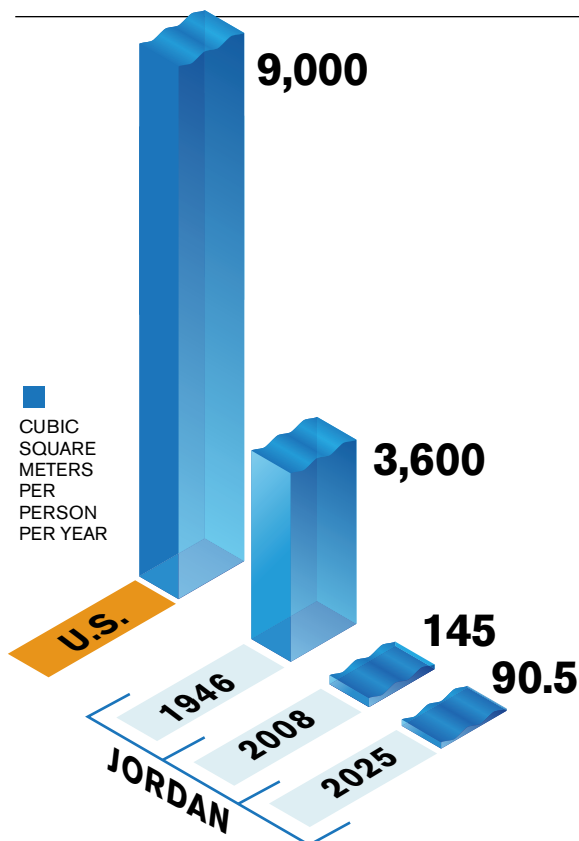
Water in Jordan

Once, Jordan had ample supplies. In 1946, each man, woman, and child enjoyed 3,600 cubic meters of renewable fresh water a year. This far exceeded the amount necessary for healthy growth: to supply adequate amounts of water for drinking, sanitation, industry, and agriculture, the World Bank estimates an annual per capita threshold of 1,000 cubic meters. Compared to its needs, Jordan was relatively water rich. But economic development, climate change, and population growth have all taken their toll. By 2008, Jordan's per person share had fallen to 145 cubic meters annually. And it continues to fall. According to a pre-crisis estimate, by 2025 it would hit 90.⁵

By comparison, the average American enjoys about 9,000 cubic meters a year.

According to global risk analysis firm Maplecroft, Jordan is the third most water insecure country in the world.⁷ Certainly, other countries face extreme shortages. Saudi Arabia, for example, or the United Arab Emirates. But those are wealthy states. They can afford to import food and to build, along their coastlines, expensive desalination plants.⁸

DECLINING JORDANIAN RENEWABLE FRESH WATER COMPARED TO THE U.S.



“We were managing on the edge. We had dug wells all over Jordan, and every year we had less and less water. But we had no choice. You either go thirsty today, or you go thirsty tomorrow.”

– BASEM TELFAH,
*General Secretary
of the Ministry of Water and Irrigation*

Jordan's options are much more limited. While the Kingdom has embarked on major infrastructure projects, added supply has not kept pace with growing demand.

Yet hopping from one mega project to the next was always a plan with a limited time horizon. It hinged on pumping more and more water from a dwindling supply, and years of over-extraction have taken their toll on the country's groundwater basins.⁹ According to a new study utilizing pre-crisis data, the Kingdom's supply of fresh water was on track to be depleted as early as 2060.¹⁰

And now, with the refugee crisis, the rate of depletion has sped up.¹¹

⁵UNHCR (2014). Available online at: <http://data.unhcr.org/syrianrefugees/country.php?id=107> (accessed February 5, 2014).

⁶Velma Grover, Abdel Raouf Darwish, and Eliza Deutsch (2010), *Integrated Water Resources Management in Jordan*, Working Paper 577, Economic Research Forum, December.

⁷Jordan is outranked by Mauritania (1) and Kuwait (2). A summary of Maplecroft's water security index is available online at: https://www.maplecroft.com/about/news/water_security.html (accessed on February 26, 2014).

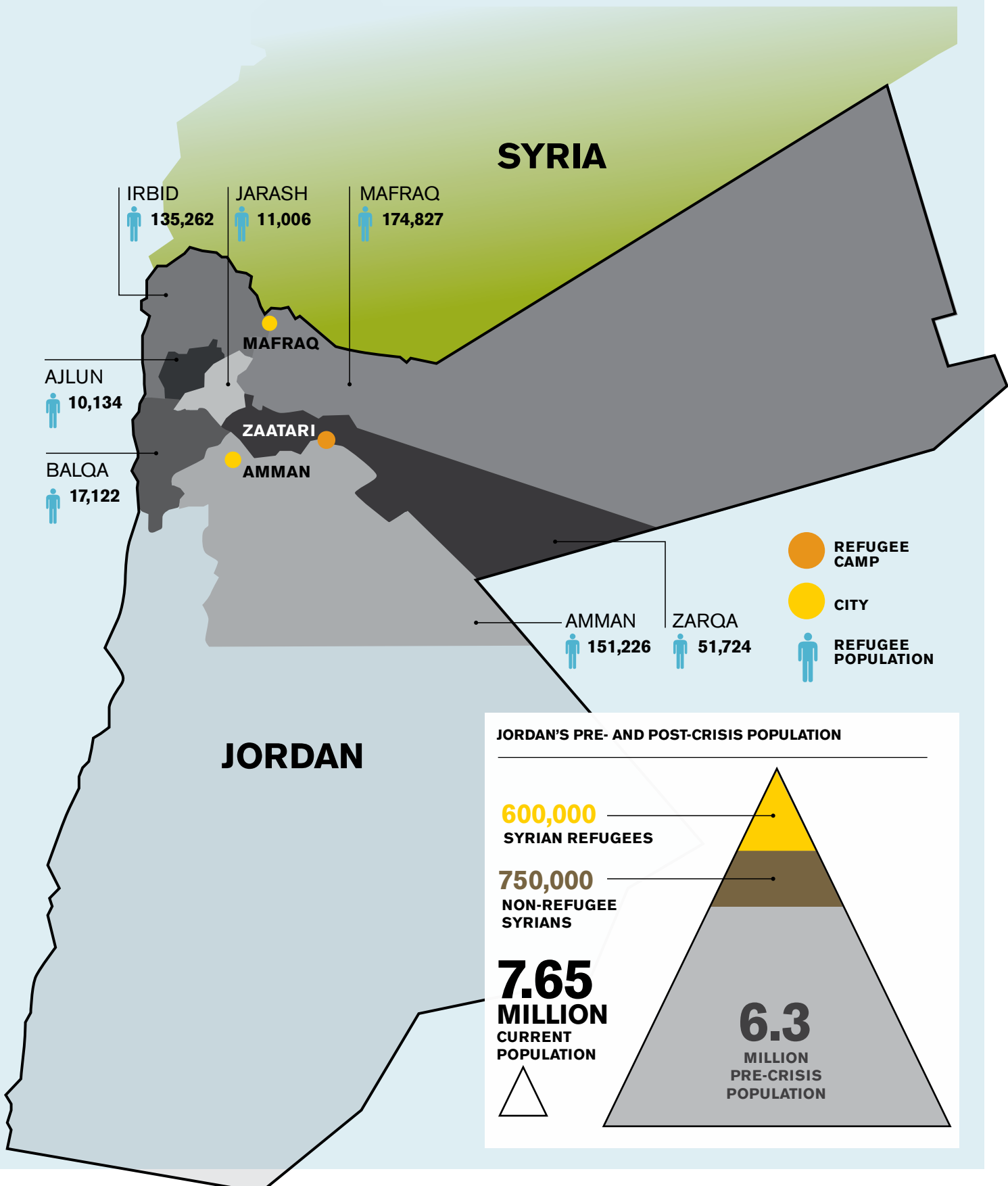
⁸Saudi Arabia, for example, is set to double its desalination capacity from 2010 to 2015, based on a five-year infrastructure plan. *Ibid.*

⁹For more, see D.J. Goode, L.A., Subah, Ali, and Jaber, Ayman (2013), *Groundwater-level trends and forecasts, and salinity trends, in the Azraq, Dead Sea, Hammad, Jordan Side Valleys, Yarmouk, and Zarqa groundwater basins, Jordan*, U.S. Geological Survey Open-File Report. Available online at <http://pubs.usgs.gov/of/2013/1061/> (accessed on January 4, 2014).

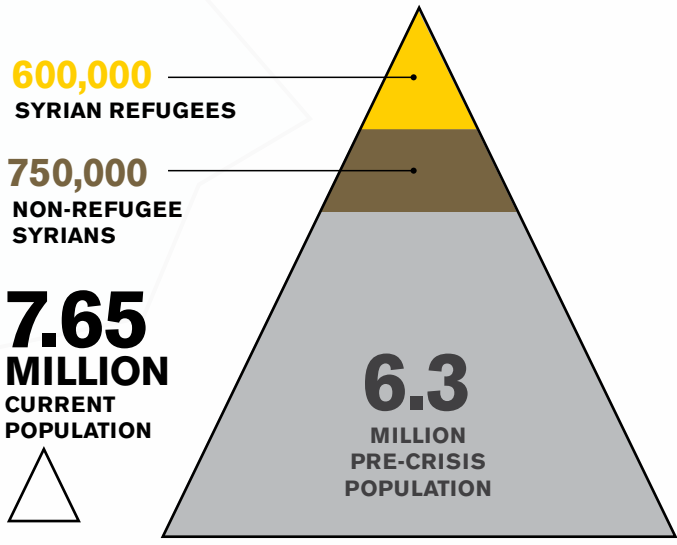
¹⁰Marwan Raggad and Dawoud Saeed, "The fate of groundwater in Jordan: A case of over pumping and climate change" (forthcoming). The paper's findings are based on the average drop measured at 40 wells throughout Jordan.

¹¹Interview with Dr. Marwan Raggad of the University of Jordan, February 16, 2014.

THE SYRIAN REFUGEE POPULATION IN JORDAN'S NORTHERN GOVERNORATES



JORDAN'S PRE- AND POST-CRISIS POPULATION



**BETWEEN
1990 AND 2008
THE POPULATION OF
JORDAN GREW
86 PERCENT**

Last year the Disi aquifer project was inaugurated by King Abdullah II. It cost USD 1.1 billion and will pump 100 million cubic meters of water per year. The project was expected to cover Jordan's needs until at least 2022, according to Basem Telfah, General Secretary of the Ministry of Water and Irrigation (MWI). That estimate has been revised down to 2016.¹²

"The refugee crisis ruined the old strategy," said Saeed Hameed, a UNICEF WASH specialist. "Jordan invested all this money in a massive project like Disi to buy time, but with the refugees it turns out the projections were wrong."

Now there is little time to adjust.

"Big projects like Disi take more than two or three years to get up and running," Saeed said. "There's not enough time to close the gap. 2016 is right around the corner."

Future efforts must focus on sustainable use of remaining resources, said Saeed. Expansion of Jordan's desalination efforts, for instance, would not further tap the Kingdom's scarce fresh water. But desalination, he cautioned, is no silver bullet. Jordan – with its short southern coast on the Gulf of Aqaba – is not ideally situated to take

**LONG-TERM DRIVERS
OF SCARCITY**

While Jordan's brisk economic growth through the early 2000s increased jobs, development placed a heavy burden on water resources. Growth slowed with the 2007 global financial crisis. Climate change, however, appears to have sped up. According to a World Bank analysis of climate projections for Jordan, between 2020 and 2030 temperatures will rise by one to two degrees Celsius, precipitation will be 10 to 15mm less (a decline of 13 to 20 percent), and droughts will be more pronounced.

Meanwhile, Jordan has one of the fastest growing populations in the Middle East. Between 1990 and 2008, the population grew 86 percent, adding an additional 2.7 million water users. According to pre-crisis data, the Jordanian population was on track to double by 2024. During the same period, water availability would halve.

Sources: World Bank; USAID; Government of Jordan.

advantage of the technology. Development and transport costs are extremely high. Once desalinated, the water needs to be piped uphill from the sea to communities hundreds of miles away. Nevertheless, desalination investments are in the offing, such as the agreement with Israel and the Palestinian Authority for a massive "Red-Dead" conveyance that will link the Red and Dead seas. Yet most of these projects are still years away. Many experts are skeptical that such investments will provide the water Jordan needs soon enough.

¹²Interview with Basem Telfah, the MWI's General Secretary, January 13, 2014.



A VANISHING RESOURCE

According to a pre-crisis report from the U.S. Geological Survey (USGS), up to 40 percent of Jordan's groundwater basins would be depleted by 2030. Yet that understates the problem. As water tables fall, salinity rises, rendering what remains less and less drinkable. According to Dr. Marwan Raggad, a hydrogeologist at the University of Jordan, once current basins have been depleted by 70 or 80 percent, the water will no longer be drinkable.

According USGS's pre-crisis analysis, Jordan's fresh groundwater resources were on track to be depleted as early as 2060, says Dr. Raggad. With the onset of the refugee crisis – along with other confounding factors, like climate change – the rate of exhaustion has likely accelerated.

Sources: Dr. Marwan Raggad, University of Jordan (interview date: February 16, 2014); USGS.

THE MERCY CORPS RESPONSE:

INVESTING IN INFRASTRUCTURE

With the onset of the crisis, Mercy Corps has invested in water infrastructure projects throughout northern Jordan, for the benefit of hosts and refugees. These efforts are supported by USAID, UNICEF, and UNHCR. Well drilling, reservoir rehabilitation, and new pipelines will increase supply and efficiency. Sample projects include:

Zaatari Refugee Camp: 2 new wells and pump stations to serve a refugee population that reached 120,000. Cost: USD 450,000.

Tabaqet Fahel Well Project: Renovation and expansion, providing enough water for an additional 63,000 people with 80 liters per day. Cost: USD 250,000.

Zabdah Reservoir: Renovation project fixing leaks and installing insulation, saving enough to water to provide 27,000 users with 80 liters per day. Cost: USD 530,000.

Abu Al Basal Pipeline: Installed 2.5 km of pipes to extend the water network and address emergency shortages and a refugee-affected area. Cost: USD 70,000.

Spare parts: To enable quick responses to network breaks, reduce the scope of interruptions, and enable maintenance, Mercy Corps provides spare parts to the local utility (parts valued at USD 400,000 as of October 2013).



SUMAYA

SITS ON THE FRONT-LINES
OF THE REFUGEE CRISIS:
ONCE SERVING AROUND
80,000 PEOPLE,
TODAY IT SERVES OVER
200,000

Out-of-date infrastructure

In the face of chronic scarcity, every drop must count. In Jordan, however, much of the water drawn from the ground never reaches a family's tap. Jordan's MWI recently estimated that, on average, water losses run at approximately 50 percent nationwide.¹³ Much is stolen from utility lines by desperate Jordanians who either cannot afford water or don't have in-home access to the network. But vast amounts of that water simply leaks out of the pipes and sinks, unused, into the soil. Annually the total lost to leakage is at least 76 billion liters: enough to satisfy the needs of 2.6 million people.¹⁴ That is roughly the population of Chicago.

Sumaya pump station in northern Jordan is emblematic. Sumaya sits on the front-lines of the refugee crisis: Once serving around 80,000 people, today it serves over 200,000. Sumaya is a station many years out of date. A dead generator looms on one side of the pump room, and in the back electrical panels bear engraved telex numbers. From two decaying pumps, water gushes out onto a floor covered with snarls of frayed cables. And the grounds around the pump station are a swampy muck: from cracked pipes beneath the station, water bubbles up through the soil.

Of the water Sumaya pumps from the aquifer, treats for impurities, and sends to homes along the network, approximately 75 percent leaks out of the pipes.¹⁵

The infrastructure challenge is complicated: everything is linked. Any major installation or upgrade may well be undermined by problems down the line. As wells dry up, more are needed, and as water levels decline and become more saline, increasingly expensive treatment is required. But why install a water treatment plant if much of the water leaks out of the pipes? Installing a new pump may get more water out of the ground, but if the new pressure overwhelms aging, overworked lines, new breaks are inevitable.

Yet to date, system-wide upgrades are difficult to realize. Donors and the government generally prioritize large, discrete projects, such as new wells or water treatment plants. These are the "bright, shiny objects" of the response. Implementing a bilateral project can avoid coordination headaches, and cutting the ribbon on a new treatment plant makes for good PR. No doubt these investments address real needs, but problems down the pipeline undermine their benefit. If an expensive new pump station merely quickens the pace at which Jordan dumps its water into the sand, such investments may do more harm than good.

¹³Ministry of Planning and International Cooperation (2013).

¹⁴According to Elias Salameh, a water specialist at the University of Jordan, Jordan's water network pumps 380 million cubic meters (MCM) a year. Fifty percent is lost to theft and leaking pipelines. According to Dr. Salameh, up to 20 percent of the total volume is lost to leakage. This is a conservative estimate, according to MWI officials and other water specialists, but still amounts to 76 MCM lost per year. A cubic meter is equivalent to 1,000 liters, so 76 million MCM = 76 billion liters. Mercy Corps Jordan, UNHCR, and UNICEF estimate that eighty liters of water per person per day is necessary to meet basic needs (drinking water, sanitation, bathing, cleaning one's house, growing subsistence crops, and food preparation), so a year's supply equals 365 * 80, or 29,200 liters per person. To translate losses (from leaking pipelines) into human terms, divide annual water leakage by annual per capita needs: 76 billion liters / 29,200 liters per person = 2.6 million people. In the refugee camps, the estimated need is 35 liters per person per day, so losses are equivalent to the needs of almost 6 million camp residents. There are various ways to crunch the numbers. According to World Health Organization (WHO) standards, 15 liters per day is needed to simply survive (i.e., drinking water and food preparation). By that measure the water lost to leaking pipes is equivalent to the survival needs of almost 13.9 million people. For a review of water indices, including the amount of water necessary for basic needs, see Amber Brown and Marty D. Matlock (2011), *A Review of Water Scarcity Indices and Methodologies*, White Paper #106, University of Arkansas, Sustainability Forum, April. See also The World Health Organization (2013), *How much water is needed in emergencies*, July. Available online at: http://www.who.int/water_sanitation_health/publications/2011/WHO_TN_09_How_much_water_is_needed.pdf?ua=1 (accessed March 6, 2014).

¹⁵As estimated by Mercy Corps engineers.

Impact of the Syrian refugee crisis

Today Mafrq City, a dusty border town in northern Jordan, is more Syrian than Jordanian: once home to 70,000 people, Mafrq City is now packed with 90,000 refugees.¹⁶ Old neighborhoods are overrun. Multiple Syrian families pack into single-family flats. Shops have been converted to makeshift homes. Some families rent rooftops and chicken coops. Children peek out from windows and doorways covered by cardboard and dirty sheets. Water deficits in Mafrq City quadrupled.¹⁷ Hospitals don't have enough, schools are dry, and mosques cannot perform the required daily ablutions.

This is the story throughout much of the North. The vast majority of refugees – approximately 83 percent¹⁸ – reside not in camps, but in cities and towns like Mafrq. And as populations spiked, so too has need. A supply of 80 liters per person a day is necessary to satisfy needs.¹⁹ By over-exploiting groundwater, the government was able to exceed this. But no more. Those communities hardest-hit by refugees have seen the average supply drop below 30. At that level, sanitation standards decline, diseases rise, subsistence crops wither, and children go thirsty.²⁰

Water scarcity is intimate. It reaches into homes, imperiling health and sanitation. It can spawn friction between husband and wife: Jordanian community

¹⁶Translated from Arabic: Kuwait News Agency (2014), "The Governorate of Mafrq in Jordan suffers from Syrian refugees," January 5. Available online at: <http://www.kuna.net.kw/ArticlePrintPage.aspx?id=2353749&language=ar> (accessed on February 24, 2014).

¹⁷Ministry of Water and Irrigation (2013), Quantification of the Impact of Syrian Refugees on the Water Sector in Jordan, High Level Conference on Jordan's Water Crisis, December 2. MWI, in comparing wastewater treatment plant outputs to acceptable standards, relied in part on T.J. McGhee (1999), *Water Supply and Sewerage*. McGraw-Hill International Editions, 6th Edition. Singapore.

¹⁸Ministry of Water and Irrigation and Ministry of Planning and International Cooperation (2013).

¹⁹Please see footnote 14.

²⁰Brown and Matlock (2011).

THE MERCY CORPS RESPONSE:

SMART, SUSTAINABLE DEVELOPMENT

Using a revolving loans program to build local capacity.

Through partnerships with community-based organizations (CBOs), Mercy Corps' revolving loans program provides an example of how to build out local capacities in the water sector (and elsewhere). Mercy Corps works as a facilitator, training local CBOs, then microfinance funds for community-based projects. The goal is to have a durable impact: revolving loan funds, and the CBOs who administer them, may continue to finance household interventions long after the program has closed its doors. Hartha Charitable Society in Hartha village is exemplary. The society is committed to educating the public on water management, and expanding the pool of renewable technologies. Their slogan is "a water well for each house." Hartha took JD 9,000 (approximately USD 12,700) in start-up funds and disbursed over JD 100,000 (USD 140,000) in loans. Average loan amounts are JD 1,000.

Beyond the obvious fiscal impact, a revolving loans program builds out the capacities of participating CBOs, establishing a network of community-oriented organizations. To date, Mercy Corps has distributed USD 2.8 million to 137 Jordanian CBOs, and over 8,000 loans have been disbursed.

Modeling new technologies.

Rainwater catchments, new cisterns, greywater treatment systems: these are expensive purchases. But with refugee-driven supply pinches, Jordanian households are more willing to invest in "non-traditional" approaches that lessen their dependence on unreliable networks and expensive private wells. In that sense, the crisis is accompanied by opportunity; Jordanians are more willing now than before to consider alternatives to the shrinking supply of groundwater. Modeling technology is not simply about using tools to enhance resources, but about transforming attitudes.

organizations note a correlation between water shortages and an up-swing in domestic disputes.

“The strain on a family is very great,” said Jaleela Smadi, head of a CBO focused on women’s issues. Women, she said, are responsible for household water management: cleaning dishes, doing laundry, preparing food. “And if they run out, the husband has to buy more,” she said. “And then he blames his wife.”

During periods of shortage, female-headed households are particularly vulnerable. In part, because they tend to be poor – unemployment rates for women are high – but they are also more socially isolated. In need of water, some women said they would send



THE MERCY CORPS RESPONSE:

EMPOWER FEMALE VOICES THROUGH LOCAL PARTNERSHIPS

Mercy Corps Jordan is leveraging local interventions to amplify female voices. This is not only valuable in its own right, but good development practice: It ensures that programs reach those who need help most. This is a must in Jordan. Though their government is a signatory of the UN Convention on the Elimination of Discrimination Against Women (CEDAW), Jordanian women continue to suffer from systematic discrimination. They are underrepresented in government, civil society, and business – and in spite of good education, Jordanian women have one of the lowest employment rates in the MENA region (15 percent, compared to 69 percent for men).

Mercy Corps has used its CBO partnerships to nudge Jordanian communities in the right direction. Without relaxing other requirements, Mercy Corps has been able to prioritize female participation when selecting partner CBOs: 38 percent have female members; 30 percent have women on their management committees.

Source: USAID (2012), Jordan Country Development Cooperation Strategy: 2013-2017, November.

their male children with buckets to the local mosque. A boy might be eight or nine, and the walk as long as three kilometers. Mothers worried for their children’s safety. “But we’re desperate,” said one. “And sometimes we can get water from the mosque.”

But when pipelines are dry, options evaporate. Many households rely on private well water brought house-to-house by tanker truck. It is expensive, but still there is often not enough to go around. Who gets water and who doesn’t is determined by one’s social influence, or “wasta.” Male truck drivers generally prioritize deliveries to their friends – virtually all of whom, for cultural reasons, will be men. A widow may well be left out.

Even when a driver agrees to make a stop, a single woman often cannot accept the delivery. Pumping water is a two-person job. While the driver manages the controls in the cab, someone must operate the hose on the back: holding it in the cistern while water is pumped out. This is tough work. High pressure makes the hose snake and jump. Most women aren’t strong enough, according to a Syrian widow in Sahel Houran. During a delivery, her young son tried to help, but the pressure in the hose “sent him flying.” But even if a woman can hold the hose, the Syrian woman said, engaging in that kind of labor is frowned upon.

“In the summer, shortages are very bad,” said Jaleela Smadi. “And a widow’s water tank is more likely to stay dry.”

WOMEN AND WATER

A MERCY CORPS PARTNERSHIP WITH A JORDANIAN CBO

"There are issues that women are best situated to address," Jaleela Smadi said. "Childhood issues, family issues. Women are closer to these problems. This is true with water, where women are the ones responsible for day-to-day management in the household. They are responsible for cleaning, food preparation, and making certain the children have enough to drink."

Jaleela is president of the Jerasia CBO, one of the local organizations Mercy Corps has partnered with to address local water scarcity. Located in Jerash in northern Jordan, "Jerasia" derives from the city's old Roman name. The streets are crowded with tightly packed houses that occasionally, suddenly, open up to reveal on an opposite hillside the columns of the Roman ruins. In the heart of the city, just off Salah Addin Street, sits Jerasia's headquarters: several buildings, including a market whose proceeds go to the poor, and Jaleela's immaculate office.

The president of the Women's Association of Jordan and a two-time candidate for Parliament, Jaleela is a forceful advocate for microfinance in the water sector, environmental protection, and women's rights. She founded Jerasia in 2000 to serve women's needs in the community, where she said women's voices are too often silenced.

Being a female-headed and -staffed CBO carries practical benefits. Jerasia is better positioned to conduct household interventions. While a male program officer may face difficulty entering a conservative home to speak with women and children, Jerasia's women have easy entree.

Since 2008, when Jerasia began partnering with Mercy Corps, the CBO has committed itself to addressing local water scarcity. As part of the revolving loans program, Mercy Corps invested JD 10,000 in Jerasia (approximately USD 14,000). That money was then loaned to local households – at around JD 1,000 per loan – enabling them to install rooftop systems for catching rainwater and storing the flow in a cistern that can hold 20-30 cubic meters. While the utility network is inefficient and overworked in that part of Jordan, annual rainfall is somewhere in the range of 400-450mm: enough to fill a cistern a couple of times. After a loan is paid back, it's "rolled over" to the next family in line. Jerasia's loan repayment rate is 100 percent.

In 2012, with the added pressures of the Syrians on local water resources, Mercy Corps disbursed another JD 12,000 (approximately USD 17,000) in support of the program. To date, Jerasia has 54 revolving loans beneficiaries, turning USD 31,000 of start-up capital into more than USD 54,000 worth of impact.

"The most important benefit of the program was the building of our capacity," Jaleela said. "Mercy Corps' investment has transformed our ability to help our community, including the Syrians. Big changes have small beginnings.

Now we have the tools we need."

"I'M NOT AS SCARED ANYMORE":

A REVOLVING LOANS BENEFICIARY

"Before it was miserable," said Um Omar. A tiny Jordanian woman in a flowing burqa, she served tea with mint. We sat in the small garden outside her house in Rashaide, a poor neighborhood in Jerash in northern Jordan.

Um Omar's husband died fourteen years ago. She has since raised their two sons – now teenagers – on his military pension. It provided a meager living.

"Not having water adds a lot of pressure to people," she said. "I couldn't clean the house or wash dishes or do laundry. When we were desperate and the water trucks wouldn't come, I would go without so the children had enough to drink."

Sometimes she would go to neighbors to ask for water, but often they were nearly as desperate. "In the summer, everyone had the same problems. It has gotten worse because of the refugees."

"I was worried all the time. It is a major source of anxiety. A woman having to go to her neighbors in the middle of the night" – Um Omar waved her hand – "she feels her dignity taken away."

Last year, Um Omar borrowed JD 1,000 from Jerasia CBO, a Mercy Corps partner,

to install a rainwater catchment and a cistern. Since the installation a year ago, she hasn't had to order water from a private well, or borrow by the bucket full from a neighbor. The cistern has been naturally filled by rain three times. With that water, she has enough to prepare food, wash clothes, and maintain a small garden of olive trees and thyme.

"Now people sometimes borrow water from me," she said, smiling.

Beyond the increased security, and financial boon, of installing a rainwater catchment, some benefits are difficult to measure.

"Before I could hardly breathe," she said. "I'm not as scared anymore."



A crisis of waste

The threat to Jordan's water reserves is not limited to over-use and antiquated infrastructure. This is also a crisis of human waste. Municipal sewage networks are overwhelmed; overflows are common. Last year in Amman and Zarqa, complaints about broken or clogged wastewater pipes doubled; in Mafrqa, they tripled.²⁰ Too many people don't enjoy modern sewage treatment at all. In refugee-affected areas, only 35 percent of the population has access to a sewage network.²¹ As a consequence, many throughout the North are disposing of effluent illegally: burying it, or dumping it on the side of the road. And improvised toilets are common. This is more than just an unseemly health risk; in large volumes, untreated waste can be a dangerous pollutant that threatens the water supply.

This is particularly evident at Zaatari refugee camp. About eight miles from the border with Syria, the camp is Jordan's fourth largest city and sits atop the Amman-Zarqa groundwater basin, a main source

of groundwater for the north. The basin is shallow: only 100 to 200 meters below the surface.²² Many refugees, rather than use public toilets, have dug latrines beside their tents. Security concerns are cited as the most common cause. Women and children are afraid to cross the camp to use publicly available toilets, particularly at night. According to UNHCR, 89 percent of women, 28 percent of teenage girls, and 39 percent of boys and girls under the age of 12 fear harassment on their way to and from public bathrooms.²⁴

²⁰Hana Namrouqa (2013), "Water demand to increase by 16% in 2013 – ministry," The Jordan Times, May 25. Available online at: <http://jordantimes.com/water-demand-to-increase-by-16-in-2013---ministry> (accessed February 5, 2014).

²²UNHCR (2013), 2014 Syria Regional Response Plan Strategic Overview, released December 16. Available online at: <http://www.data.unhcr.org/syria-rrp6/regional.php> (accessed February 26, 2014), p. 107.

²³Ministry of Water and Irrigation (2013), Cost of Hosting Syrian Refugees on Water Sector Jordan (sic), April.

²⁴UNHCR (2013), p. 107

A few people relieving themselves in the sand by their tents is of no consequence – but tens of thousands? Today, trenches full of human waste dot the geography of the camp. These open toilets are hazardous to health and hygiene; standing pools of stagnant waste water increase risks of infectious disease. They also present a broader environmental danger, one with strategic implications. According to an MWI report, human waste sinking through topsoil threatens to pollute the groundwater basin – as early as mid-2014.²⁵

“What would we do then?” said a middle-aged Jordanian man, a life-long resident of Zaatari village, the community that abuts the camp. “If the supply is spoiled, we are done.”

IN JORDAN WATER HAS BEEN RATIONED SINCE THE 1980s

Clashing water cultures

In Jordan water has been rationed since the 1980s. Much of the time pipelines are dry, and even when times are good, water may flow only a few hours every two weeks. Those brief hours are a flurry of domestic activity. Jordanian families wash clothes and do dishes, quickly shower, and store enough to get through the week. These practices are foreign to a Syrian, whose country is better endowed and where the taps always run. Refugees arriving in Jordan do not always quickly adjust, and many lack basic habits of conservation.

“I personally love water,” a young Syrian woman said. She fled to Mafraq from Homs last year. “And in Syria the water runs all the time. I was shocked when I found out it runs for a few hours once a week here in Jordan. I have to learn to be careful.”

Syrians admit to keeping taps open when washing dishes, or running a hose to rinse off a patio. Some may learn the Jordanian way of using water second-hand and third hand: using the same water to first clean clothes, then wash the floor, and finally water plants. But others have not yet adjusted to living in one of the world’s driest countries. Some Syrians in Zaatari camp, despairing of ever returning home, have recreated some of the luxuries they enjoyed

THE MERCY CORPS RESPONSE:

PAIRING INFRASTRUCTURE INVESTMENTS WITH COMMUNITY PROJECTS

While the infrastructure challenges in Jordan have reached a critical stage, improving the water network alone is not enough. Network improvements are often spread out, potentially among thousands of beneficiaries. In the case of water, a half-million liters may be saved by replacing an old pipeline, but if those savings are shared among 100,000 residents, the benefits may not be immediately felt.

“In a crisis environment, people need to feel they are being helped,” said a Mercy Corps program officer. “They need to see it.”

Mercy Corps has been working at the community- and household-levels to expand local water supplies and educate communities about water demand management. Through a community grants program, water-saving investments are made to support public institutions that have been overburdened by the influx of Syrians. A school, for example: when the student population doubles, but available water remains the same, sanitation standards plummet. A catchment-and-cistern installation can dramatically expand supply. Mercy Corps has implemented programs in 49 schools, impacting 46,000 Syrian and Jordanian students. Efforts are ongoing. Mercy Corps recently started rain-catchment systems at 10 more schools and at 19 health centers. By April 2015, 220 grants will have been implemented.

back in Syria: decorative water fountains, or – in extravagant cases – swimming pools.²⁶

“You hear about these things,” said Omar, a young Jordanian man in Mafraq. “And you can’t believe it.” He shook his head. “Sometimes months go by before I can take a bath.”

²⁵Ministry of Water and Irrigation (2013), Cost of Hosting Syrian Refugees on Water Sector Jordan (sic), April, p. 19.

²⁶Norimitsu Onishi (2013), “As Syrian Refugees Develop Roots, Jordan Grows Wary,” The New York Times, October 5. Available online at http://www.nytimes.com/2013/10/06/world/middleeast/as-syrian-refugees-develop-roots-jordan-grows-wary.html?_r=0 (accessed on October 6, 2013).



“I have faced lots of problems. But I can’t go to the police. We are weak because we’re not Jordanian. We are very afraid and worried.”

**– WIDOWED SYRIAN MOTHER,
living in Sahel Houran**

Tensions between hosts and refugees

“There is a lot of tension over water,” said a Syrian woman. She fled Damascus with her children and ended up in Sahel Houran, where they rent a one-bedroom flat. “Syrians renting apartments from Jordanian landlords don’t get access to the building’s water supply. The taps don’t work in our apartment. We have to buy water from private wells. It isn’t right. But we’re desperate, so what else can we do?”

Not all Jordanians suffer because of the Syrian war and corresponding refugee crisis. According to many, the crisis layers over longstanding – and growing – inequality among Jordanians. Landlords have been enriched by rising rent prices, and employers can demand lower wages from a swollen labor supply. Winners and losers are sorted by class.

Nevertheless, the Syrians bear the brunt. Scarcity helps fuel anti-refugee rants by nationalistic Jordanian radio hosts, such as Mohammed Al Wakil’s “To Be Honest” program, and Mahmood Al Hoyan’s “Good Morning, Jordan.” Jordanian and Syrian focus groups have described popular media provocation as a source of growing anti-refugee sentiment.

The prolonged Syrian presence has served to focus and help give voice to old grievances. “We had problems before the Syrians came,” said an elderly Jordanian woman in Mafraq. “And while they made issues worse, it is also easy to blame them.”

Last summer, angry protesters in Mafraq called for all refugees to be deported, and the warehouses of a CBO providing relief to Syrians was raided.²⁷ Fatigue with the refugees extends beyond an angry fringe element. An April 2013 poll indicated that 71 percent of Jordanians want the government to close the borders.²⁸

²⁷Ibid.

²⁸Khaled Neimat (2013), “Majority of Jordanians call for end to Syrian refugee influx,” The Jordan Times, April 15. Available online at: <http://jordantimes.com/majority-of-jordanians-call-for-end-to-syrian-refugee-influx> (accessed January 27, 2014).

The youth movement Hiraq “Nashama al-Mafraq” founded a Jordanian refugee camp in protest, pitching UNHCR tents along the main street of Hayy al-Janoubi. Those who took up residence were Jordanians evicted from their homes so landlords could rent out to Syrians. “There is no dignity, ownership or honesty left to us Jordanians,” said one man, brandishing his eviction notice. The camp was disbanded by government authorities who promised state-funded housing for the evicted Jordanians. But ill feelings linger, and the atmosphere is ripe for scapegoating.

A number of factors mitigate host-refugee tensions, kinship among them. Tribal affiliations cross borders. Prior to the conflict, Syrians and Jordanians moved back and forth, and even today it is not uncommon to see cars with Syrian license plates throughout the North. Extensive trade, long-standing tribal affiliations, and intermarriage all contribute to good relations between refugees and hosts. Many Syrians, fleeing the conflict in their homeland, sought safe harbor with Jordanian relatives.

But such mitigating factors are not absolute, and vary geographically. Family ties are perhaps most evident in Sahel Houran, which attracted large numbers of refugees from nearby Dara’a. By comparison, kinship is less a factor in Mafraq, where most refugees are from distant Homs.²⁹ Not surprisingly, Mafraq is also home to some of the most virulent anti-Syrian rhetoric.³⁰

If international actors are not careful, they may well contribute to host-refugee tensions. Among Jordanians, international aid is perceived as unfairly tilted to the Syrians. In Mafraq City, for example, dozens of NGOs vie to deliver relief to tens of thousands of refugees. Their efforts are laudable. However, by targeting Syrians alone, they may spark host community resentment. One NGO, by purchasing water for refugees from private wells in large quantities at higher-than-market prices, distorted local markets and drove up the price for surrounding Jordanian

**THE MERCY CORPS RESPONSE:
ADDRESSING HOST-
REFUGEE TENSIONS**

Target aid to host communities. Perception management is important to maintaining stability. In the present environment, the administration of resources must be perceived as fair and serving long-term Jordanian interests. This requires extensive community outreach, but also that we place host communities at the center of our programs. Highly visible household and community interventions – like new rainwater systems for schools now crowded with Syrian students – help alleviate Jordanian frustration while directly relieving the pressure of refugees.

Embed conflict mitigation in development programs. In fragile and transitional environments, particularly where civil society may be underdeveloped, training local actors to help address flashpoints as they arise can be a valuable complement to ongoing development programs. Indeed, given the threat of scarcity to stability, they may be vital. In Jordan, Mercy Corps trains community leaders to assess and mitigate tensions arising from resource shortages. In the first phase of the program, 50 leaders were trained. These included Syrians, Jordanians, women, government officials, and CBO leaders. According to program participants, interest-based negotiation trainings and proposal-writing workshops enabled them not only to mediate tensions, but also to establish informed priorities for community development projects.

communities. According to locals in Mafraq, the price of well water has doubled or more. Perceptions are vital. The administration of resources must be seen as fair and serving long-term Jordanian interests. Symbol-laden local interventions can serve as a powerful reminder that the international community is committed to the sustainability of Jordan – not simply to shoring up refugees.

²⁹Mercy Corps (2013), Mapping of Host Community-Refugee Tensions in Mafraq and Ramtha, May.

³⁰Ibid.

³¹Ibid.

TOWARDS A COORDINATED INTERNATIONAL RESPONSE

In a chaotic response environment, coordination is perhaps always messy. Speed of response is understandably prioritized over ensuring actors move in lock step. But as crises prolong, coordination must mature.

In Jordan, coordination among key actors is most evident at the strategic level. Executive meetings between the government, donors, and NGOs are regularly convened. Establishing these bodies is no mean feat, and they serve important functions: they inform national priorities and can provide invaluable fora between key actors.

Yet coordination must be more than merely strategic. While everyone may agree on general priorities, responses are made up of projects and programs. This is certainly evident in water. Who will build this pipeline? Who will dig that well? These are not abstract questions. KfW, the German development bank, was beginning to implement rehabilitation on a pipeline running from Mafraq to Zaatari, only to discover that the project had been separately assigned to the Japan International Cooperation Agency (JICA). Avoiding duplication would seem straight-forward, and yet project overlap – in the proposal and design phase – is a common complaint among NGO workers, donors, and the UN.

These problems are manageable, but they will not go away by themselves. Meanwhile programmatic coordination may become more complicated. UNHCR's RRP is the foremost planning document for humanitarian relief, but overlaps may arise with Jordan's recently unveiled National Resilience Plan (NRP). Both the RRP and NRP are vital to implementing a smart response, and the unveiling of each is something to celebrate. But how will an NRP project be differentiated from an RRP project? Who has oversight responsibility?

• **Two Plans for Jordan: The NRP and the RRP**
The National Resilience Plan (NRP) 2014-2016 is a three-year development plan authored by the Government of Jordan. In light of refugee pressures on northern Jordan, the NRP outlines priority investments to meet the needs of host communities. Target sectors include education, energy, health, housing, livelihoods and employment, local governance and municipal services, social protection, and “water, sanitation, and hygiene” (WASH). The majority of these interventions build on existing programs, where capacity is already present. The total cost of the response interventions is approximately USD 2.41 billion over the next 3 years, with USD 750.7 million allocated to WASH. Within WASH, the funding will be used to improve the quantity, quality, and efficiency of water delivery, expanding and improving sanitation services, and addressing cross-cutting WASH issues.

REQUESTING USD

4.2 BILLION,

IT IS ONE OF THE LARGEST EMERGENCY UN APPEALS, INCLUDING UN AGENCIES AS WELL AS NATIONAL AND INTERNATIONAL NGO PARTNERS

The Syria Regional Response Plan (RRP6) for 2014 is a one-year strategic plan developed by UN-HCR that outlines the priority response objectives for the region and each refugee-hosting country. Requesting USD 4.2 billion, it is one of the largest emergency UN appeals, including UN agencies as well as national and international NGO partners. RRP6 addresses three target populations: refugees in fixed settlements (i.e., camps), refugees living outside camps, and host communities. RRP6 is limited in scope and duration, but designed to complement longer-term development programs. The requested USD 499.2 million for WASH will prioritize wastewater disposal, treatment, and management, as well as solid waste removal. The key WASH responses include: providing 1,072,000 refugees in the camps and outside camps with access to safe water, providing 700,000 Syrians with sanitation assistance, and promoting hygienic practices among 285,000 people in host communities.





**“Last summer, there were riots. People screamed,
‘You’re government! You’re sh--!
You need to provide water to us!’ It was a disaster!”**

**– ALI ABU SUMAGA,
Director of the Mafraq Water Directory**

3

WATER, GOVERNANCE, AND CONFLICT

“WHEN it comes to water, we’ve always had hot spots,” said Mohammad al-Rababaah, general manager of northern Jordan’s water utility. “But now there are more – and they’re hotter.” • Shortages are felt everywhere, he said, and public frustration is on the rise. Thirsty Jordanians are increasingly territorial. Infrastructure projects are routinely interrupted by armed and desperate locals. Meanwhile, the government’s inability to address shortages is a source of rising frustration. • In some cases, tensions have already ignited. Last summer, as temperatures climbed and pipes ran dry, water deficits helped spark instability throughout the North: open protests, water riots, pump stations attacked. In Mafraq governorate, Jordanian protesters blocked roads with burning tires and prevented operators from accessing a well that serves Zaatari camp.³²

During riots in Mafrag and Karak, hundreds of Jordanians blocked the road and marched on government buildings. Leaders warned Amman of a popular uprising if the taps continued to run dry. Government representatives begged for patience. In at least one case, King Abdullah II personally intervened to defuse tensions. Jordanians describe the state as badly shaken.³³

THE ARAB AWAKENING WEIGHS HEAVILY ON THE PUBLIC'S MIND. THE EXAMPLE OF CHAOTIC SYRIA LOOMS IN THE POPULAR IMAGINATION, AND STABILITY REMAINS A PRIORITY

For more, see **“Summer is Coming”** on page 31.

The Arab Awakening weighs heavily on the public's mind. The example of chaotic Syria looms in the popular imagination, and stability remains a priority. Jordanians might make demands or attack utility companies, but they stop short of calling for an end to the monarchy. For their part, government security forces have treated protests with a velvet glove. Rather than cracking skulls with batons, police remain on the perimeters of protests, handing out water and juice.³⁴

Nevertheless, many Jordanians – in government and on the street – say the situation is precarious. Long-standing grievances over public corruption and a lack of representative government have been further stoked by refugee pressures. Water shortages add another potential catalyst.

Unfortunately, the government's room for maneuver is very narrow. The MWI is under-resourced, under-manned, and strangled by red tape. Within the Ministry, the Project Management Unit (PMU) is responsible for prioritizing and implementing critical projects. Sadly, the PMU's ability to move quickly is constrained by elaborate procurement procedures. A large-scale project may take three years to get moving – and that's before breaking ground. In an emergency environment, according to PMU representatives, this is too long. Meanwhile generous government subsidies for water – which have been extended to refugees – undermine the Ministry's ability to pay for such projects: debt is in excess of USD 1.3 billion, and the 2014 deficit is projected to run over USD 310 million. Servicing debt is the largest item on the budget, and costs are rising. A three-year bond carries an interest rate of 8.5 percent.³⁵ In this cash-strapped environment, public-sector wages for engineers are low and there is the attendant problem of brain drain.

Yet while serious problems bedevil government efforts at the top, challenges are most glaring on the ground.

³²The Levant Post (2013), “Riots in Mafrag's Badia over water stoppage,” June 12. Available online at: <http://thelevantpost.com/jordan/riots-in-mafrags-badia-over-water-stoppage-14889/> (accessed on February 3, 2014).

³³For more, see Deborah Amos and Nabih Bulos (2013), “In A Rough Neighborhood, Jordan Clings To Its Stability,” NPR, July 1. Available online at: <http://www.npr.org/blogs/parallels/2013/07/01/196656296/stability-or-democracy-in-jordan-its-a-fragile-balance> (accessed December 2, 2013).

³⁴Deborah Amos and Nabih Bulos (2013), “In A Rough Neighborhood, Jordan Clings To Its Stability,” NPR, July 1. Available online at: <http://www.npr.org/blogs/parallels/2013/07/01/196656296/stability-or-democracy-in-jordan-its-a-fragile-balance> (accessed on January 19, 2014).

³⁵Interview with Basem Telfah, the MWI's General Secretary, January 13, 2014.

“When it comes to water, local governance entities are the weakest link. Even when they have the will, they don’t necessarily have the capacity to deal with the challenge.”

- SENIOR NGO STAFF

Local Institutions

In Jordan, water management is delegated to local utility companies. These are private contractors. In parts of Jordan, they are effective. The water companies in Amman and Aqaba, for example, are able to cover costs and maintain networks. Generally speaking, services in the South are good.

Not so in the North. Yarmouk Water Company (YWC) – the utility contractor responsible for many of the refugee-affected areas – suffers from an astonishing lack of capacity. YWC is tasked with four governorates larger and more populous than Hawaii. Yet it has six engineers. Service interruptions and breaks prompt overwhelming volumes of complaints. These have risen with the refugees. According to utility company data, from 2011 to 2013 complaints nearly quadrupled: 12,520 to 45,433.³⁶ Most of these go unanswered.

To some extent, YWC’s problems derive from a lean operating budget. Customer tariffs fund utility operations but are heavily subsidized by the central government. Because that subsidy is not paid through Yarmouk, the company receives only a percentage of actual receipts.

But budgets only tell part of the story. Labor-management relations are a source of chronic trouble. Worker dissatisfaction can usher bosses out as demands for higher wages and shorter working hours erupt into

coups. At the company’s headquarters in Irbid, the edges of the doors are scarred with welding seams. During a dispute between labor and a former management team, workers had welded the entrances shut. The management company, a French contractor, threw up its hands and left town. YWC’s current managers led this uprising, but they are not impervious to a restive workforce. During interviews for this report, management was busily trying to head off another strike. “There are troublemakers everywhere,” said Mohammad Rababa’ah. Once a troublemaker himself, he had risen to become YWC’s general manager. But the wheel has gone round. As this report went to press, it was revealed that Mohammad is out, victim of the latest mutiny.

Meanwhile, summer approaches and services continue to decay.

YWC’s dysfunction contributes to a gap – actual and perceived – between the people and their government. There is no proactive communication with communities over service interruptions. Indeed, complaints departments actively discourage complaints: There is a fee to submit a repair request (JD 6, or approximately USD 8.50). In theory, the fee is reimbursed if the request is “deemed” legitimate, but impoverished Jordanians are leery of taking the risk.

ACCORDING TO UTILITY COMPANY DATA, FROM 2011 TO 2013 COMPLAINTS NEARLY QUADRUPLED: 12,530 TO
45,433
MOST OF THESE GO UNANSWERED

One has the sense of a craft spinning, too often with no one at the tiller. At YWC’s billing location in downtown Irbid, it was eleven in the morning and the offices were vacant. The employees, never sticklers for a schedule, had up and left. A middle-aged Jordanian water customer, his arm in a sling, wandered from office to office looking for help. Water delivery to his house had been cut off, but he had nonetheless been billed. Sticking his head in an empty office, he called out, “Hello?” before moving on to the next.

“Hello?” he said, “Is anybody here?”

³⁶YWC complaints data.

Unlicensed Wells

Government control over water is increasingly contested. Rule of law has eroded. Informal actors – well-heeled landowners, for instance, who include former government officials and Jordan’s powerful tribes – curb the government’s ability to manage water resources. The landscape is dotted with unlicensed wells, and vast amounts of water are pirated from utility company networks.

**THERE ARE AN ESTIMATED
1,318
WELLS THROUGHOUT JORDAN;
APPROXIMATELY
400
OF THOSE ARE UNLICENSED**

There are an estimated 1,318 wells throughout Jordan; approximately 400 of those are unlicensed. In the capital alone, an estimated 350,000 cubic meters of water is lost each day to the tapping of public water.³⁷ According to Ministry officials, unregulated drilling presents an alarming and uncontrolled drain on resources. Last July, the government initiated a campaign to seal unlicensed wells and punish perpetrators.³⁸ A fatwa has been issued against water thefts.³⁹ To preserve groundwater basins and reduce rising salinity, the government outlawed unlicensed well drilling in 1997. Under the present law, violators face more than USD 7,000 in fines, and up to two years in prison.

³⁷Hana Namrouqa (2013), “Authorities seize illegal water well driller in Mafrq,” The Jordan Times, August 1. Available online at: <http://m.jordantimes.com/authorities-seize-illegal-water-well-driller-in-mafrq> (accessed January 5, 2014).

³⁸Ibid.

³⁹Hana Namrouqa (2013), “Fatwa prohibiting water theft issued,” The Jordan Times, December 4. Available online at: <http://jordantimes.com/fatwa-prohibiting-water-theft-issued> (accessed January 5, 2014).

“SPIRALING OUT OF CONTROL”: THE IMPORTANCE OF LOCAL SYSTEMS

If the challenges to Jordanian water governance are profound, there are also signs of hope. In some communities, civil society actors are growing stronger. Mercy Corps’ revolving loans programs have built out the capacity of local CBOs. And the “leadership development” program institutes host-refugee forums for ongoing dialogues around resource scarcity. In key instances they brokered peace.

For instance, last summer in Zaatari village – the town neighboring the refugee camp – tensions between Jordanians and Syrians were building. The refugee influx had badly strained local water resources. By July, conflict erupted.

“There was fighting in the streets,” said Abu Moayed, a Jordanian tribal leader. “It was very tense. People were sent to the hospital. If someone were killed, it would have been very bad. Events were spiraling out of control!”

Abu Moayed is a participant in Mercy Corp’s leadership development program. He and others – including Syrians and partner CBOs from around the village – tried to calm the angry parties. At the same time, they started advocating for an increased supply of water from government authorities: The village’s weekly ration was based on pre-crisis rates, though the population had doubled. Abu Moayed’s group met separately with the governor, with the manager of Yarmouk Water Company, and finally with the minister of Water and Irrigation. Their lobbying efforts succeeded: The weekly water ration was nearly doubled. Tensions on the street cooled.

Doubling the water supply throughout northern Jordan is not possible. Needs far outstrip supply. Yet Abu Moayed’s effort points to the importance of civil society as the “connective tissue” linking government and the street. When avenues for peaceful advocacy do not exist, crises are more likely to turn violent. In Zaatari village, Abu Moayed and his fellow leaders have since formed a community panel that includes CBOs, municipal leaders, and the Yarmouk Water Company. A community-driven innovation, this is no small success – but rather a local evolution that bodes well for Jordanians and Syrians alike.

SUMMER IS COMING:

CITIZEN-GOVERNMENT TENSIONS OVER WATER

"I was transferred from Irbid to Mafraq in the summer of 2012," said Ali Abu Sumaga, the director of the water utility in Mafraq. It was a hot summer and water shortages had sparked protests throughout the governorate. "Mafraq was on fire. There were riots. People burned tires in the street and closed roads," he said. "People were screaming, 'You're government! You're sh—! You need to provide water to us!' It was a disaster."

In his capacity as the director of the Mafraq water directorate, Ali has been attacked, cursed, and spit on. During a water protest by Jordanians last summer, he attempted to negotiate, but was beaten and fled. His car has been vandalized. In the middle of the night, people show up at his house, beating on his door and demanding water.

Last summer, when the village of Thaghret al-Jub ran out of water, the villagers camped out on the main highway. They built barricades and blocked traffic for days. The air stank with burning tires. The people protested their lack of water. A poor community, they were not connected to the water network, and private well water had become too expensive.

Desperate and angry, they refused to negotiate with utility representatives they didn't trust. In his dealings with the people, Ali admits that he has not always been honest. But he has his reasons.

"When you have people threatening to kill you," he said, "You just say whatever comes to your tongue. You promise them money and water to get them to leave you alone. I'll say more Gulf money is coming and they're at the top of the list. Whatever they want to hear."

This time the people of Thaghret al-Jub refused to negotiate. "It was incredibly tense," Ali said. "People were thinking of the Arab Spring."

Finally, King Abdullah II himself arrived. He promised to provide Thaghret al-Jub with tanker trucks of water.

"They said no!" Ali shook his head in disbelief. "They told the king no. They didn't want water by tanker truck. They wanted water to their houses, they wanted more pipelines. The king promised to do this, and they went home. We need to get a pipeline to those people as soon possible. Summer is coming."

And if water service is not provided to places like Thaghret al-Jub by next summer?

"Then I will take this thing —" Ali held up his prayer beads — "and I'll run away to Saudi Arabia."





The penalties are stiff. Enforcement, however, is weak. According to Jordanian NGO workers, the government knows the location of many unlicensed wells, but is wary of shutting them down. In many cases, this is because the wells are operated by powerful tribes from which the monarchy derives legitimacy and support.

There are ongoing efforts to negotiate with sectors of Jordanian society on water use. One such effort is the Highland Water Forum. Initiated by the MWI and GIZ, the forum is an effort to promote sustainability among agricultural stakeholders. In Jordan, 54 percent of the country's water goes to agriculture, though the sector only contributes to 2.5 percent of GDP.⁴⁰

Launched under the patronage of Jordan's Prince Faisal Al Hussein, the Highland Water Forum aims to preserve the resources of the Azraq groundwater basin, the country's largest. The source of drinking water for much of northern Jordan, it has been declining for years. According to a 1999 study, Azraq would be largely exhausted by 2039.⁴¹ Since that estimate, pressures have accelerated. In 2010, the year of the Forum's founding, Azraq was exploited at a rate of 222 percent over its replaceable yield.⁴²

The goal of the Forum is to improve regulation of Azraq's resources while creating incentives for sustainable practice among farmers. In a governance environment that depends on consensus-building among independent-minded stakeholders, the Highland Water Forum emphasizes dialogue and gradual changes in behavior.

With the influx of Syrians, however, this consensus-building became much more difficult. According to a GIZ program officer, landowners are now less willing to compromise on water. "They believe that the water they save would simply go to the refugees," she said. "Why then should they be careful? It's in their best interests to keep pumping. There is no common ground."

⁴⁰MWI data; USAID (2012), Water Sector: Sector Profile, December.

⁴¹Jane Dotteridge and Nizar Abu Jaber (1999), Groundwater resources and quality in northeastern Jordan: Safe yield and sustainability, Applied Geography, v. 19, no. 4, p. 313–323.

⁴²Highland Water Forum (2013), Azraq Groundwater Management Action Plan: Project Document, September.

A STORY FROM THE FIELD:

DESPERATE AND THIRSTY

One morning last December, as Mercy Corps workers dug the trench for a new water pipeline in northwestern Jordan, local townsmen pulled up in a pickup and old sedan. They were from Al Sabt, a hilly place of blowing dust and gaunt pine trees, and they were armed. One of them, the leader, approached with a Kalashnikov slung over his shoulder. There were two dozen Mercy Corps employees on site, but they were unarmed. Everyone was still. Finally the leader spoke. "I was already in jail for fifteen years," he said. "And I will kill everybody here."

The project was part of a new pipeline network intended to improve water supply in Ramtha. Unfortunately, in the current crisis, water projects like these have become increasingly contested by local Jordanians: They fear the water beneath their feet is being pumped off to serve Syrian refugees.

"These men were angry because they didn't have enough water themselves," said Mahmood Hammouri, a civil engineer with Mercy Corps who was overseeing the project. "And when they saw us digging a pipeline near their houses, they thought we were taking their water and pumping it somewhere else. People get very angry. And they can be violent. It's frightening."

Mahmood tried to calm the men from Al Sabt. He stopped the work and sent contractors home. The next morning utility company representatives negotiated with the men, promising anything: a pipeline to their houses, more supply. Who would pay for it, and when? The answers were vague. More aid money was coming from the Gulf, the utility representatives said. The men from Al Sabt would receive priority for their neighborhood. What is the actual likelihood more resources would flow to Al Sabt? It is hard to say. The utility company has a tendency in the moment to say anything to calm things down. The strategy is to play for time.

Eventually time runs out.

"I have nothing to lose," the leader from Al Sabt had told the workers. He cradled the Kalashnikov under his arm. But his demeanor had softened. "If I don't drink water, I will die," he said. "If I don't do this, I will die."





4

MERCY CORPS' PROGRAMS IN JORDAN

MERCY CORPS has worked in the Jordanian water sector since 2006. Through the USAID-funded Community-Based Initiatives for Water Demand Management (CBIWDM) program, Mercy Corps provided training to local CBOs in financial, resource, and project management. These partner CBOs –dispersed throughout Jordan’s 12 governorates – were then provided microfinance funding for water-saving investments at the household level. From the program’s inception, the goal has been to empower Jordanians, create new water sources, and build community resilience to water shortages. • In the wake of the Syrian refugee crisis, a long-term vulnerability – water scarcity – has been badly aggravated by refugee pressures.

MERCY CORPS' PROGRAMS IN JORDAN

USAID and other donors moved quickly and Mercy Corps significantly ramped up. CBIWDM initiated a second phase in 2012 that focused on refugee-affected host communities, and expanded operations to implement a community grants program, infrastructure investments, and community outreach to improve conservation practices.

Key efforts include:

- Through the USAID-supported CBIWDM program, and with additional support from UNICEF and UNHCR, Mercy Corps is making **infrastructure investments** throughout northern Jordan. Reservoir rehabilitations and more pipelines are expanding water supply for both host and refugee.
- Through the expanded **revolving loans program**, loans managed by partner CBOs are disbursed for water-saving investments at the Jordanian household level. Water catchments and greywater treatment systems relieve pressure on municipal water networks.



- Through a **community grants program**, Mercy Corps funds water-saving investments in over-burdened public institutions used by both Jordanians and Syrians. Examples include schools and medical centers. Like the revolving loans program, grants not only expand the water supply, they model technology and raise awareness of conservation in local communities.

MERCY CORPS JORDAN & THE COMPLEX CRISES FUND

The Complex Crises Fund (CCF) is a pool of unprogrammed money administered by the U.S. State Department and the U.S. Agency for International Development (USAID). The money is used to respond to emerging and unforeseen crises and mitigate conflict.

In Jordan, CCF money has been vital. With the onset of the Syrian refugee crisis, funds were used to quickly ramp up Mercy Corps programs in host communities. Water infrastructure and communal projects were identified and quickly implemented, providing significant quantities of additional water and helping to alleviate local tensions over scarcity.

Each year, Congress appropriates funding for CCF, yet in Fiscal Year 2014, the global pot of funding for CCF is only \$40 million. The President's budget request for Fiscal Year 2015 is only \$30 million. Considering the myriad number of global crises, this allocation requested decrease is ill-advised. As the Syrian crisis has underscored, speed and flexibility can be essential.

- By **targeting aid to host communities**, Mercy Corps works to relieve a major source of tension: that relief aid unfairly prioritizes refugee over host needs. And through conflict mitigation trainings – funded by the UK's Foreign & Commonwealth Office (FCO) – host and refugee leaders are given the skills to peacefully resolve tensions.



CONCLUSION

Challenges of water scarcity are multi-layered. One cannot separate scant supplies from complications of inadequate infrastructure, under-resourced operations, government actors who lack the teeth to enforce regulations, and the rising issue of waste disposal. Similarly, international efforts – particularly those targeting Syrians – cannot be disentangled from the rising frustrations of Jordanians in the street. Water scarcity presents a systemic challenge to which siloed approaches – piecemeal and sector-specific – will be largely ineffective.

The need is great. As next summer approaches, and if refugee numbers continue to climb, so will the dangers of the crisis. This includes both humanitarian suffering and the threat of instability.

We do not have all the answers. But the following recommendations are based on Mercy Corps' experience working in Jordan's water sector. We hope they are informative, will spark debate, and help key actors provide a more comprehensive response to growing challenges.

Recommendations

The multi-faceted character of Jordan's water crisis requires an integrated response: one that coordinates across actors – government, donors, and NGOs – to address immediate problems.

Three points are worth noting. First, among all actors, there must be increased **transparency** in planning and programs. While there is active coordination at the strategic level, lack of coordination bedevils on-the-ground implementation. Closing this gap requires openness, an ongoing mapping of project proposals, and a single, government-led body to manage the response. The Ministry's own Project Management Unit (PMU) is best situated to assist on this front. Second, future efforts must be implemented with an eye to long-term **sustainability**. Simply pumping more water out of Jordan's aquifers may address needs today, but at the cost of a drier tomorrow. Third, aid is widely perceived as unfairly biased toward Syrians: A Jordanian impoverished by the refugee crisis may look on with justifiable resentment as the refugees in his neighborhood receive assistance while he receives nothing. To avoid stoking resentment, and to reduce pressures on local services, key actors should increasingly **target** resources to host communities.⁴³

Jordanian and Syrian children paint a new cistern at their school. The cistern was installed through Mercy Corps' community projects program. When these cisterns were first installed, they were often vandalized. The hand-painting is part of a campaign to improve awareness around and respect for sustainable water use."

⁴³ For more, see Kari Diener and Keith Proctor (2013), Charting a New Course: Re-thinking the Syrian Refugee Response, Mercy Corps. Available on line at: http://www.mercycorps.org/sites/default/files/Rethinking%20the%20Syrian%20Refugee%20Response_Dec%202013.pdf (accessed February 26, 2014).

With principles of **transparency, sustainability,** and **targeting** in mind, we recommend future efforts stand on the following three pillars:

PILLAR ONE: Invest in long-term development.

Assistance flows to Jordan have increased with the Syrian crisis, but the vast majority of the increase has focused on refugee response. To relieve pressures on host communities and protect pre-crisis development gains, development dollars must be strategically increased – with a focus on upgrading and maintaining existing infrastructure. The commitment by the USG’s Millennium Challenge Corporation (MCC) to a five-year water infrastructure program in Jordan is a good start. More needs to be done, by more donors.

- **Make old new again.**

In Jordan the international community is focused on big turn-key infrastructure projects, such as desalination and water treatment plants, but what good is purified water if it leaks into the desert sand? Across Jordan, the aging supply network hemorrhages water. The focus must shift: While key actors may invest in new infrastructure where appropriate, they should increase maintenance, funding, and upgrades of existing water networks.

- **Streamline government procurement to cut bureaucratic red tape.**

Currently the start-up time for infrastructure improvements is too long. There are good reasons for these controls (for one, they limit corruption), but they can also strangle the implementation of key projects. The MWI’s Project Management Unit (PMU) should be ramped up and empowered to fast-track projects, perhaps in partnership with external implementers who compete for projects.

- **Ensure equitable investments.**

The rural poor have incomplete pipeline access. This undermines government legitimacy and, last summer, prompted defiant protests. In addition to stemming water losses, network improvements should emphasize expanding availability to communities most in need.

PILLAR TWO: Bridge the governance gap.

Government actors are under-resourced and under-manned; their capacity badly needs an upgrade. Jordan’s front-line water utility is emblematic. Responsible for an area larger than Hawaii and with a Jordanian and Syrian population of millions, it is paralyzed by lean operating budgets and a staff of six engineers. These shortcomings must be addressed. Investing in infrastructure makes little sense if new projects are handed over to agencies that have neither the resources nor expertise to run and maintain them.

- **Build the capacity of local government actors.**

In northern Jordan the water utility lacks the physical capacity to fulfill its mandate. Its operational bandwidth must be expanded. Financial management systems should be improved. Investments in equipment and spare parts could improve response time in fixing major leaks and equipment failures. Staff members need training – and, perhaps, a performance pay system to retain key employees.

- **Decentralize the response.**

The Government of Jordan should engage key local stakeholders – municipal governments, CBOs, and tribes – in the management of communal water resources. Proactive consultations should be formalized, with local committees interfacing directly with utility representatives and guiding development priorities. Where possible, authority should be delegated locally.

- **Leverage community investments to build local CBO capacity.**

Building the capacity of local actors in the WASH sector is a response priority, as articulated in the RRP6.⁴⁴ Through its revolving loans and grants program, Mercy Corps has worked to cultivate a national network of community-based organizations

⁴⁴UNHCR (2013), p. 105

(CBOs): local actors with expertise and funds to identify and finance local development needs. These efforts may serve as potential model for future community-driven development programs.

- **Consider a cross-regional utility exchange.**

While Yarmouk Water Company, the public utility working in the refugee-affected North, has struggled with its operational obligations, other Jordanian utilities – in Aqaba, for example – have a reputation for delivering services in a timely and cost-effective manner. This experience should be harnessed and best practices shared, perhaps through an ongoing rotation of personnel.

- **Align funding conditions.** Major donors should pool their influence to ensure the Government of Jordan appropriately implements sound water management policies and distributes funds to the local water authorities. The World Bank is supporting a decentralized funding mechanism to ensure resources reach municipalities. Donor agencies should consider putting such mechanisms in place to also assure, to the extent possible, their support reaches intended beneficiaries.

PILLAR THREE:

Address conflict and conservation.

Crises are inflection points. They can result in deteriorating social conditions, resource mismanagement, and violence. Yet a crisis can also foster opportunities to transform attitudes and, in an environment of scarcity, promote sustainable practices. Conflict must be mitigated and conservation promoted. In Jordan, Mercy Corps has found that empowering Syrian and Jordanian communities can head off violence and shift attitudes on sustainability.

- **Employ both supply- and-demand-side approaches.**

Aging infrastructure must be updated. However, in a water-scarce environment, expanding supply – by digging more wells and pumping more water – contributes to unsustainable

long-term trends. Supply-side interventions must be paired with programs that dampen demand. These include community projects that educate refugees on conservation, and investments in water-saving technologies that relieve pressures on municipal networks.

- **Amplify women's voices.**

Women are vital to water management. Their status as household water managers provide opportunities for expanding their roles both in and out of the house. Awareness campaigns need to be tailored to women, who might not have as much access to public fora as men. Assistance programs should provide leadership trainings, self-help groups, and other mechanisms that are run by women and create safe spaces for them to voice their needs. Where possible, implementers should work with gender-inclusive partners, such as including local CBOs with female members and managers.

- **Collect better data.**

The needs and experiences of men, women, boys, and girls differ on issues of water scarcity. More sex-and age-disaggregated data is needed to ensure key actors have an understanding of access, vulnerability, and power dynamics in Jordanian communities. We must better measure the gender impact of programs: Beyond counting the number of male and female participants, we should ask what a given program has done for improving women's access and mitigating their vulnerability.

- **Embed conflict mitigation in development.**

Empowering local actors to help address flash points as they arise can be a valuable complement to ongoing development programs. In Jordan, Mercy Corps created a host and refugee "leadership development program." Diverse representatives from each community were brought together, trained in interest-based negotiation, and have since used their training to identify and mitigate tensions.

CONTACT

KEITH PROCTOR

Senior Policy Researcher

202.463.7384

kproctor@dc.mercycorps.org



45 SW Ankeny Street
Portland, Oregon 97204
888.842.0842
mercycorps.org