



**Preparing for a Looming Water Crisis:  
Lessons Learned from COVID-19 in the Middle East and North Africa Countries**

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Lessons Learned from COVID-19 in the Middle East and North Africa  
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## ABSTRACT

The challenge of water security is growing globally. Achieving and sustaining water security, in both developed and developing countries, is likely to increase in complexity and priority as climate change intensifies, but also as the demands of economic growth increase.

For most MENA countries that were already facing water security and major social, health and economic challenges before COVID-19, this additional pressure is particularly excruciating. Like COVID-19 and climate change, water scarcity in MENA is a global problem that requires collective action. There is no more urgent time to address the MENA's water crisis than now, when people are constantly being reminded to use water to combat the spread of the virus.

The Arab world appears to have averted significant health impacts from COVID-19, possibly shielding to a certain extent its health sector, however other sectors are at risk of collapsing, as the region is on the brink of an even more devastating water crisis.

Drawing on countries' responses to the outbreak and on unique traits and issues typical to the region, this policy paper discusses COVID –19 and the MENA and explores lessons learnt from the pandemic, in light of the upcoming water crisis in the MENA. It examines the issues of inequality and regional cooperation. It argues that fostering innovation for resilience is crucial in the absence of strong institutional response or capacity of governments, while also tackling critical ways to address and prepare for increasing water scarcity in the region. Finally, the paper provides policy recommendations that represent fundamental requirements for sustainable water development in the MENA countries.

## **1. Introduction**

Over the past 40 years, the Middle East and North Africa (MENA)<sup>1</sup> countries have made progress in modernizing their economic and social systems, however further progress is being hindered by the region's underlying population dynamics, political instability and conflict.

With the backdrop of this ominous situation, and with the lack of infrastructure essential for growth, the availability of water in the MENA and its linkages with regionwide development prospects would be a critical aspect of any strategic development platform in years to come. In no other region of the world is water as important for growth, development, security, environmental prosperity, and poverty eradication, as it is in the MENA (Saghir, 2018).

For most MENA countries that were already facing major social, health and economic challenges before COVID-19, this additional pressure is particularly excruciating. Like COVID-19 and climate change, water scarcity in MENA is a global problem that requires collective action. There is no more urgent time to address the MENA's water crisis than now, when people are constantly being reminded to use water to combat the spread of the virus.

The Arab world appears to have averted significant health impacts from COVID-19, possibly shielding to a certain extent its health sector, however other sectors are at risk of collapsing, as the region is on the brink of an even more devastating water crisis. Drawing on countries' responses to the outbreak and on unique traits and issues typical to the region, this policy paper explores lessons learnt from the COVID-19 pandemic, in light of the upcoming water crisis in the MENA. It argues that fostering innovation for resilience is crucial in the absence of strong institutional response or capacity of governments, while also tackling critical ways to address and prepare for increasing water scarcity in the region.

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<sup>1</sup> Defined for the purposes of this paper to include Algeria, Bahrain, Djibouti, Egypt, Kuwait, Qatar, Iran, Iraq, Israel, Jordan, Lebanon, Libya, Mauritania, Morocco, Oman, Saudi Arabia, Syria, Tunisia, United Arab Emirates, West Bank & Gaza, and Yemen.

## **2. COVID –19 and the MENA**

All countries in the MENA have been impacted by the outbreak of the COVID-19 pandemic, with the latest outbreak reported in war-ravaged Yemen. The spread in the region so far appears to be controlled and limited, due to rapid national responses and early lockdowns, delays in the introduction of the virus, and an overall low testing rate (Mumtaz, 2020). However, the outbreak has laid bare inherent weaknesses at the institutional level in the MENA. Indeed, most countries have reported that their frail health systems would fail to cope with the impacts of the pandemic, and in response used an early window of opportunity to introduce preventive measures which proved effective, so far, in flattening the curve (UNDP, 2020). Currently, MENA countries are grappling with the economic hardships engendered by the pandemic, and have started to slowly ease lockdown measures to revive their economies. In light of these events, COVID-19 should act as a stark reminder for nations of the coming of more destructive impacts brought about by increasing water scarcity.

The MENA is a highly fragmented region, plagued with overall political instability and a looming water crisis. The link between limiting COVID-19 transmission and access to water and hygiene is crucial, as handwashing with soap and water is key for protection against the virus (WHO, 2020). As the most water stressed region in the world, the increase in water demand for household and national food production as a result of the outbreak will place increasing pressures on already stressed water systems.

A recent policy brief by ESCWA flagged that over 74 million people in the Arab world are at higher risk of contracting the virus due to a lack of access to proper hygiene facilities. In addition, the MENA is home to more than 26 million refugees and internally displaced people, who are also at higher risk of contracting the virus (ESCWA, 2020). On April 22<sup>nd</sup>, 2020 the first COVID-19 case was reported in a Palestinian refugee camp in the Bekaa region of Lebanon, spurring growing concerns as overcrowded refugee camps usually lack the proper hygiene facilities and have more limited possibilities for isolation (Chehayeb and Sewell, 2020). Areas in conflict and under occupation like Yemen, Syria, Libya and Palestine are also highly vulnerable, where access to water is often interrupted due to military operations, and where inhabitants do not have direct control over their water and sanitation services (ESCWA, 2020).

The scale of the pandemic shed light on all countries' unpreparedness and the vulnerability of their systems, and more importantly acted as a clear warning sign of the dawning climate crisis, and in the case of the MENA its significant impacts on water scarcity. Indeed, the MENA faces severe risks of water shortages due to reduced rainfall and snowpack, extreme heat and increased evaporation rates, as well as sea-level-rise, impacting directly more than 3% of the region's population, while also contaminating freshwater resources, all alarming when considering that the region is highly reliant on rainfed systems. Food and water security are deeply intertwined in the MENA, with 80% of water in the region used for agricultural purposes (UNDP and GEF, 2018; Saghir, 2018).

### **3. Addressing Inequality**

More than anything, the COVID-19 pandemic has exposed deep and structural inequalities across and within nations. These have been significant in the Global South, where inequality is compounded by political and economic instability, particularly in the Arab world (Kharroub, 2020). Vulnerable communities including but not limited to daily wagers, refugees, elderly, women, and people who live under occupation and in war-zones have experienced a heavier impact from the COVID-19 outbreak (Kharroub, 2020). The water crisis will be no different, whereby increasing scarcity is and will be unduly borne by vulnerable communities, leading to the exacerbation of existing inequalities, unless significant change is brought about. In the MENA 60% of the population lives in areas of high water-stress (World Bank, 2018). With rapid urbanization and population growth, conditions might worsen for the urban poor, many of whom live in informal settlements without a continuous access to basic services like water (UNDP, 2018). Similarly, the intricate link between water scarcity, economic development and food (in)security will severely impact remote rural communities, many of whom still depend on agriculture for their livelihoods (ESCWA, 2015). Additionally, marginalized communities including refugees and people in war-zones and under occupation are less likely to bounce-back from water-related risks like droughts and floods (Schliefer and Otto, 2019). Finally, whether fetching water or dealing with water in the household, women and girls are still at the frontline of the struggle for water (UNICEF, 2018). Already, the rising demand for household water following the COVID-19 outbreak might engender an inflation of water tariffs, rendering the protection of access and affordability of water for the most vulnerable ever more crucial (Borja-Vega, 2020).

With the multiple uprisings that have recently occurred in the region, from Lebanon to Iraq, Algeria, and Sudan a resurgent call for social justice has been at the core of many of their demands (Turki, 2019). Increasing inequalities will perpetuate similar unrests, warranting the design of cohesive, inclusive, and equitable water policies which “leave no-one behind”. By asking critical questions like ‘water resilience and security for whom?’, water managers and policy-makers can strive to account for systemic effects of policies, and avoid unintended consequences which more often than not, tend to fall unjustly on the most vulnerable people in society.

#### **4. Early Action and Regional Cooperation**

Early interventions for the implementation of prevention measures have been crucial in delaying the spread of COVID-19 in the Arab world and elsewhere. Unfortunately, this cannot be the case for water, since scientific consensus has revealed that a sole focus on mitigation cannot address the devastating impacts of the looming climate crisis (UNDP and GEF, 2018).

Planning and investing in climate adaptation and particularly in the resilience of the water sector at early stages is crucial. As a matter of fact, the MENA is a prime climate change hotspot, where growing water scarcity will have aggregate and severe impacts leading to food insecurity, economic deterioration, high levels of displacement and increasing regional conflict (World Bank, 2018). Stakeholders will need to focus on mainstreaming water resilience into planning, design, and governance, and make use of this window of opportunity to bring about transformational changes into the sector, particularly as uncertainty grows and annual hydrological variability increases (UNDP and GEF, 2018). Water operators in the MENA currently navigate highly stressed and unstable systems, either based on expensive and unsustainable practices or inefficient and wasteful ones. To a certain extent, this has shielded some countries from being locked-in to rigid systems, which are not necessarily resilient, and presents a prime opportunity to leapfrog towards more resilient water systems, through policies which address cross-cutting issues of water scarcity (Rodina, 2019). The outbreak of COVID-19 marks a clear deviation from the traditional policy path, and provides an opportunity to design comprehensive and transformational policies, leading to a more resilient future.

While the consequences of the pandemic have engendered border closures and national self-

reliance, the region is in dire need of regional cooperation to deal with the cascading effects of water scarcity. With two thirds of water in the MENA coming from outside the region, and already poorly managed transboundary watersheds, fostering cooperation and developing shared and comprehensive databases is essential (World Bank, 2018). Climate change will bring about increasingly unpredictable flows, and with the lack of shared data systems among upstream and downstream users, increasing regional conflict is highly likely (Saghir, 2019a, UNDP, GEF, 2018). Whilst the narrative of water for peace and security has been on the rise, so has political division and instability in the region. With 77% of economic activity in the MENA occurring in areas of high water-stress, it is crucial to recognize the role of water for economic development while fostering science for diplomacy and regional cooperation (World Bank, 2018). Moving forward, the region will have to engage in drafting a strategy for the management of transboundary watersheds, while bringing science diplomats into the dialogue and promoting hydro-diplomacy.

## **5. Fostering Innovation for Resilience**

Throughout many Arab countries, innovative responses to COVID-19 have been burgeoning. A wave of entrepreneurial and grassroots initiatives have been on the rise, and in some countries have been leading the fight against the virus, particularly in areas of conflict. In Libya, Speetar, an online platform set up by Libyan diaspora doctors is currently the main intermediary dealing with the outbreak in the country. From diagnosis, to directions to test facilities, the telemedicine application which was made free of internet charge is trying to reach all citizens, particularly in remote areas, in a country with an ongoing civil war (Amin, 2020). Under occupation and continuous lockdown, a shoemaker in Palestine started Gaza's first mask production industry; through intense collaboration with local traders, he found the raw materials to initiate this movement and provide citizens with protective equipment (Palestinian Chronicles, 2020). In Iraq, a local developer initiated a platform which helps track and plot the spread of COVID-19 and allows people to track their symptoms (Colville and Roushas, 2020). All examples highlight that fostering innovation for resilience appears to be crucial in the absence of institutional response or capacity of governments due to high levels of conflict.

Yet, when looking at overall entrepreneurship and innovation in the region, the MENA is lagging behind. The Global Innovation Index indicates that with the exception of the UAE, all Arab countries fall below the median. From the lack of policy incentives, to outdated

regulations and a weak institutional framework, including an often-active discouragement of innovation stemming from the protection of incumbent telecommunication and banking actors, the MENA is far from being a hub for innovation (Morrar, 2018). This gap is also evident in the water sector where innovation remains in its infancy, and despite a handful of innovative solutions which were brought to the table, their upscale and transfer is yet to be materialized (Soliman, 2020). When addressing the upcoming water crisis, fostering innovation while promoting environmental stewardship and placing water at the top of the agenda is key. The region has an immense potential to leapfrog towards a sustainable and resilient management of water through innovative solutions which integrate wastewater treatment and reuse into the water system (Soliman, 2020). While countries like Oman have tapped into this resource with 78% of its wastewater being reused, regionally 82% of wastewater is still discharged, and often without treatment (Malek, 2020). Bringing about the political will to tackle the upcoming water crisis, prioritizing water security on the political agenda and using innovation at the core of solutions could untap many opportunities for the region.

There is a lot to learn from innovate responses to the COVID-19 crisis, such as the ‘Coders versus Corona’ hackathon launched in Dubai as part of the One Million Arab Coders (OMAC) initiative to engage coders in developing innovative solutions related to the outbreak, including mitigating its spread, and developing software which support health care services, education and social welfare (El Sherif, 2020). In 2011, the first water hackathon organized by the World Bank and other tech partners in 10 cities around the world, including Cairo, led to the identification of 60 innovative prototype solutions for national water problems (World Bank, 2012). This hackathon presented a low-cost opportunity to attract innovation and creativity into the sector, and culminated in the finance of start-ups for many winning teams (World Bank, 2012). Encouraging such initiatives across the region while fostering an adequate ecosystem for innovation is the way forward.

## **6. Policy Recommendations**

Four key themes have emerged from this paper that represent fundamental requirements for sustainable water development in the MENA: (i) design inclusive, holistic and equitable water policies; (ii) develop national adaptation plans for water resilience; (iii) prepare a regional transboundary watershed agreement; and (iv) foster environmental stewardship and innovation in water. These four policy categories are, of course, inextricably linked and leverage each

other. They can also stretch available investment funding, lower investment risks, and attract more funds.

1. Designing inclusive, holistic and equitable water policies; this can be achieved by engaging in social dialogue and bringing all stakeholders and communities into the water decision-making process while also ensuring that social impact analyses are carried out when implementing and designing water policies, projects and plans. By applying a systemic approach, unintended consequences of water interventions can be gauged and minimized. Instead of hampering inequalities, water can be used as a tool for collective action where citizens are seen as part of the solution, therefore promoting community acceptance of water interventions while promoting a sense of responsibility for a shared common resource.
2. Developing national adaptation plans for water resilience; nations should act imminently and place water as a key pillar in national climate adaptation plans while fostering resilience across the design, planning and governance of water systems, through a focus on the five “T’s”; institutions, integration, innovation, infrastructure and information (Soliman, 2020). Institutions require the adequate capacities to support proactive planning and develop the legal and economic instruments to manage and share risks. This includes water allocation and property rights, land zoning, watershed protection, water pricing and trading, and insurance. Adaptation plans should also be built on a nexused approach which tackles intricate relations of water with food, energy, land, peace and security and promotes heavily transformative changes to current practices, while planning a trajectory towards water security. With increasing uncertainty and variability, water operators and policy-makers need to be equipped with adequate infrastructure and information to provide water for a growing population in a rapidly changing environment. This can be achieved by building and scaling good practices, while investing in resilient water infrastructure and nature-based solutions.
3. Drafting a regional transboundary watershed agreement; drawing on hydro-diplomacy and bringing in science diplomats into the conversation, nations have to place regional cooperation high on the agenda, or risk certain conflict and displacement. Without the political will and regional cooperation, transboundary watershed management will fall under the grip of more powerful nations, which have often exercised hydro-hegemony

in the region. Establishing dialogue at an early stage in an effort to draft a regional binding agreement for shared water resources should include a coherent legal framework, the identification of clear institutional mechanisms for cooperation and dispute settlements, and a timely exchange of information through shared databases.

4. Calling for environmental stewardship and committing to innovation in water; promoting a systemic shift in the entrepreneurial and innovation culture, while also revamping the existing policy and regulatory framework, and promoting partnerships between industries and educational and research centers, as well as public utilities and the private sector is fundamental. This should go hand in hand with the promotion of Science Technology and Innovation (STI) in education by increasing the number of undergraduate students in STEM majors, particularly women, while promoting entrepreneurial education and creative thinking across all disciplines (OECD, 2016). In such times of uncertainty, universities in the region need to seize this opportunity and align educational agendas with national priorities and needs. National prioritization of environmental stewardship could also encourage an increasing interest in innovation for natural resource management.

## **7. Conclusion**

COVID-19 is one of the defining challenges of our time. A water supply crisis in the MENA is also posing a bleak outlook on water security and health. Together with an increased severity in floods and droughts brought by climate change, there is an urgent need for a better management of water risks, including water shortages, pollution, and their spillover effects. Designing finance-based incentives for resilient projects requires a thorough understanding of risks and the development of mechanisms which enable a better understanding of the acceptable or optimal level of risks, as well as their assessment, management and prioritization (Saghir, 2020). In fact, we need a better risk-based framework which relies on understanding the context of water supply, demand and quality, while assessing the relevance of economic efficiency versus equity concerns; and identifying policy and economic instruments which promote improved water security.

Climate change and water scarcity could aggravate existing fragile situations and contribute to social upheaval or even violent conflict (Saghir, 2019b). In this context, we should aim for a

triple win: policies and programs that will first, address inequality; second, promote regional cooperation, and thus promote stability and security; and, third, foster innovation for resilience and adaptation. The scope for such triple-win strategies brings together concerns for water security and climate change to mobilize much needed funding and political support for making true changes in the sector. Failure to address these serious development challenges which MENA countries are facing will jeopardize years of efforts which nations have put forth in advancing their economies, while also slowing down progress in meeting the Sustainable Development Goals.

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