

Impact Covid-19 of the Middle East and North Africa (MENA) regions

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Abstract

This paperr summarized the current situation of Coronavirus Disease of the Covid-19 pandemic and the Middle East and North Africa regions by individual country. It provides in depth information on Covid-19 as it discusses the disease epidemiology, transmission, clinical features, diagnosis, treatment and prevention. This chapter consist to determine the acceptance of a coronavirus disease 2019 (Covid-2019) vaccine among the general population in the Middle East and North Africa regions.

The objective of this chapter is of the analysis is to provide an overview and update on the potential impact of COVID-19 on food security, the economy, and the nutrition status in the Middle East and North Africa regions. In this update, a gender and protection lens is reflected, to absorb the COVID-19 shock. The analysis is based on secondary desk review from various sources.

Key Words: Water, Health, Climate Change,

Impact Covid-19 dans les régions Moyen-Orient et Afrique du Nord (MENA)

Résumé

Cet article résume la situation actuelle de la maladie à coronavirus de la pandémie de Covid-19 et les régions du Moyen-Orient et de l'Afrique du Nord par pays individuel. Il fournit des informations détaillées sur Covid-19 en traitant de l'épidémiologie, de la transmission, des caractéristiques cliniques, du diagnostic, du traitement et de la prévention de la maladie. Ce chapitre consiste à déterminer l'acceptation d'un vaccin contre la maladie à coronavirus 2019 (Covid-2019) parmi la population générale dans les régions du Moyen-Orient et de l'Afrique du Nord.

L'objectif de ce chapitre est de fournir une vue d'ensemble et une mise à jour de l'impact potentiel du COVID-19 sur la sécurité alimentaire, l'économie et l'état nutritionnel dans les régions du Moyen-Orient et de l'Afrique du Nord. Dans cette mise à jour, une lentille de genre et de protection est réfléchi, pour absorber le choc COVID-19. L'analyse est basée sur un examen documentaire secondaire provenant de diverses sources.

Mots clés : Eau, Santé, Changement Climatique, .

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INTRODUCTION

COVID-19 first appeared in the Middle East and North Africa (MENA) Region in January 2020 in the United Arab Emirates (UAE). At first, much of the region managed to avoid the kind of rapid growth of the virus that struck Europe and the United States. But since this summer, the number of reported cases in the region has increased substantially. At first, the greatest problem seemed to be the secondary effects arising out of disease-driven shutdowns, the precipitous fall of trade, the collapse of energy prices and the evisceration of the travel and tourism industries. But by late this summer, an epidemiological crisis had struck many of the countries of the region and the outlook has worsened both on the medical and economic fronts.

The region's economy is now set to shrink by at least 5.7% in 2020 with several of those countries in conflict forecast to undergo as much as a 13% fall in GDP this year. By July, Arab stocks had fallen by 27%, suggesting the degree to which oil price falls and shutdowns had triggered knock-on effects in capital and equity markets. These changes will have a profound impact on the lives of those living in the region. The UN forecasts that the number of impoverished people living in the Arab world could increase by 14.3 million to 115 million overall. The International Labour Organisation (ILO) estimates that the equivalent of 17 million full-time jobs were lost in the second quarter of 2020 alone (UN 7/20). Young people and women have suffered particularly hard as a result of this downturn and attendant job cuts. This has serious implications not only for the region but also for Europe

While the pandemic has triggered a crisis in many of the region's poorer countries, the wealthier Gulf countries have had the means, infrastructure and know-how to cope with challenges both in terms of public health and economically. They have been in a stronger position, for example to more seamlessly scale up the digital economy to meet consumer goods and service requirements as traditional businesses shut down. That said, even these countries confront serious longer-term challenges stemming from the pandemic, including the dramatic fall of energy prices and the economic recession this has triggered.

The IMF now anticipates that the economy of the greater Middle East and Central Asia will shrink by 4.1% in 2020 (IMF, October 2020) and the greatest burden of this decline will fall on the most vulnerable sectors of society (UNHCR, March-August 2020).

As the world rallies against the COVID-19 pandemic, millions of people in developing communities are already struggling with a public health catastrophe. Without clean water, people are constantly at risk from waterborne diseases such as cholera. Climate change is exacerbating this threat. 785 million people still do not have clean water close to home. Droughts, floods, salt water contamination, poor service management, weak governance and environmental degradation all contribute to this denial of their basic human right. Climate change is accelerating and amplifying these factors, increasing unpredictability of weather patterns and making extreme weather events and natural disasters more frequent and intense. Sewage systems are flooded with increasing frequency, contaminating water sources and the local environment. Severe droughts force people to resort to even less safe sources of drinking water. And the likelihood of other health impacts is increased – for example in Bangladesh, where rising seas raise groundwater salinity, contributing to high blood pressure and heart disease among coastal communities.

It is those who have done least to contribute to man-made global warming who are carrying the greatest burden of climate change. People in the poorest countries are living on the brink of the climate crisis, and the poorest communities among them are worst affected, being least able to prepare and protect themselves and their environments. Without durable, climate-resilient water and sanitation systems, people struggle to cope. But well-managed water systems can protect access to reliable water supplies. Decent sanitation systems can resist floods. And, as we are witnessing during the COVID-19 pandemic, hygiene behaviors such as handwashing are a crucial first line of defense against the spread of disease. Our response to today's global health crisis must also address the effects of the climate emergency, and prepare us for the crises of tomorrow, with sustainable water, sanitation and hygiene services that are fit for the future.

The coronavirus disease 19 (COVID-19) is a highly transmittable and pathogenic viral infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which caused global pandemic that led to a dramatic loss of human life worldwide. Genomic analysis revealed that SARS-CoV-2 is phylogenetically related to severe acute respiratory syndrome-like (SARS-like) bat viruses, therefore bats could be the possible primary reservoir.

The intermediate source of origin and transfer to humans is not known, however, the rapid human to human transfer has been confirmed widely. There is no clinically approved antiviral drug or vaccine available to be used against COVID-19. However, few broad-spectrum antiviral drugs have been evaluated against COVID-19 in clinical trials, resulted in clinical recovery. In the current review, we summarize and comparatively analyze the emergence and pathogenicity of COVID-19 infection and previous human coronaviruses including severe acute respiratory syndrome coronavirus (SARS-CoV) and middle east respiratory syndrome coronavirus (MERS-CoV). Scientists are still investigating the emergence and origination of SARS-CoV-2. Moreover, its zoonotic source of transmission to humans has not been confirmed yet, however, sequence-based analysis suggested bats as the key reservoir. DNA recombination was found to be involved at spike glycoprotein which assorted SARS-CoV (CoVZXC21 or CoVZC45) with the RBD of another Beta CoV, thus could be the reason for cross-species transmission and rapid infection. According to phylogenetic trees, SARS-CoV is closer to SARS-like bat CoVs. Until now, no promising clinical treatments or prevention strategies have been developed against human coronaviruses. However, the researchers are working to develop efficient therapeutic strategies to cope with the novel coronaviruses. Various broad-spectrum antivirals previously used against influenza, SARS and MERS coronaviruses have been evaluated either alone or in combinations to treat COVID-19 patients, mice models, and clinical isolates. Remdesivir, Lopinavir, Ritonavir, and Oseltamivir significantly blocked the COVID-19 infection in infected patients. It can be concluded that the homologous recombination event at the S protein of RBD region enhanced the transmission ability of the virus. While the decision of bring back the nationals from infected area by various countries and poor screening of passengers, become the leading cause of spreading virus in others countries.

Most importantly, human coronaviruses targeting vaccines and antiviral drugs should be designed that could be used against the current as well as future epidemics. There are many companies working for the development of effective SARS-CoV-2 vaccines, such as Moderna Therapeutics, Inovio Pharmaceuticals, Novavax, Vir Biotechnology, Stermirna Therapeutics, Johnson & Johnson, VIDO-InterVac, GeoVax-BravoVax, Clover Biopharmaceuticals, CureVac, and Codagenix. But there is a need for rapid human and animal-based trails as these vaccines still require 3–10 months for commercialization. There must be a complete ban on utilizing wild animals and birds as a source of food. Beside the development of most efficient drug, a strategy to rapidly diagnose SARS-CoV-2 in suspected patient is also required. The signs and symptoms of SARS-CoV-2 induced COVID-19 are a bit similar to influenza and seasonal allergies (pollen allergies). Person suffering from influenza or seasonal allergy may also exhibit temperature which can be detected by thermo-scanners; hence the person will become suspected. Therefore, an accurate and rapid diagnostic kit or meter for detection of SARS-CoV-2 in suspected patients is required, as the PCR based testing is expensive and time consuming. It is appreciable that the Chinese health workers have efficiently controlled the outbreak in china and limited the mortality rate to less than 3% only. The therapeutic strategies used by Chinese healthcare authorities, should also be followed by other countries (Shereen et al., 2020).

There is no available vaccine against COVID-19, while previous vaccines or strategies used to develop a vaccine against SARS-CoV can be effective. Recombinant protein from the Urbani (AY278741) strain of SARS-CoV was administered to mice and hamsters, resulted in the production of neutralizing antibodies and protection against SARS-CoV (Bisht et al., 2005; Kam et al., 2007). The DNA fragment, inactivated whole virus or live-vectored strain of SARS-CoV (AY278741), significantly reduced the viral infection in various animal models (Bukreyev et al., 2004). Different other strains of SARS-CoV were also used to produce inactivated or live-vectored vaccines which efficiently reduced the viral load in animal models. However, there are few vaccines in the pipeline against SARS-CoV-2. The mRNA based vaccine prepared by the US National Institute of Allergy and Infectious Diseases against SARS-CoV-2 is under phase 1 trial (McKay, (2020). INO-4800-DNA based vaccine will be soon available for human testing (Inovio, 2020). Chinese Centre for Disease Control and Prevention (CDC) working on the development of an inactivated virus vaccine (Lee, 2020; Cheung, 2020). Soon mRNA based vaccine's sample (prepared by Stermirna Therapeutics) will be available (Xinhua. (2020). GeoVax-BravoVax is working to develop a Modified Vaccina Ankara (MVA) based vaccine (Geovax and bravovax , 2020). While Clover Biopharmaceuticals is developing a recombinant 2019-nCoV S protein subunit-trimer based vaccine (Clover, 2019).

Current Situation of Coronavirus Disease: COVID-19

On 30 December 2019, an uncommon pneumonia outbreak of unknown aetiology was reported in Wuhan, Hubei province, China (WHO, 2019). Virus isolation and molecular analysis indicated a novel coronavirus (family Coronaviridae) provisionally named 2019-nCoV (Huang et al., 2019). The International Committee on Taxonomy of Viruses (2020) later designated the virus as 'severe acute respiratory syndrome coronavirus 2' (SARSCoV-2) and the World Health Organization (WHO) officially named the associated disease coronavirus disease 2019 (COVID-19).

A novel coronavirus, designated as 2019-nCoV, emerged in Wuhan, China, at the end of 2019. As of January 24, 2020, at least 830 cases had been diagnosed in nine countries: China, Thailand, Japan, South Korea, Singapore, Vietnam, Taiwan, Nepal, and the United States. Twenty-six fatalities occurred, mainly in patients who had serious underlying illness. Although many details of the emergence of this virus — such as its origin and its ability to spread among humans — remain unknown, an increasing number of cases appear to have resulted from human-to-human transmission. Given the severe acute respiratory syndrome coronavirus (SARS-CoV) outbreak in 2002 and the Middle East respiratory syndrome coronavirus (MERS-CoV) outbreak in 2012, 2019-nCoV is the third coronavirus to emerge in the human population in the past two decades — an emergence that has put global public health institutions on high alert.

China responded quickly by informing the World Health Organization (WHO) of the outbreak and sharing sequence information with the international community after discovery of the causative agent. The WHO responded rapidly by coordinating diagnostics development; issuing guidance on patient monitoring, specimen collection, and treatment; and providing up-to-date information on the outbreak. Several countries in the region as well as the United States are screening travelers from Wuhan for fever, aiming to detect 2019-nCoV cases before the virus spreads further. Updates from China, Thailand, Korea, and Japan indicate that the disease associated with 2019-nCoV appears to be relatively mild as compared with SARS and MERS.

Coronaviruses make up a large family of viruses that can infect birds and mammals, including humans, according to world health organization (WHO). These viruses have been responsible for several outbreaks around the world, including the severe acute respiratory syndrome (SARS) pandemic of 2002-2003 and the Middle East respiratory syndrome (MERS) outbreak in South Korea in 2015. Most recently, a novel coronavirus (SARS-CoV-2, also known as COVID-19) triggered an outbreak in China in December 2019, sparking international concern. While some coronaviruses have caused devastating epidemics, others cause mild to moderate respiratory infections, like the common cold.

COVID-19 epidemic is the major global health disaster today and the supreme challenge to the universe. Ideally, COVID-19 is an enclosed RNA virus that is distinctly present in people and animals. The virus belongs to the Nidovirales order that consists of families, namely, Roniviridae, Arteriviridae, and Coronaviridae (Hassan, et al., 2020; Singhal, 2020).

At the same time, the Coronaviridae family is divided into two, which include Torovirinae and Coronavirinae. Further, the Coronavirinae subfamily is classified as into alpha-, beta-, gamma-, and delta- COVs (Hassan, et al., 2020). These viruses have virus-related RNA genome that measures from 26 to 32 kilobases in dimension, and this makes it possible to isolate them from different animal species. Moreover, the coronaviruses can be seen under the electron microscope as it possesses a crown-like appearance. Ideally, the extensive spreading and associated health risks of the disease make it an essential pathogen. Primarily, human types of coronavirus are linked to minor clinical symptoms. Simultaneously, the World Health Organization (WHO) have conducted studies and lab research to identify the new strain of COV, designated as COVID-19 (Anjorin, 2020; Huamán-Saavedra, 2020). On the other hand, the International Committee on Taxonomy of Viruses referred to the disease-causing virus as the SARS-CoV-2 virus.

As a result, the way the illness spread from person-to-person has made it a public threat (Wang and Enilov, 2020). In this case, COVID-19 is extremely transmissible, and this calls for the need to understand its epidemiology, transmission, clinical features, diagnosis, treatment, and prevention so as to gain insight about the disease.

COVID-19 outbreak has challenged almost all sectors due to the spread of the disease at an alarming rate across the globe. Notably, COVID-19 is an RNA virus that poses a threat to public health. Currently, the disease has caused thousands of infections and deaths. Ideally, the rapid spread of the ailment calls for strong investigation and isolation protocols to avert additional spread. Fundamentally, no confirmed medicine or vaccine has been created to improve the health of patients with the condition. Therefore, individuals need to take measures such

as isolation, proper ventilation, hand hygiene and use of personal protective equipment, mainly surgical masks, eye protection, gloves, and gowns to safeguard themselves from the disease.

Coronaviruses are a group of enveloped viruses with no segmented, single-stranded, and positive-sense RNA genomes. Apart from infecting a variety of economically important vertebrates (such as pigs and chickens), six coronaviruses have been known to infect human hosts and cause respiratory diseases. Among them, severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) are zoonotic and highly pathogenic coronaviruses that have resulted in regional and global outbreaks. Coronaviruses possess a distinctive morphology, the name being derived from the outer fringe, or “corona” of embedded envelope protein. Members of the family *Coronaviridae* cause a broad spectrum of animal and human diseases. Uniquely, replication of the RNA genome proceeds through the generation of a nested set of viral mRNA molecules. Human coronavirus (HCoV) infection causes respiratory diseases with mild to severe outcomes. In the last 15 years, we have witnessed the emergence of two zoonotic, highly pathogenic HCoVs: severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV). Replication of HCoV is regulated by a diversity of host factors and induces drastic alterations in cellular structure and physiology.

Transmission

COVID-19 can be transmitted through direct exposure to infected animals, human-to-human, and environmental contamination. Firstly, the initial cases of COVID-19 are associated with direct contact to infected animals and this was experienced at the seafood marketplace in Wuhan, China (Singhal, 2020). Moreover, the virus can spread from one person to another, and this is considered to be the main form of transmission (Aluga, 2020). It is that the interaction with those with the disease can lead to getting the ailment as spreading happens from the release of respiratory droplets, mainly through coughing. Therefore, close contact with individuals with COVID-19 can result in transmission. In some instances, there is a possible spreading in closed areas because of raised aerosol concentrations (Anijorin, 2020). Several studies support that the COVID-19 virus has a development period of two to fourteen days (Hassan, et al., 2020). Equally important, the virus can spread through touching contaminated surfaces. This happens when it touches these surfaces and then transfer the virus to mucous membranes in the upper parts of the body, especially mouth, eyes, or nose (Harapan, et al., 2020). It implies that the virus remains active in surfaces that individuals are likely to touch on a daily basis. As a matter of fact, environmental contamination is more likely to be a possible source of infection in environments where there is heavy viral contamination, mainly in an infected person's household (Harvey, 2020). As research is done in Singapore reveals that viral RNA is detected on nearly all surfaces, such as handles, light switches, toilet bowl, and bed and handrails (Singhal, 2020). Necessarily, COVID-19 can persist in surfaces as it has been tested and confirmed that this virus may persist on inorganic surfaces for up to six to nine days without disinfection (Alatrany, 2020). Hence, COVID-19 can be transmitted in different ways, and this calls for the need for individuals to be aware of its transmission so as to keep themselves safe all the time.

Treatment and Prevention

Coughing and sneezing without covering the mouth can disperse droplets into the air. Touching or shaking hands with a person who has the virus can pass the virus between individuals. Making contact with a surface or object that has the virus and then touching the nose, eyes, or mouth. Some animal coronaviruses, such as feline coronavirus (FCoV), may spread through contact with feces. However, it is unclear whether this also applies to human coronaviruses. The National Institutes of Health (NIH) suggest that several groups of people have the highest risk of developing complications due to COVID-19. These groups include: (i) Young children, (ii) People aged 65 years or older, (iii) Women who are pregnant

Coronaviruses will infect most people at some time during their lifetime. Coronaviruses can mutate effectively, which makes them so contagious. To prevent transmission, people should stay at home and rest while symptoms are active. They should also avoid close contact with other people. Covering the mouth and nose with a tissue or handkerchief while coughing or sneezing can also help prevent transmission. It is important to dispose of any tissues after use and maintain hygiene around the home.

The initial step in treating those suspected to have COVID-19 is adequate isolation in order to prevent spread to other contacts, clients, and healthcare providers (Prem, et al., 2020). The mild disease should be administered at home through staying hydrated, proper nutrition, monitoring fever and cough (Huamán-Saavedra, 2020).

Besides, the repetitive usage of antibiotics and antivirals, mainly oseltamivir, should be evaded among those with COVID-19 symptoms (Padron, 2020). This portrays that there is no specific treatment for this ailment. Since there is no precise treatment for this disease, prevention is critical. In the first place, isolation of the suspected cases with the minor disease at home is suggested (Escher, 2020). Again, proper ventilation with good sunlight to destroy the virus is recommended at home (Kumar and Agarwal, 2020). Further, individuals suspected to have the disease should be asked to wear a surgical mask and to rehearse cough hygiene (Li and Wang, 2020). Primarily, healthcare workers should wear a surgical mask when in the same area as a client and utilize hand hygiene in every 15 minutes. This is because the most significant risk of the

Prevention and Prophylaxis of SARS-CoV-2 Infection:

- *The COVID-19 Treatment Guidelines Panel (the Panel) recommends against the use of any drugs for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pre-exposure prophylaxis (PrEP), except in a clinical trial (AIII).*
- *The Panel recommends against the use of hydroxychloroquine for SARS-CoV-2 post-exposure prophylaxis (PEP) (AI).*
- *The Panel recommends against the use of other drugs for SARS-CoV-2 PEP, except in a clinical trial (AIII).*
- *The Panel recommends that health care providers follow recommendations from the Advisory Committee on Immunization Practices when using SARS-CoV-2 vaccines (AI).*

Rating of Recommendations: A = Strong; B = Moderate; C = Optional

Rating of Evidence: I = One or more randomized trials without major limitations; IIa = Other randomized trials or subgroup analyses of randomized trials; IIb = Nonrandomized trials or observational cohort studies; III = Expert opinion

Impact COVID-19: Water sector in MENA cope with COVID-19

As of December 2020, the Middle East and North Africa (MENA) region have reported more than 3.2 million confirmed cases of SARS-CoV-2 and 55 000 deaths from COVID-19. The Institute for Health Metrics and Evaluation noted a threefold increase in the number of deaths in the region between September and December 2020, with COVID-19 projected to become the fourth leading cause of death by early 2021. Yet significant discrepancies in both indicators and quality of data reported across the MENA region limit our understanding of the scope and the implications of the pandemic in the Arab context. The MENA region is distinctly conflict-affected and displacement-affected, which may foster unique vulnerabilities to SARS-CoV-2 transmission and illness severity. Low testing rates, limited data on excess mortality and poor vital registration systems, which are further weakened in the context of chronic political unrest, all contribute to consistent under-reporting in the region.

The COVID-19 pandemic exemplifies long-standing underinvestment and undervaluation of routine sources of data, a paucity of available disaggregated data and challenges to data sharing across several countries of the MENA region, notably those that are long stricken by conflicts and displacement. The COVID-19 pandemic should serve as an impetus for more comprehensive, robust, disaggregated and publicly available evidence, and this can be addressed through prioritized governmental expenditure and use of available digital technologies. Comprehensive and reliable data are essential in understanding the implications of the health crises, generating meaningful epidemiological research and developing prompt and contextualized responses.

In order to develop a timely and context-informed response to the pandemic and more recently to the vaccination statistics, publicly available and disaggregated data are critical to identify health needs and interpret the impact of the region's competing crises of protracted wars, forced displacement and economic decline on already fragile health systems and poor resource availability. At present in the MENA region, as elsewhere, data sources for COVID-19 cases have primarily been limited to government reporting of daily aggregates of incidence, morbidity and mortality counts. There are, however, notable yet limited exceptions, with some Arab countries sharing more granular data.

The MENA region is home to the world's largest population of forcibly displaced persons, data on COVID-19 morbidity and mortality among internally displaced and refugee populations are lacking in all countries except for Iraq. This paucity of regional data on refugees is not unique to the pandemic. Indeed, the lack of integrated monitoring systems, the scarcity of disaggregated data on risk factors, incidence and mortality among displaced populations and refugees in camps and in host communities, as well as the suboptimal sharing and use of primary data by service organizations are only some of the obstacles to achieving an effective and evidence-informed

response to this humanitarian crisis. Consequently, health policy decisions pertaining to refugees are often not data-driven, which is particularly dangerous during a pandemic.

The COVID-19 pandemic calls for strong and prioritised public investment in data infrastructure in the MENA region—a push forward that balances public health needs with concerns for data privacy and confidentiality. The COVID-19 ‘infodemic’, likely made worse in the MENA by decades of distrust in government leadership and public institutions, poses significant health risks, particularly amid the current new variants and waves of the virus as well as large-scale vaccination campaigns. This misinformation can only be addressed with unified, transparent public health messaging informed by accurate and reliable data. More than ever, solidarity and integrative approaches are needed to build regional and national health data systems that would outlast the current pandemic. COVID-19 provides such an imperative.

The MENA regions is already the world’s most water-stressed region, with more than 60% of the population concentrated in places affected by high surface water stress. Therefore, this rises in the demand for handwashing could exacerbate the region’s water insecurity by raising water consumption by up to five percent, or by an additional 4-5 million m³/day, which could cost between \$150 - \$250 million per month. Added to this existing challenge, COVID-19 pandemic has added an additional dimension with a range of social and economic impacts, putting substantial constraints on WASH services on a daily basis in the region in places like Yemen, for example. Restrictions on the entry of materials, price increases, lack of supplies, and a smaller available workforce leads to a decrease in access and use of WASH services. Poorer hygiene practices follow, further exacerbating the spread of COVID-19.

Seeking water security beyond COVID- 19 in MENA regions

The Middle East and North Africa (MENA) is the most water-scarce region of the world, and water security is under mounting pressure from multiple directions. Home to 6.3 percent of the world’s population, the region contains only 1.4 percent of the world’s renewable fresh water. As population pressures in the region increase, the demand for water resources rises. This brief examines the challenges of meeting this demand given scarce water resources. Country strategies to deal with water shortages depend on local conditions, including topography, the extent of water scarcity, available financial resources, and technical and institutional capacity. Overall, developing a mix of strategies that increase supply, manage demand, and reduce long-term pressures on water is urgent more than ever before, as population pressures in the region continue to increase.

The region is struggling under the COVID-19 pandemic, which has created additional strain on water availability. The COVID-19 pandemic has given the global community reason to pause and reflect on what is meant by resilience and sustainability. What does the future hold and how will our global systems fare when the next crisis hits?

COVID-19 has cast a deep shadow over water security in the Middle East and North Africa (MENA) region. MENA is already the most water scarce region in the world, a problem deeply affecting both its society and economy. The impact of the pandemic, part of which is an increase in water demand, brings into sharp relief the many problems faced by countries in the region. These include more interruptions to water supplies, large inequality of access to water, poor water quality and deteriorating water infrastructure.

Water in the MENA region is highly interlinked with economic growth, conflict, migration, employment, and human rights; all of which are shaped by the management and access to water resources. Indeed, 60% of the region’s population live in areas of high-water stress, compared to only 35% for the global average, and 70% of its GDP is also generated in such areas, compared to a global average of 22%. Yet nowhere else in the world is water managed so unsustainably. From expensive and energy intensive practices, to poor and wasteful ones with high levels of water use that generates no revenue, the MENA region is plagued by an overall water insecurity problem with significant competition for water between economic sectors.

In early July 2020, the Middle East and North Africa (MENA) region passed a grim milestone, recording more than one million cases of COVID-19. Handwashing with soap and water is critical and one of the most effective measures in preventing the spread of the virus. But while the region has made strides in achieving access to water, sanitation and hygiene (WASH), 13% of the population – over 74 million people – still lack access to handwashing facilities, and another 87 million people lack access to improved water sources in their homes. This forces them to congregate at crowded public sources to collect water, immediately increasing the risk of contracting the virus. Refugees and internally displaced persons (IDPS) in the region are also particularly vulnerable to the virus; 26 million of them have no adequate WASH services.

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In order to alleviate the severity of the impact of the pandemic, immediate technical, material and financial inputs must be provided to sustain access to WASH commodities and the continuity of WASH services in places like Iraq for example.

After assessing the importance of water on the coronavirus response and the impact of the pandemic on the water sector in MENA, the World Bank developed a multi-phase approach to support its clients in the region – this includes, in the short-term, ensuring access to essential WASH services for all, especially those living in areas affected by fragility, conflict and violence (FCV); continuity of service provision, improving performance of service providers, building more resilient water and sanitation systems in the medium term; and long-standing reforms by strengthening the financial and operational sustainability of utilities and promoting water-use efficiency (including increasing the low 18% of water reuse that the region has), in the long-term.

The World Bank Group is also moving quickly to provide fast, flexible responses at the country-level to help governments and water utilities contain the spread and impact of COVID-19. While the immediate concern is a focus on emergency WASH response and water availability, the goal will be a more sustainable, resilient recovery in the water sector. Below are some specific WASH-related actions being taken in MENA countries:

In Morocco, the Bank is helping improve hygiene and water availability, conduct epidemiological studies of wastewater as a tool for early warnings, strengthen data collection systems, secure financial sustainability of utilities, explore new funding avenues, including further private sector engagement with our colleagues from IFC, and advocate for water sector and leveraging other donors' support.

In Algeria, the Bank is assessing the impact of COVID-19 on the water sector to be included in a country engagement note. We are also preparing a project financed by the COVID-19 Fast Track Facility to support the country's efforts to prevent, detect and respond to the threat posed by COVID-19 and strengthen systems for public health preparedness.

In Tunisia, the irrigation project was restructured to reallocate €13 million to COVID-19 emergency response component for medical supplies, equipment and personal protective equipment and disbursed in record time. An emergency Development Policy Financing included support for the two state owned enterprises in the country in both water and sanitation. The assessment of the economic impact on the Tunisian economy of supply and demand shocks caused by the containment measures applied to slow the spread of COVID-19 shows significant effects. The effect of the containment measures put in place by the Tunisian authorities – with 6 weeks of general confinement with full lockdown of economic activity and 6 weeks of partial lockdown – costs a loss of growth to the economy that is estimated at 3.8 percent if the crisis duration is one month and 11.6 percent if three months, equivalent to TND 4.0 and 12.2 billion, respectively.

In Egypt, as part of the PforR for rural sanitation, COVID-related awareness materials focusing on Information-Education-Communication (previously coordinated with UNICEF) were disseminated to utilities.

In Iraq, \$20 million was reallocated from the water resources component to a health component through project restructuring on an urban project

In Jordan, a \$20 million COVID-19 Fast Track multi-phase programmatic approach (MPA) response project was approved in May 2020 to support the design and implementation of effective public health measures to prevent contagion and will support the development and implementation of associated communication and behavior change interventions to support key prevention behaviors, such as hand-washing and social distancing, which besides helping contain the spread of COVID-19 helps against the spread of other climate-related conditions and water- or food-borne diseases.

In order to tackle COVID-19, countries in MENA will have to address the water crisis and as the World Bank Group we have an opportunity at hand here. An effective emergency WASH response, regional cooperation on transboundary waters (60% of the water is shared in MENA), and a long-term strategy for a sustainable recovery

in the water sector will be key in moving past this crisis to build resilience for the future and inclusive growth for the youth and women in the region.

COVID-19 has cast a deep shadow over water security in the Middle East and North Africa (MENA) region. MENA is already the most water scarce region in the world, a problem deeply affecting both its society and economy. The impact of the pandemic, part of which is an increase in water demand, brings into sharp relief the many problems faced by countries in the region. These include more interruptions to water supplies, large inequality of access to water, poor water quality and deteriorating water infrastructure.

The pandemic is making a bad situation even more complicated. It's expected that an additional 8.3 million people will fall into poverty in the Arab region as a result of COVID-19, that's on top of 101 million people in the region already classified as poor (with 52 million estimated as undernourished). Water insecurity in particular threatens the peace and stability of the region.

There are three growing pressures threatening the water security of the MENA region. The first is population growth. The Arab population has tripled since 1970, increasing from 128 million to 436 million in 2020. This is exacerbated by an influx of displaced people from surrounding countries.

Second is climate change, bringing with it greater climate variability, and more frequent and severe droughts and floods. This multiplies the stress created by chronic water scarcity.

The third pressure relates to conflict and fragility in the region increasing the unreliability of water sources, further multiplying the risks from water scarcity.

All three pressures have a fundamental impact on the vulnerability of water resources, socio-economic development and the way water is managed and financed. And the potential exists for the problem of water scarcity to flower into a major water crisis. If water infrastructure becomes seriously deteriorated, or institutions are weakened to the point where water utilities are unable to deliver basic water services and or manage water-related hazards, there is the growing possibility of riots, migration, and loss of life.

Governments in the MENA region have rapidly reacted to contain the Coronavirus (COVID-19), by developing massive policy and institutional plans to support households and firms. Strict containment measures helped to limit the first wave and were gradually lifted from June onwards. But since then, the situation appears to be diverging: while the Gulf countries seem to have flattened the infection curve so far, the sanitary situation appears much more fragile elsewhere in the region. The crisis will be a critical test for the region's fragile resilience, and could erode dramatically its prosperity and challenge its political stability if risks materialize, for MENA economies and societies alike. Countries may want to capitalize on their innovative policy efforts to improve inclusiveness, sustain welfare provisions, and promote a structural reform agenda for more open and private sector-led economies, aligned with the Sustainable Development Goals. This update includes the latest analysis on the economic and social consequences of the crisis, including new sections on the fiscal and educational challenges, as well as insights on the resilience of the healthcare system.

More than 2.2 million COVID-19 infections have been registered in the MENA region (including Iran, where more than 26,000 people have already died and infection rates continue to surge). Among Arab economies, Iraq has the most confirmed cases, followed by Saudi Arabia and Morocco.

Despite varying levels of health system preparedness across the region, MENA countries' overall health management strategies – characterized by strict containment measures implemented in the very early stages of the outbreak – have proven efficient in limiting human losses and the spread of the pandemic in the region. Following a prudent de-confinement process engaged from May to August, mainly easing restrictions on movement, re-opening of borders and economic activities, new infections have been flattened in the Gulf countries. Unfortunately, an emerging second wave is currently affecting the Maghreb and the most fragile countries in North Africa and the Levant, some of which have re-established stricter measures (local lockdowns, school closures) to contain the virus from spreading too rapidly again. The situation is particularly worrying in Lebanon, which has recorded a continuous increase in cases since the blast that hit the port of Beirut on 4 August, while economic pressures are affecting compliance with lockdown measures.

The pandemic is challenging MENA medical systems, some of which are particularly weak and overcrowded. The situation is, obviously, not the same for the richer Gulf countries, the developing economies in the Levant or North-Africa, or in fragile and conflict-affected countries such as Iran, Syria, Iraq, the Palestinian Authority, Yemen and Libya, where the lack of hospital beds and testing capacities is a cause of concern. The first wave has left public hospitals and their personnel exhausted in Lebanon, Morocco or Tunisia, and has severely impacted public trust on the credibility of official figures and the overall management of the crisis. On the other hand, some countries have adopted rapid, decisive and/or innovative measures to contain the virus, such as the smooth

crisis management developed by Jordan, virtual doctors and sanitising robots in the UAE, or ramping up domestic masks and test production in Morocco. Healthcare co-operation and innovation was also considerably boosted, in particular in the area of vaccine research. This highlights the significant differences in between countries in terms of their capacity to react on the healthcare side.

The crisis is also testing the public sector, forcing governments to make quick decisions, manage crisis co-ordination and implement drastic measures to protect communities at risk. Many administrations have demonstrated strong capacity to mobilize and implement prevention measures, while preparing for stimulus packages to support households and firms. This crisis emphasizes the importance of underlying structural issues, such as transparency and the fight against corruption, effective public procurement, the maturity of digitalization and open government approaches, as well as a strengthened role for civil society. Governments' willingness to collaborate with civil society has been key for effective crisis response in many countries. Public governance measures should be used to ensure the continuity of response and essential services by public institutions, while enhancing public sector resilience and adaptability and restoring the population's trust in public institutions. The crisis has underscored the need to accelerate public administration reform to create a more professional, efficient, effective, transparent and user-oriented public sector.

Despite the large fiscal packages announced in most countries, the pandemic is already causing a dramatic economic cost, with both a negative demand/supply shock and a shock from the collapse of oil prices. As countries have taken a series of containment measures limiting transportation and economic activity, these are strongly weighing on the ability of people to go to work and on businesses to continue contributing to the economy. At the same time, the region suffers from a drop in demand at the regional and at global levels, while most supply chains are disrupted. The effects of containment measures on the services sector, which employs a large number of people in the region (in particular in the tourism industry), will cause wide reverberations if unemployment rises and wages and remittances fall. Further, bottoming crude oil prices have put additional strain on even the region's wealthiest countries, through reduced investments from Gulf countries, which are the largest investor in the region, as well as substantial lower remittances from Gulf countries and work opportunities in the richer GCC region for nationals of other MENA countries. Overall, the region could lose about USD 42 billion of GDP this year.

It will be critical to monitor the social consequences of the crisis, especially for the most vulnerable (women, youth, elderly, informal workers, refugees). While welfare provisions and social safety nets were often considerably expanded, the United Nations Economic and Social Commission for West Asia (UNESCWA) estimates that the economic slowdown caused by the pandemic will cause an additional 8.3 million people to fall into poverty⁴. The pandemic might dramatically increase inequalities. School closures risk weighing on the future development of MENA societies. In light of their demographic weight in the region, ensuring that all young people have the opportunity to succeed at school and develop the knowledge, skills, attitudes and values that will allow them to contribute to society should stand high on the recovery agendas.

The impact of the COVID-19 is testing the region's fragile resilience. It may further exacerbate regional competition and political instability as well as fragility in some cases. The outbreak of the virus has indeed impacted political developments within MENA economies, and their capacity to restore and support their social contracts is being increasingly questioned. Demonstrations in Algeria and Lebanon have been put to a halt due to the sanitary crisis. Hit by a cataclysmic blast at Beirut's main port and daily spikes in COVID-19 cases, Lebanon is crippled by the impact of multiple shocks which have exhausted its economy and caused an unprecedented poverty increase, where more than 55% of the country's population is now trapped in poverty and struggling for bare necessities, as per UNESCWA. In fragile and conflict-affected countries, economic reconstruction plans will need to materialize to provide for minimum levels of stability.

Like for OECD countries, the crisis could, still, offer an opportunity to engage in a comprehensive reform agenda addressing some of the region's underlying structural issues (decentralization, private sector development, social protection) and supporting a more inclusive growth model (economic diversification, health and education spending, industrial innovation and participation in regional value chains), building on all segments of the society. Success stories at the national level should be recognized and made widely known. The pandemic is a call to renew the commitment to the Sustainable Development Goals. Looking ahead, in a region with very heterogeneous situations for the capacity of the civil society to operate with autonomy, it will be important to monitor the impact of the pandemic on the rule of law and governance frameworks. Indeed, new laws and controls put in place to contain the pandemic may have long-term negative effects on the space in which the

civil society operates. In a moment where the contribution of all to face the unprecedented economic and social challenges is more necessary than ever, empowering people remains critical.

The MENA economies made important efforts to address the COVID-19 health crisis early on. Following the outbreak of the pandemic, most countries declared a state of national emergency, closed their borders to foreigners and imposed strict containment measures including mandatory self-isolation, restricted movement for citizens and curfews. Notably, many countries did not wait to have confirmed cases to start imposing movement restrictions and social distancing measures. Saudi Arabia, for instance, suspended pilgrimages to Mecca and Medina and barred access to religious sites in the two cities as early as February. In Tunisia, thermal cameras for fever screening were installed in airports and at border crossings with neighboring countries as early as January 20th (while first confirmed cases were only in March).

In other fragile and conflict-affected countries, the COVID-19 outbreak poses a major challenge given damages to health systems. In emergency settings, where availability of water, sanitation and hygiene (WASH) services is scarce, applying preventive measures to limit the spread of the disease has proved difficult. Countries where healthcare facilities have been partially destroyed during the war and governance remains extremely fragile and uncoordinated in certain areas, and lack the necessary capacity to respond to the crisis in terms of medical facilities, equipment and personnel. In Syria, the WHO estimates that 70% of health care workers have left the country as migrants or refugees, while only 64% of hospitals and 52% of primary health care centres remain fully operational. One possible explanation for the low number of COVID-19 cases reported in these countries at the beginning of the pandemic is the fact that, due to lack of bed capacity or difficulty to reach hospitals, people often die at home. In addition, the lack of testing capacity has resulted in months of under-reporting, in particular in Syria and Yemen. The situation has worsened over the summer, with numbers of COVID-19 cases and related deaths rapidly growing. At the same time, enforcement of containment measures has proved difficult in the context of already fragile economic situations, which cannot afford the necessary restrictions to limit the spread of the virus.

Environmental health considerations related to the COVID-19 pandemic are particularly relevant for MENA countries. Water scarcity and lack of access to clean water and sanitation as well as poor waste management (including on hazardous waste e.g. bio-medical and health-care waste) in MENA countries and especially in their less well-off segments of society, in conflict-affected territories and the refugee camps can accentuate the impact of pandemics. Furthermore, confinement measures can result in increased exposure to indoor air pollution, particularly for people relying on polluting fuels for cooking and heating in poorer MENA countries and for buildings lacking, or with poor, ventilation systems. A healthy environment not only reduces the vulnerability of communities to pandemics, but has the potential to boost economic activity, create jobs and reduce inequalities. While the current focus is rightly on addressing the immediate health crisis and the economic recovery measures caused by COVID-19, the MENA governments should not undermine the action needed to limit the threats from climate change, water scarcity, water and air pollution, soil degradation, desertification and biodiversity loss. These threats are on a different time scale, but could also seriously destabilize MENA societies and economies.

As the crisis evolves around the world, MENA governments should ensure that their stimulus measures and policy responses are aligned with ambitious climate change and wider environmental protection goals. They should systematically evaluate possible unintended negative environmental impacts of new short-term recovery measures (e.g. fiscal and tax provisions), ensure policy coherence and avoid creating perverse and unintended environmental consequences that might damage the future resilience and environmental health of societies.

Many countries around the world are making green measures a central part of stimulus packages in the wake of COVID-19. Stimulus measures could be an opportunity in MENA to invest in the real economic transformations and technological innovations (avoiding greenwashing), such as boosting technologies for solar and wind energy, for smart green cities as well as for seawater desalinization projects (powered by renewable energy sources) and developing and greening public transport systems. This could help the Gulf Cooperation Council countries reduce their carbon footprint and energy demand as well as diversify their economy from fossil fuels. Public and private support should be enhanced also for the investments in water and waste infrastructure development and modernization, especially in poorer MENA countries. Enhanced levels of environmental health will strengthen the resilience of societies to pandemics and other emergencies.

MENA governments should make sector-specific financial support measures conditional on environmental improvements where possible. The use of financial support measures such as preferential loans, loan guarantees and tax abatements could be directed towards supporting stronger environmental commitments and

performance in pollution-intensive sectors that may be particularly affected by the crisis. Communication campaigns that underscore the benefits to well-being and prosperity from more resilient societies can strengthen public support for measures aimed at enhancing environmental health.

Water scarcity affects all continents, but the MENA region (Middle East and North Africa) is acutely impacted. The growing effects of climate change also risk further exacerbating challenges on the ground for utilities, customers and businesses. There is an urgent need to address these challenges by working with stakeholders to identify needs and find adaptable and feasible solutions. GWOPA, with the support of the Department of Energy of Abu Dhabi (DoE), conducted a regional consultation with this objective, and findings revealed strong potential for capacity-building initiatives, like WOPs, to bring about transformative change.

More than 50% of the population in the MENA region has little or no access to drinkable water and over 70% of the region's GDP is exposed to high water stress. The region is a global hotspot of unsustainable water use, especially of groundwater, and in some countries, more than half of current water withdrawals exceed what is naturally available. Water utilities face an increasing need to improve the management of water resources and associated infrastructure to face water scarcity. The regional consultation began with an initial Expert Group Meeting in January 2019 to bring together key partners. The EGM recommended the development of an action plan for utility capacity building on water scarcity and highlighted the potential of WOPs as a useful mechanism.

The Impact Of COVID-19 On the MENA Regions An Opportunity To Build Back Better

The COVID-19 pandemic has exposed serious fault lines and vulnerabilities in societies, institutions and economies all around the world. The MENA regions, home to 436 million people (All sources of data are from the United Nations Economic and Social Commission for Western Asia (ESCWA)), indicated., initially kept transmission and mortality rates lower than the global average but more recent trends are cause for concern, especially in light of fragmented health care and insufficient primary care in many countries. The pandemic has also magnified many decades-long challenges. These include violence and conflict; inequalities; unemployment; poverty; inadequate social safety nets; human rights concerns; insufficiently responsive institutions and governance systems; and an economic model that has not yet met the aspirations of all.

International assistance to some of the most vulnerable communities in the MENA region will be of critical importance in the coming months, and given the mounting budgetary constraints worldwide, a reduction in such assistance seems likely. The risk is that the region will explode if basic humanitarian needs cannot be met. This would have very serious security implications for the international community. Medical support will be critical and once treatments or vaccines are available to mitigate the impact of the COVID-19 crisis, these should be made widely available to the people of the region. China has moved proactively on this front by donating substantial supplies of medical equipment to many countries in the region. This is obviously welcome, but some see China's "mask diplomacy" as a prelude to a far more interventionist approach to the region, while the West, preoccupied by its own recovery plans, feels that its own capacity for action is limited.

The basic needs of migrants and refugees living throughout the MENA region cannot be neglected due to the COVID-19 crisis, and these communities will require both local and international support. Their needs must be factored into all recovery plans. Providing medical assistance to IDPs and refugees in conflict-torn regions should remain a priority for the international community. Efforts to address the specific challenges confronted by women in the MENA region stemming from this crisis will be essential. They are most likely to feel the social and economic impacts of the crisis and will need support from their governments and the international community.

Although the MENA region has generally not seen the kind of infection rates that have swept through parts of Asia, Europe, the United States, Brazil, and Russia, it has been particularly vulnerable to the economic fallout from the crisis. While the Arab Spring began at a moment when some economies in the region and particularly those in the GCC were growing, this crisis has struck a more economically and politically fragile region weakened by economic stagnation, energy price instability, war, civil unrest, an influx of refugees and IDPs, and ever more serious climate related difficulties. The MENA region is thus very vulnerable to the public health and economic fallout of this crisis.

Many of the MENA region's countries are not well equipped to manage a pandemic. Health care systems are weak, infrastructure is poor and there are far too few health care givers. Health expenditure levels range between 0.6% of GDP in Yemen to 4.6% in Israel (Talbot, 2020). It is difficult to compare morbidity and case statistics across the region due to significant discrepancies in data collection methods and state capacity. Some countries do not publish morbidity statistics and COVID-19 testing is not uniformly administered throughout the region.

These deficiencies have led to a serious regional transparency problem with adverse public health, social and economic implications (MENA Crisis Tracker). As a general rule, the wealthier countries are far better positioned to generate reliable public health data, administer virus testing and enforce effective public health regulations. The most destabilised countries obviously are in a far worse position. War-ravaged and impoverished Yemen, to take one example of the problem, has simply stopped publishing testing data and there are signs COVID-19 rates in that country are soaring. Syria, the densely populated Gaza Strip and Libya, are very poorly positioned to manage this health crisis.

The number of Covid-19 cases in the Middle East and North Africa (Mena) region crossed 6,079,873 on 15 March, according to Worldometers data collated by MEED.

Countries in the GCC account for about 24 per cent (1,468,901) of all regional cases, and Iran's 1,754,933 confirmed infections make up 29 per cent of the regional 6 million infections.

Since 8 March, 228,329 new Covid-19 cases have been detected in 17 Mena countries tracked by MEED.

Case growth has been driven by countries such as Jordan, where total infections grew from 427,717 on 8 March to 477,053 on 15 March.

Table ..1 Covid-19 in the Middle East and North Africa regions

Covid-19 in the Middle East and North Africa								
Country	Total cases	Total deaths	Active cases	Cases/1m popn*	Deaths/1m popn*	Total tests	Tests/1m popn*	Population
Mena	6,079,873	132,945	586,848	13,388	293	92,985,779	204,762	454,116,727
GCC	1,468,901	11,500	63,107	24,801	194	56,723,416	957,720	59,227,562
Iran	1,754,933	61,330	194,302	20,709	724	11,781,317	139,023	84,743,821
Iraq	758,184	13,751	58,663	18,560	337	7,386,457	180,820	40,849,880
Morocco	488,937	8,723	4,365	13,138	234	5,801,538	155,887	37,216,262
Jordan	477,053	5,346	75,512	46,433	520	5,174,645	503,665	10,273,976
UAE	428,295	1,402	18,808	42,942	141	34,030,998	3,412,008	9,973,893
Lebanon	418,448	5,380	84,362	61,501	791	3,276,627	481,578	6,803,936
Saudi Arabia	382,407	6,567	3,137	10,866	187	14,307,143	406,545	35,192,038
Tunisia	241,834	8,389	25,759	20,313	705	1,034,981	86,936	11,905,088
Kuwait	209,523	1,172	14,179	48,561	272	1,907,214	442,033	4,314,640
Egypt	190,924	11,300	32,390	1,842	109	1,000,000	9,645	103,678,459
Qatar	170,252	266	11,789	60,635	95	1,622,518	577,860	2,807,805
Oman	147,423	1,609	9,044	28,368	310	1,550,000	298,263	5,196,762
Libya	146,080	2,402	10,981	21,060	346	789,394	113,802	6,936,527
Bahrain	131,001	484	6,150	75,183	278	3,305,543	1,897,095	1,742,424
Algeria	115,265	3,036	32,342	2,596	68	N/A	N/A	44,402,668
Syria	16,478	1,099	4,409	926	62	N/A	N/A	17,795,884
Yemen	2,836	689	656	94	23	17,404	575	30,282,664

Source: MEED: Worldometers. 15 Mar 2021: *popn=population

The number of Covid-19 cases in the Middle East and North Africa (Mena) region crossed 5,466,170 on 22 February, according to Worldometers data collated by MEED.

Countries in the GCC account for 24.7 per cent (1,350,016) of all regional cases, and Iran's 1,582,275 cases alone make up 28.9 per cent of the regional 5.4 million infections (Figure 1)

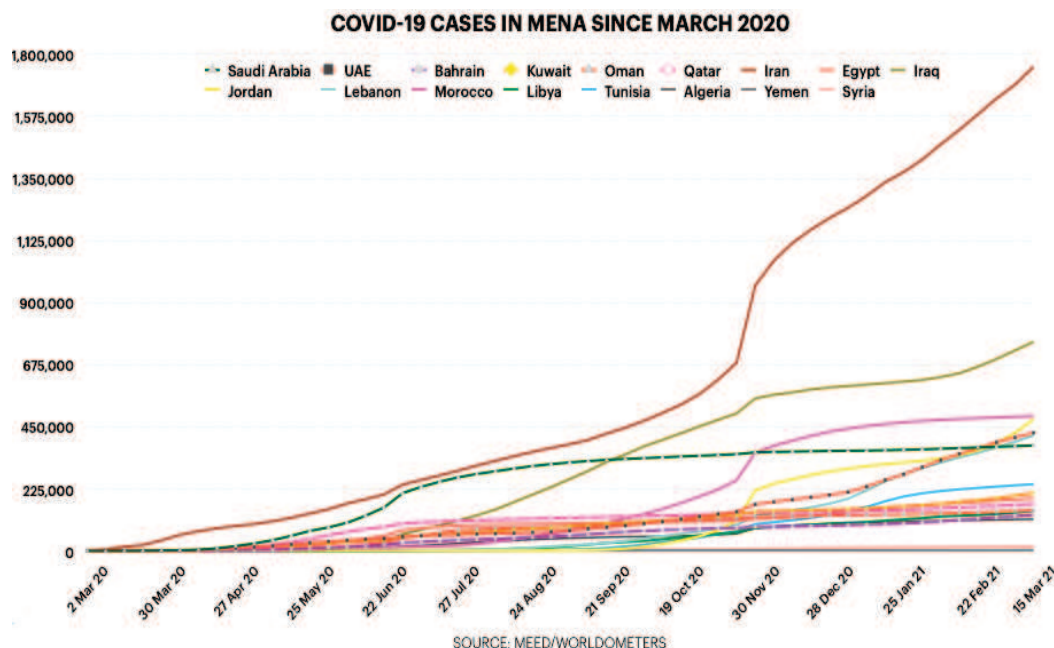
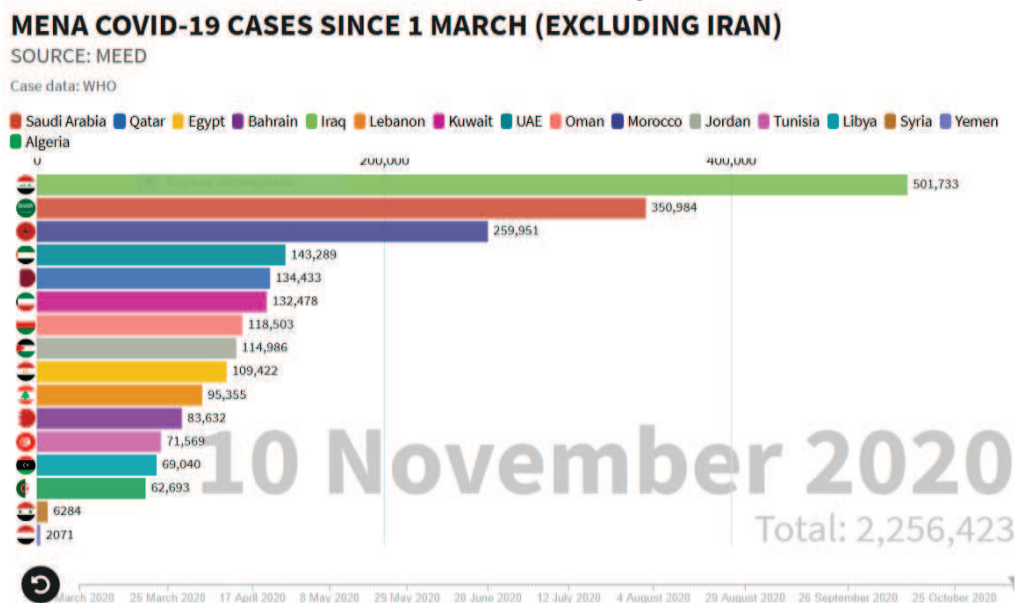


Figure 1. Covid-19 cases in in the Middle East and North Africa regions since March 2020



Vaccination efforts

Other countries in the GCC and wider Mena region are also continuing to invest in inoculation campaigns to manage the number of new coronavirus cases.

Saudi Arabia's Health Ministry said on 14 March that more than 2 million Covid-19 vaccine doses have been administered in the country to date. The kingdom also denied reports claiming it had temporarily suspended the use of the UK's Oxford-AstraZeneca vaccine, which a ministry spokesperson said was safe to use.

Last week, Oman's Health Minister Ahmed bin Muhammad al-Saeedi also reiterated the safety of vaccines in use in Oman, adding that the first batch of 200,000 units of the US' Johnson & Johnson vaccine is scheduled to arrive in the sultanate by the end of June or early July.

In Morocco, the Scientific Advisory Committee last week authorised Johnson & Johnson's and Russia's Sputnik-V vaccines for use in the country. Rabat has already secured doses of the Oxford-AstraZeneca and China's Sinopharm vaccines.

Over the past week, Tunisia has also received its first major delivery of vaccine doses, almost a month later than expected. Health Minister Faouzi Mehdi is understood to have been present for the arrival of the 30,000 Sputnik-V doses in Tunis.

Tunisia has been expecting more than 93,000 doses of the US/German Pfizer-BioNTech and AstraZeneca-Oxford jabs since February, but their delivery was delayed under the UN-led Covax scheme. The country expects to receive additional doses of Russian and Chinese vaccines in the months ahead.

No one yet knows the full impact of the unfolding Covid-19 pandemic, let alone its effects on the MENA region. What is certain is that it will have lasting health, social, economic, and political consequences. The stakes are two-fold: minimising the blow of the crisis in the short term while setting the stage for lessons learnt and better governance policies in the future.

During the reporting period, the number of reported daily COVID-19 cases continued to increase in 16 of the 20 countries in the region. There was nearly a 60 per cent increase in the total number of cases bringing it to 275,208 recorded cases (as of 15 May). In Sudan, the number of cases more than quadrupled during the reporting period (1,964 cases, including 91 deaths in 14 out of 26 states), with possible ongoing “silent” transmission as suggested by the high Case Fatality Rate (CFR). A total lockdown in all local states is now in place. Primary health care centres are operating at very limited capacity, while immunization and bed net campaigns are suspended, further impacting pre-existing vulnerabilities.

The situation continues to be of great concern in Yemen. After a first case reported more than four weeks ago in the North, there was a sharp increase during the reporting period leading to 108 cases (+205% in the last week) and 16 deaths (+75%) recorded in ten governorates. COVID-19 comes to add to an already fragile and overwhelmed health system.

Iran continues to have the highest number of registered cases and deaths in the region with more than 42 per cent of cases (116,635) and 75 per cent (6,902) of deaths; daily cases continued to re-increase for the second consecutive week (+34% in the last week) two weeks after the easing of restrictions. Meanwhile, Saudi Arabia, UAE, Kuwait and Qatar have recorded more than 500 cases daily and represented 59% of daily cases of the region during the reporting period. A limited number of fatalities was reported in these countries, suggesting strong case management and active contact tracing. A sharp increase in reported cases was recorded in Djibouti (+206%), Lebanon (+72%) and Jordan (+229 %).

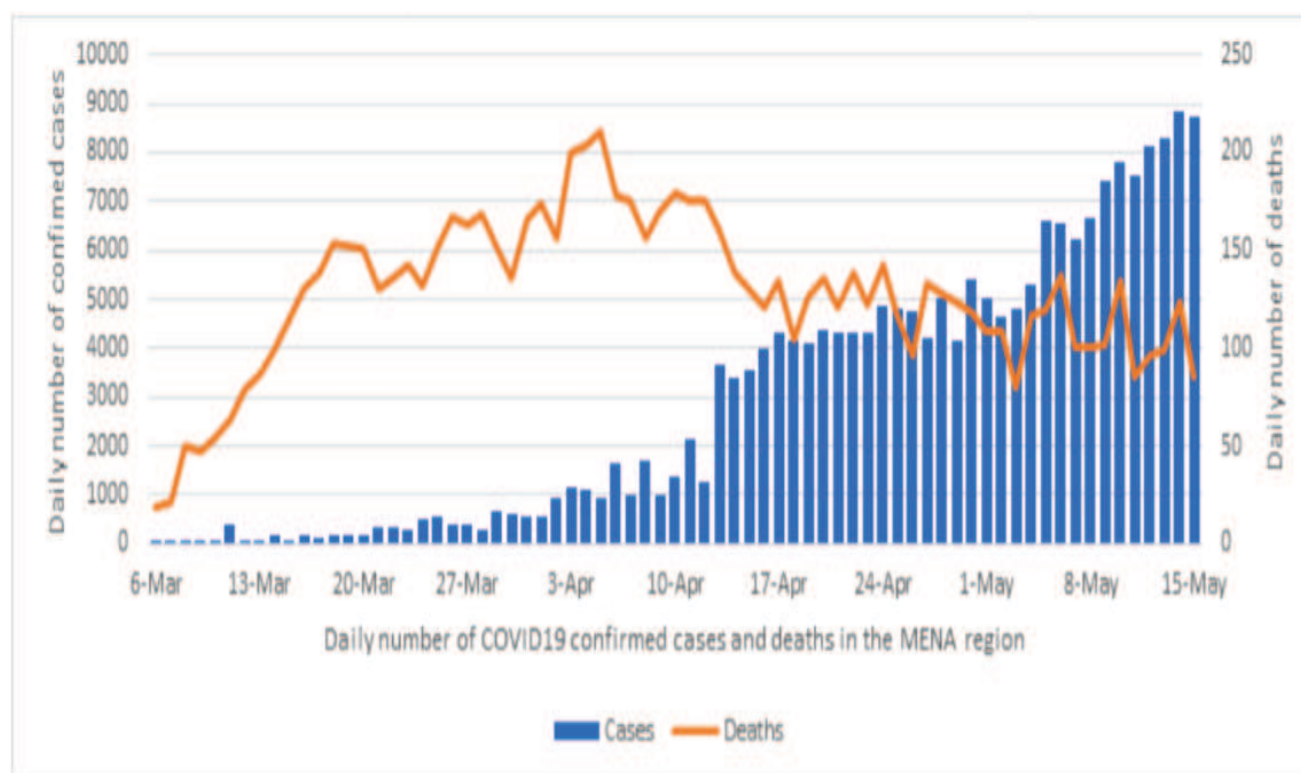


Figure 2 Accumulative number of daily COVID-19 cases and deaths in the MENA region (6 March – 15 May)

Covid-19 Vaccines in MENA

Is there a vaccine for Covid-19? Yes, there are now several vaccines that are in use. The first mass vaccination programme started in early December 2020 and as of and as of 15 February 2021, 175.3 million vaccine doses have been administered. At least 7 different vaccines (3 platforms) have been administered. Vaccination is a simple, safe, and effective way of protecting people against harmful diseases, before they come into contact with them. It uses your body's natural defenses to build resistance to specific infections and makes your immune system stronger. Vaccines train your immune system to create antibodies, just as it does when it's exposed to a disease. However, because vaccines contain only killed or weakened forms of germs like viruses or bacteria, they do not cause the disease or put you at risk of its complications. Most vaccines are given by an injection, but some are given orally (by mouth) or sprayed into the nose.

WHO issued an Emergency Use Listing (EULs) for the Pfizer COVID-19 vaccine (BNT162b2) on 31 December 2020. On 15 February 2021, WHO issued EULs for two versions of the AstraZeneca/Oxford COVID-19 vaccine, manufactured by the Serum Institute of India and SKBio. On 12 March 2021, WHO issued an EUL for the COVID-19 vaccine Ad26.COV2.S, developed by Janssen (Johnson & Johnson). WHO is on track to EUL other vaccine products through June. The products and progress in regulatory review by WHO is provided by WHO and updated regularly (Table 2).

Once vaccines are demonstrated to be safe and efficacious, they must be authorized by national regulators, manufactured to exacting standards, and distributed. WHO is working with partners around the world to help coordinate key steps in this process, including to facilitate equitable access to safe and effective COVID-19 vaccines for the billions of people who will need them.

Similar to many countries within and beyond the MENA region, Morocco, Tunisia, and Jordan only benefited from their strong responses during the initial stage of the outbreak. As the outbreak and associated measures exacerbated their already fragile economies, all three countries eventually came under pressure to strike a balance between easing restrictions to save the economy and limiting the loss of life. As they struggled with mitigating the health and economic dimensions, the medical situation devolved into a worrying and uncontrolled outbreak, stretching the public health sector beyond capacity.

The numbers of infections and deaths spiked between September and January in the three cases, though Morocco has controlled these numbers since January, followed by Tunisia since February (see figure). Infections in Jordan, however, have peaked in March 2021: It reported 9,535 new cases on March 17, compared to 766 in Tunisia and 466 in Morocco (Figure 3).

Today, Morocco, Tunisia, and Jordan hope to contain the outbreak by vaccinating a majority of their populations; they aim to do this in or by the spring of 2021. However, they will face major obstacles, primarily because of vaccine insecurity and uncertainty at a global level, as the difficulty has now shifted from developing successful and safe vaccines to producing and buying them.

In a boost for equitable distribution in Africa, 800,000 doses of the AstraZeneca shots touched down in Khartoum, making Sudan the first country in the Middle East and North Africa region to receive the vaccine, according to a press release from the UN Children's Fund (UNICEF). Djibouti second country in the Middle East and North Africa region to receive COVID-19 vaccines through the COVAX facility. Djibouti is the second country in the Middle East and North Africa (MENA) region, to receive vaccines against COVID-19 following the arrival of a first shipment of AstraZeneca/Serum Institute of India (SII) vaccine at Djibouti International Airport. The vaccines were delivered with UNICEF's support through COVAX, a coalition co-led by the World Health Organization (WHO), Gavi, the Vaccine Alliance, and the Coalition for Epidemic Preparedness Innovations (CEPI) that ensures fair and equitable distribution of COVID-19 vaccines to countries regardless of their income.

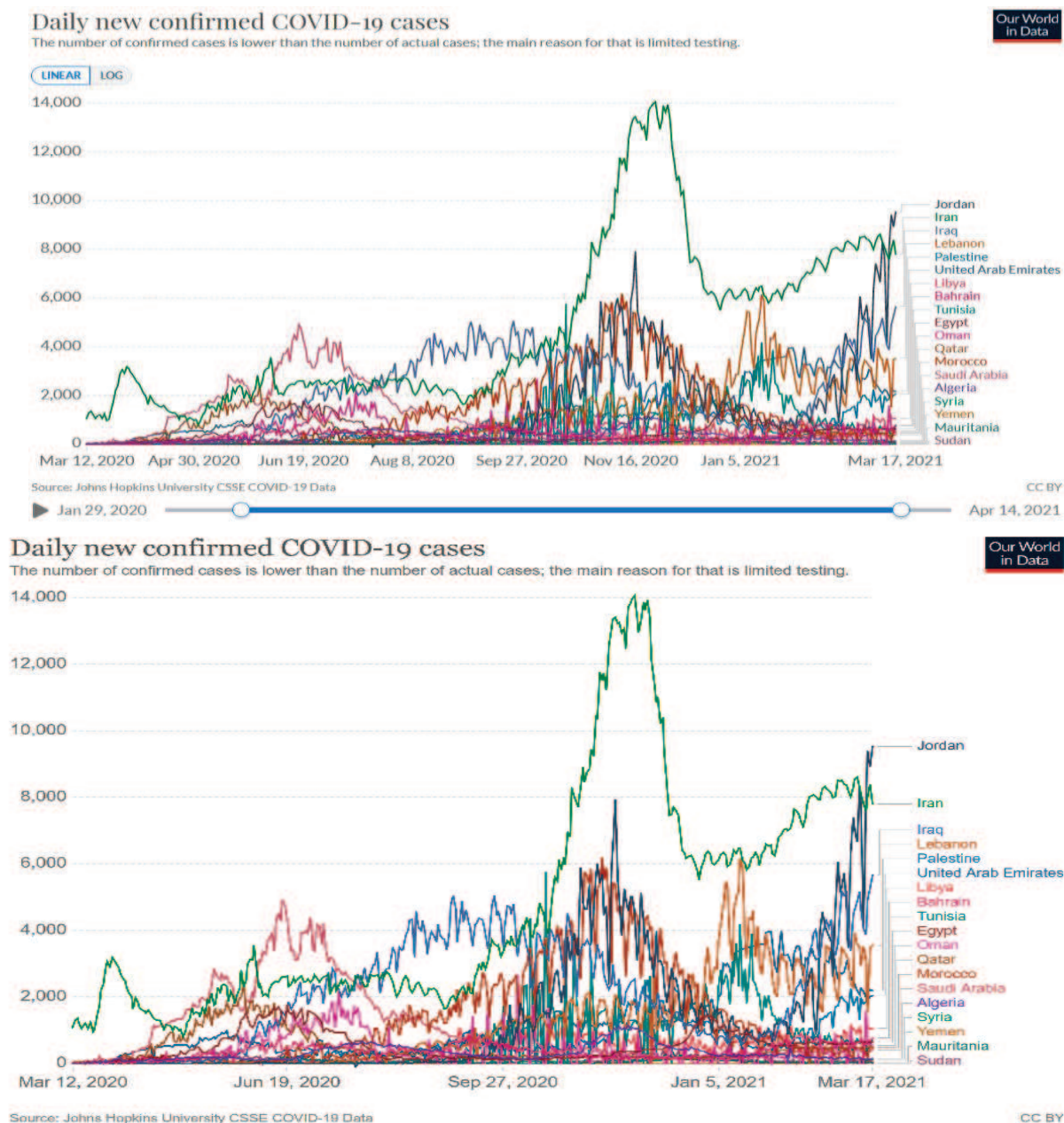


Figure 3. Daily new confirmed COVID-19 cases. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.

This first shipment of vaccines will support the vaccination of health care workers, people over 50 years of age and people with comorbidities.

Through this contribution and Djibouti's commitment to continue its efforts to curb and end the pandemic, the country aims to ensure the continuity of facilities and access to essential services. The delivery follows the arrival of a quantity of syringes, part of a Gavi-funded and supported global stockpile, that UNICEF delivered on behalf of the COVAX Facility last Saturday 27th February 2021. WHO has worked with national authorities to put a vaccination strategy in place that includes training vaccinators, ensuring vaccine safety, and surveillance for adverse effects.

The COVID-19 vaccines currently being administered, or considered, in the MENA region Vaccines by six developers – Sinopharm, Sinovac, Pfizer-BioNTech, Moderna, Oxford-AstraZeneca, and Sputnik V (Gamaleya Research Institute) – are the ones doing the rounds in the region.

A number of COVID-19 vaccines have been approved for general or emergency use in the Middle East and North Africa (MENA). Now, using data collated by the Vaccine Centre at the London School of Hygiene &

Tropical Medicine, along with various regional government media statements, we bring you a roundup of the actual COVID-19 vaccines currently circulating in the MENA. The most common ones at the moment, in no particular order, are by Sinopharm, Sinovac, Pfizer-BioNTech, Moderna, Oxford-AstraZeneca, and Sputnik V (Gamaleya Research Institute).

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