

2023 Report of the Arab Forum for Environment and Development

# ARAB ENVIRONMENT.14

# PANDEMIC AND WAR

## IMPACT OF PANDEMIC AND WAR ON ARAB ENVIRONMENT

EDITED BY: **NAJIB SAAB**



المنتدى العربي للبيئة والتنمية  
ARAB FORUM FOR  
ENVIRONMENT AND DEVELOPMENT



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14<sup>th</sup> Annual Report of the Arab Forum for Environment and Development (AFED)

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Impact of Pandemic and War on Arab Environment

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# Preface

## IMPACT OF PANDEMIC AND WAR ON ARAB ENVIRONMENT

This latest report by the Arab Forum for Environment and Development (AFED) focuses on the impact of wars and pandemics on the environment in Arab countries. It is the fourteenth in the Arab Environment series initiated by AFED in 2008. Needless to say, the world has been faced with immense crises the last few years, starting with the COVID-19 pandemic and continuing with the ongoing war in Ukraine. The crises led to immense disruptions in supply chains, energy and food shortages and price hikes – all of which have also hampered environmental initiatives and investments. The Arab region has not been spared from the effects of these crises, with many countries simultaneously dealing with internal strife and historic economic meltdowns. What has the impact of these global emergencies been on environment-related challenges in Arab countries? And what lessons can be learned to ensure more environmental preparedness when facing future crises? Impact of Pandemic and War on Arab Environment digs deep into these questions.

The report concentrates on the enormous environmental consequences of the recent crises on the SDGs, energy transformation, food security, water and financing, including financing for climate action. Over the years AFED has investigated each of these topics in reports including Health and the Environment in Arab Countries (2020), Financing Sustainable Development in Arab Countries (2018), Food Security (2014), Sustainable Energy (2013), Green Economy (2011), and Water (2010). The reports discussed how the region was in certain aspects lagging in terms of progress towards sustainable transformation, but also highlighted important achievements made despite many countries being faced with the hardship of war and conflict. Now that the region has been hit by global calamities, exposing countries to unprecedented challenges, AFED found it imperative to evaluate how Arab countries have been affected and to propose evidence-based recommendations for the future. The crises have exposed inherent weaknesses in Arab countries as a group, and at varying levels between individual countries, and led to enormous environmental consequences that should be a wakeup call to trigger serious action, mainly in food security, energy transition and climate action.

Preexisting challenges led to Arab countries being in an extra precarious position when confronted with the regional consequences of the COVID-19 pandemic and the war in Ukraine. The region was for example already suffering from food insecurity due to population growth, climate-change induced droughts and civil strife. This was exacerbated by the region's lack of food self-sufficiency and high dependency on imports. Arab countries also have historically large water deficits, with water demand rates that exceed water resource development rates. Water is even used as a weapon in places including Palestine, both perpetuating conflict and leading to a lack of direct access to safe water. In countries such as Syria, war

previously wiped out years of progress that was made towards eliminating poverty. And on a regional level, spending on social protection, health and SDGs in general has been among the lowest in the world, making Arab populations less prepared to face environmental challenges and meet agreed upon goals. However, higher income, combined with stability and better governance, allowed some individual Arab countries to make considerable advancement towards achieving the SDGs targets, as well as expediting energy transition.

The situation sketched out above underlines the precarious situation the region, as a group, was already experiencing in terms of environmental preparedness well before the global pandemic and war in Ukraine made world headlines, and whose effects transcended borders worldwide. The regional effects of these latest crises on already fragile countries must be addressed in order to demonstrate the urgency of addressing environmental development in Arab countries. The COVID-19 pandemic and war in Ukraine led to an increase in poverty and hunger, an unfortunate outcome of conflict not new to the region. Both crises caused a food crisis in a region that was already dealing with food insecurity – dependence on food imports for vital products including cereals and vegetable oils made countries highly vulnerable to such emergencies that affected global trade. In some cases, the rush to produce more food locally put more pressure on inefficient and underdeveloped irrigation systems. The pandemic was also a stark reminder of the importance of fresh water and sanitation services, but for some water-scarce Arab countries, these necessities were difficult to attain.

The war in Ukraine severely disrupted the global oil and gas market, leading to soaring prices. To several Arab oil-exporting countries this was in fact beneficial as their revenues increased. While it may be tempting to see the increased revenues as a welcome positive outcome of these crises, unconditional growing dependence on fossil fuels in this day and age cannot be glamorized. This report recommends making use of the extra revenue, at the local and regional levels, to expedite a regional energy transition, through aggressive initiatives, boosting efficiency alongside clean and renewable energy sources, and to contribute to the progress of other SDGs such as the elimination of hunger and poverty. This recommendation should not be taken lightly considering that recent crises have further derailed the region as a whole from investments towards the green economy. The Arab region already had a large SDG financing gap, which was estimated at over USD 230 billion annually, and which has only worsened due to wars and the COVID-19 pandemic.

Apart from presenting a rather bleak account of the devastating impact of war and pandemics on the Arab environment, this report provides sound recommendations to move the region forward greener, and more environmentally prepared for future crises. To reiterate a point already made, the region should invest more in clean and renewable energy including green hydrogen. While technological advancement surrounding renewables is progressing rapidly, the Arab region must clear operational limitations to be able to put these technologies to use. Another investment that is necessary is in agricultural research and development, in order to attain greater food security, more self-sufficiency, and to increase access to clean water and sanitation services. On all fronts, from energy to food to water, there should be more regional cooperation to sustain economic, social and environmental health, especially in times of uncertainty.

The multiple effects of the war in Ukraine and the corona pandemic exposed inherent weaknesses in most Arab countries, particularly relating to the ability

to respond to health, food and energy shocks. The environmental consequences are enormous, particularly in a region often affected by war and conflict and vulnerable to the effects of climate change. The most recent crises should serve as a wakeup call highlighting the urgent need to be ready for emergencies, as their already extensive consequences are just a small fraction of the expected impacts of unchecked climate change. Regional cooperation, which allows growing together, is not only necessary for more efficient achievement of development and climate goals, but also indispensable for the stability and security of Arab states.

It is hoped this report will help trigger serious expedited action and policy change, mainly in food security, energy transition and financing, so that inevitable future crises can be faced by Arab countries collectively with a stronger backbone.

Beirut, June 2023

**Najib Saab**  
*Secretary General*  
*Arab Forum for Environment and Development (AFED)*



## INTRODUCTION

# IMPACT OF PANDEMIC AND WAR ON ARAB ENVIRONMENT

14<sup>th</sup> Annual Report of the Arab Forum for Environment and Development (AFED)

## OVERVIEW

Over the past few years the emergence and aftermath of the COVID-19 pandemic, as well as the ongoing crisis in Ukraine, have affected countries worldwide on practically all levels, including the environment. Arab countries, in addition to dealing with the impact of past and ongoing regional conflicts, have not been able to dodge the consequences of these global crises on the environment and the realization of the Sustainable Development Goals (SDGs), particularly in relation to food security and climate change. It is, in fact, likely that the world and the Arab region will have to withstand the effects of even more pandemics and wars with global magnitude in the future.

For this reason, the Arab Forum for Environment and Development (AFED) has dedicated its fourteenth annual report on Arab Environment to the impact of pandemics and wars on the environment in Arab countries. This report focuses on the takeaways of the recent crises in terms of impact on the SDGs, energy transformation, food security, water and financing. It reveals that the emerging global calamities exposed countries in the region to unprecedented challenges, to which most were unprepared to adequately confront, and proposes alternative paths to boost resilience.

## I. SUSTAINABLE DEVELOPMENT GOALS

Well before the outbreak of the COVID-19 pandemic and the Ukraine crisis, global as well as Arab progress on the Sustainable Development Goals (SDGs) was already lagging. The SDGs, which cover the economic, social and environmental dimensions of sustainable development, were formulated in 2015 to be achieved by 2030. The pandemic and ongoing war in Ukraine have had devastating consequences globally, rendering the achievement of the goals an even greater challenge than before. The crises targeted the world's poorest and most vulnerable, led to an increase in extreme poverty and chronic hunger and fuelled a global food and energy crisis. The convergence of these conflicts have caused an unprecedented challenge towards progress on the SDGs, particularly in Arab countries that already were dealing with challenges including limited arable land, water scarcity, and ongoing war and conflict in various parts of the region. Some other countries had already made good progress towards the implementation of the SDGs, not only due to better financial capability, but also more targeted allotment of resources and enhanced governance.

Most Arab countries have seen crucial progress reversed years prior to the crises currently playing out. Syria is an example of this, where a decade of progress on

eliminating poverty between 1997 and 2007 was wiped out as a result of conflict and war. The continued Israeli occupation of Palestine is also taking its toll on the pursuit of the implementation of the SDGs. With many more ongoing and past conflicts in various Arab countries, it is clear that any development must be seen from the lens of these regional realities. Given this situation, the impact of global and external shocks on the implementation of the SDGs in the Arab region must not be underestimated. Crises such as the pandemic and Ukraine war should rather be considered a compounding difficulty in addition to the existing regional struggles.

The COVID-19 has had a profound impact on Arab countries, at different levels. At the height of the pandemic millions of people were at higher risk of contracting the virus due to a lack of basic handwashing facilities, people lost their jobs and vulnerable people dependent on humanitarian aid could depend less on provided food, shelter and sanitation. The pandemic also further aggravated the state of Arab economies, with a sharp drop in GDP per capita in most countries and huge hits on the tourism sector. All these factors have led to rising poverty in most countries of the Arab region. In some Arab countries such as Lebanon, the pandemic went hand in hand with an unprecedented financial crisis, leading to a rise in unemployment, spiraling inflation and a sharp collapse of basic services.

On top of existing regional struggles and the COVID-19 pandemic, the war in Ukraine has had grave consequences on Arab countries. Many Arab countries rely heavily on food supplies – wheat and other cereals – from Russia and Ukraine. Lebanon and Egypt were major importers and were thus vulnerable for food shortages as a result of the war in Ukraine. On the other hand, the energy crisis that erupted was beneficial to several Arab oil-exporting countries. Higher oil and gas prices provided them with more revenues to mitigate the impact of the decreased food imports. These countries would do well by using this unexpected extra income to enhance food security in the region and contribute to progress of other SDGs such as the elimination of hunger and poverty, as well as boosting investments in clean and renewable energy, which some did.

## **II. ENERGY TRANSFORMATION**

Globally we are behind on steps taken towards the implementation of the Paris Agreement – the international treaty on climate change that was adopted at COP21 in Paris in 2015. Part of the Agreement is a goal to significantly reduce greenhouse gas emissions. For this, energy transformation through cleaner and renewable sources is essential. The COVID-19 pandemic and the crisis in Ukraine have highlighted more than ever the fragility of the current energy dependency on fossil fuels, and the importance of energy security. The Arab region should take these crises as sources of knowledge and inspiration for change, as it has the potential to become a stabilizing element in the energy market. By strengthening connectivity to neighboring regions, investing in all forms and applications of cleaner and renewable energy, including green hydrogen, renewable energy-based water desalination and electric vehicles, the Arab region and the rest of the world can ensure being less impacted by future crises. Saudi Arabia took a unique step by announcing plans to start manufacturing electric cars locally, with a target of 500,000 units by 2030. The UAE had also boosted investments in various energy transition initiatives, towards implementing Paris climate targets.

Over the past decade, Arab countries have made quite some strides towards renewable energy production. Despite many disadvantages, the region also has some important advantages over other parts of the world. Arab countries receive between 22 and 26 percent of all solar radiation to the Earth, and many countries are also very well positioned for wind energy. With promising prospects in terms of energy storage, a number of Arab countries, including Saudi Arabia, Egypt Morocco, the UAE and Oman, are also actively pursuing green hydrogen projects.

The recent crises have led to fossil fuel producing countries in the Arab region to receive higher revenues. It might thus be tempting to stay in this comfort zone, but the many declared and implemented initiatives surrounding renewable energy suggest that the sustainable energy transformation will persist. The higher fossil fuel revenues can in fact be used to fuel renewable energy initiatives. The fact that countries within the region are increasingly seeing the benefit of working together to create interconnected renewable energy grids makes this transition even more promising. There are even plans in place between Arab and neighboring countries – Morocco-UK and Egypt-Greece – for projected export of renewables to Europe. And exporting liquefied hydrogen has become essential part of the future plans of many oil-producing countries.

Technological advancement surrounding renewables is progressing quickly, but in order to utilize the developments effectively, the Arab region must make a move towards clearing operational limitations. Electricity markets should allow the private sector to act not only as a generator, but also act as the off-taker. Although green hydrogen is still in its early stages for commercial production and distribution, it has the potential to bring a huge opportunity to Arab countries to remain a leading reliable source of energy to the world.

### **III. FOOD SECURITY**

The Arab region still has a long way to go to achieve Zero Hunger by 2030, as SDG 2 stipulates. This is due to various factors, including fast population growth, limited water resources, land degradation and climate change-induced droughts and rising temperatures. The region is therefore prone to food insecurity, unless concerted efforts are put to enhance food security through better practices and the adoption of science and advanced technology. Moreover, wars and civil strife in several Arab countries have made the region the most food deficit region in the world. And to add onto regional issues, food security has also been threatened as a result of external crises including COVID-19 pandemic and war in Ukraine. It should be emphasized that food insecurity is not only a consequence of conflict, but can also instigate conflict, triggering upheavals, revolutions and economic crises.

A key issue in the region is that Arab countries are very far from being self-sufficient in major food commodities, at least in the near future. While self-sufficiency rates in the region for fish and dairy products are well over 80 percent, this is not at all the case for cereals, vegetable oils and sugar, where imports surpass 90 percent in most cases. The region is thus highly dependent on food imports for these vital products. This makes Arab countries vulnerable to emergencies that affect global trade and the food market in a way that we have seen happen after the COVID-19 pandemic and the war in Ukraine. Stark impact on food prices was observed in countries which witnessed sharp currency depreciation, such as

Lebanon, Syria, Yemen and Egypt, which saw the cost of a basic food basket – the minimum food needs per family per month – registering an annual increase of 100 percent to over 400 percent.

Although almost all Arab countries have put agriculture and food security high on their national agenda after the 2008 food crisis, most have invested less than 1 percent of their domestic agricultural production in agricultural research and development. Countries must go further than simply acknowledging there is a problem after experiencing the impacts of a crisis, and work together to ensure greater resilience when future crises, which are inevitable as we have seen in the last few years, impact the global food chain.

A long history of internal and external crises affecting Arab countries has shown how susceptible food security is to such blows. The recent crises have impacted food availability and production due to supply chain disruptions; access to food due to loss of jobs and income and higher food prices; and stability due to export restrictions and price volatility. Arab countries need to be better prepared for such setbacks, especially considering the reality of the region's volatility, combined with globalization which means external crises have grave spillover effects. Arab countries differ in their economic capabilities, agricultural resources and their potential for sustainable agriculture. However, they should invest more in domestic production of food crops, fully exploiting the potential for sustainable agricultural development of each country, together with strengthening regional coordination and cooperation. Another key recommendation is more investment in agricultural research and development, as merely acknowledging the problem of food insecurity in the region is not enough.

#### **IV. WATER**

Most Arab countries are experiencing large water deficits, which they compensate for by mining groundwater resources, relying on expensive desalination plants and expanding the reuse of treated wastewater. Enhancing efficiency to produce 'more crop per drop' is not a priority in many instances. Population growth and current agricultural policies constitute the core challenges to the development of water resources in the region, where water demand rates exceed the anticipated water resource development rates. Unsustainable patterns of consumption and production over the past decades, combined with the consequences of climate change, have contributed to even greater water scarcity, increased energy consumption and associated greenhouse gas emissions; thus exacerbating land degradation and desertification and escalating water, food and energy import bills. The COVID-19 pandemic was a wake-up call concerning the importance of access to clean water, sanitation and hygiene for all to protect health and welfare. But for the water-scarce Arab countries, these necessities were difficult to attain.

No country was spared by the COVID-19 pandemic, and in the Arab region this meant that millions of people could not uphold the basic hygiene recommendations. Many households did not have a continuous water supply, or even access to a handwashing facility, a sink and soap. Moreover, an estimated 26 million refugees and internally displaced persons were at greater risk of contracting COVID-19 because of a lack of water, sanitation and hygiene services in overcrowded camps and informal housing. Apart from the pandemic, the Ukrainian crisis affected the Arab region's water supply and access. Soaring energy prices had an impact on

generating electricity used for water desalination, recycling wastewater, delivering and pumping water and irrigation.

Both the war in Ukraine and the pandemic have thus disrupted the region's water systems. While the pandemic was a stark reminder of the importance of fresh water and sanitation services, many Arab countries had already been experiencing the impact of regional conflicts on their water resources on a daily basis. Palestinians for example, have an extreme lack of access to their own water resources, as in the Gaza Strip, where just 1 in 10 households has direct access to safe water, and the population faces the dual challenge of having limited water resources and poor water quality. Water, as in this case, is not only a victim of conflict but also a weapon used to instigate or perpetuate it. This can also be seen in the conflict around the water-abundant Golan Heights, occupied by Israel, where Syria is denied access to its own water resources.

Goal 6 of the Sustainable Development Goals stipulates that access to water and sanitation services should be ensured for all. Arab countries must prioritize efforts to make this possible by upscaling water-related infrastructure, including basic water, sanitation and hygiene services. Irrigation methods have to be upgraded and made more efficient and suitable water-saving crops selected. The recent pandemic and war have been a tragic reminder that we had not been ready to face such calamities, and much more has to be done to upgrade water preparedness in the Arab countries, starting from enhancing efficiency and regional cooperation.

## **V. GREEN FINANCING**

In order to attain tangible and necessary environmental development in the Arab region, financing and green investments need to be prioritized. The concept of a green economy evolved rapidly since the Earth Summit in 1992, to what we currently define as an economy that is low carbon, resource efficient, and socially inclusive. It aims at reducing environmental risks and improving human well-being. Unfortunately, on top of a list of existing complicating factors in the region, recent wars and the COVID-19 pandemic have negatively affected progress towards a green economy, particularly because of insufficient targeted financing and a lack of sound environmental policies. Even before the latest crises, Arab states' spending on social protection and health was among the lowest in the world, making Arab populations less resilient to climate- and other environmental challenges.

The global economy is currently dealing with high levels of inflation, increased food and oil prices, and decelerated economic growth and volumes of trade, posing challenges particularly for developing countries, including in the Arab region. Recent crises have contributed to high inflation rates, worsening supply chain volatility and interruptions, and rising rates of unemployment. On an aggregate level, the crises have derailed the region as a whole from progress on the SDGs and in carrying out planned investments in green economy. It must be reiterated, though, that the Arab region already had a large SDG financing gap, which has only worsened due to wars and the COVID-19 pandemic. It is therefore all the more important for countries to start committing to measures that will bring the region closer to a green economy in order to face future crises with a stronger backbone.

With an estimated financing gap of about USD 230 billion annually for financing the SDGs in Arab countries, it is imperative that the region not only undertakes massive efforts to mobilize the needed resources, but that these are mobilized as green investments that are critically important for achieving sustainable development. These green investments should not be set as isolated initiatives, but should be part of a comprehensive and integrated national plan. A prerequisite for this is good governance and a participatory approach that ensures that adopted policies and plans reflect the priorities of local communities, and the involvement of different stakeholders. Key to good governance is also adopting transparent and accountable systems with no leeway for corruption. This is important because investing in the environment and greening the economy will simply not be possible in political and economic systems where corruption prevails, as is currently the case in many Arab countries.

Environmental degradation, including climate change, combined with economic challenges and reduced financial flows from bilateral and multilateral institutions and donor countries and institutions calls for an aggressive international response. But there is much work to be done on the national level as well. Arab countries must restructure energy pricing and subsidies to drive private investment in clean energy and more sustainable consumption. In addition, Arab countries must focus on technology transfer, especially to the least developed countries, and strengthen the position of the region in accessing and adapting new technologies and funding opportunities. In this sense it is vital for Arab countries to cooperate more to sustain their economic, social and environmental health, especially in times of uncertainty.

## CONCLUSION

Apart from presenting a rather bleak account of the devastating impact of pandemics and wars, this report provides recommendations on how to move the Arab region forward greener, and more environmentally prepared for future crises. Energy transition should be expedited, making sure that benefits are shared. Another investment that is necessary is in agricultural and water research and development, in order to attain greater food security, more self-sufficiency, and to increase access to clean water and sanitation services. On all fronts, from energy to food to water, there should be more regional cooperation to sustain economic, social and environmental health, especially in times of uncertainty. The recent crises should serve as a wakeup call for the urgent need to be ready for emergencies, as their present extensive consequences are just a small fraction of the expected impacts of unchecked climate change.





# THE STATE OF PROGRESS TOWARDS THE SUSTAINABLE DEVELOPMENT GOALS

ABDULKARIM SADIK



UN Photo/Cia Pak



## I. INTRODUCTION

The United Nations General Assembly (UNGA) adopted in September 2015 the 2030 development Agenda, including 17 Sustainable Development Goals (SDGs), and 169 targets to be achieved by 2030. The SDGs – which cover the economic, social and environmental dimensions of sustainable development – are universal, comprehensive, and interconnected, with the aim to free people in developing and developed countries from poverty and hunger and provide them with prosperity, peace and a decent life, in addition to a strong commitment by the United Nations (UN) member states, “to leave no one behind”.

Global progress on the SDGs, including in the Arab region, was off track even before the serious challenges brought about by two recent crises: the outbreak of the COVID-19 pandemic in early 2020, and the war in Ukraine which started in February, 2022. These two crises have had and continue to have devastating human and economic impacts worldwide, including in Arab countries which have committed to the implementation of the SDGs against a backdrop of long-standing challenges and growing crises, underlined by wars, conflicts and uprisings, population growth, rapid urbanization, and rising unemployment. More so, climate change has exacerbated the risks facing sustainable development and derailed progress on the SDGs, with increasing temperatures, recurring drought, desertification, land degradation, loss of biodiversity, and the decline of scarce natural water resources. This is all reason for serious concern about the region's food security and political stability, the elimination of hunger and poverty, and the overall well-being and livelihoods of the population.

With progress on the SDGs off track even before the COVID-19 pandemic and war in Ukraine, Arab countries gravely need to remove all barriers to the implementation of the 2030 Development Agenda through integrated strategies and policies that can address transformation change – whether economic, social, political, or environmental – to reverse the declining trend of progress on the SDGs and to build momentum for successful implementation of the SDGs beyond 2030.

## II. GLOBAL PROGRESS ON THE SDGS

The 2030 Development Agenda delegates responsibility for national governments to implement the SDGs. In this respect, governments prepare voluntary national reviews (VNRs) to be reviewed by the High-Level Political Forum (HLPF) who meets annually to discuss such reviews and consider their results. The lessons learned from these reviews could be helpful in accelerating and assessing progress towards the SDGs.

The annual reports prepared by the UN Department of Economic and Social Affairs (DESA) provide an overview of the world's implementation status of and progress on the SDGs, highlighting shortcomings to be addressed, and identifying gaps to be closed.

With six years into the implementation of the 2030 Development Agenda, the UN finds that the world remains off track in realizing progress towards achieving the SDGs by 2030, even before the outbreak of the COVID-19 pandemic and its devastating consequences. “Years, or even decades of progress have been halted or reversed in 2020, the global extreme poverty rate rose for the first time in over 20 years. Hundreds of millions of people were pushed back into extreme poverty and chronic hunger” (UN, 2021).

## III. GLOBAL IMPACT OF COVID-19 AND WAR IN UKRAINE

The COVID-19 pandemic had devastating impacts on various regions and countries of the world, with varied degrees in terms of losses of lives and slowing down of economic activities. While the pandemic appeared to have receded during 2022, a strong comeback emerged in some countries at the end of the year and beginning 2023, especially in China. This was an evidence that the threat of coronavirus and the repercussions of war in Ukraine are not yet over, and the full impact will only be revealed in coming years.

Progress on SDGs was already off track before the outbreak of the COVID-19 pandemic in early 2020. In only a short period of time the pandemic resulted in an unprecedented crisis



that devastated the world's poorest and most vulnerable, and left them further behind (UN, 2020). In addition, the war in Ukraine is fuelling a global food and energy crisis that is exacerbating the effects of the COVID-19 crisis. "The confluence of crises, dominated by COVID-19, climate change, and conflicts, are creating spin-off impacts on food and nutrition, health, education, the environment, and peace and security, and affecting all the Sustainable Development Goals (SDGs)" (UN, 2022).

Poverty eradication has been an overriding theme of sustainable development in past UN conferences and meetings, and it is a central goal in the 2030 Development Agenda, which recognizes that "Eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development" (UN, 2015).

In a press release dated October 7, 2020, the World Bank pointed out that COVID-19 is expected to push up global extreme poverty by an additional 88 million to 115 million people in 2020, with the total rising to 150 million people by 2021, depending on the severity of economic contraction in the world (World Bank, 2020b).

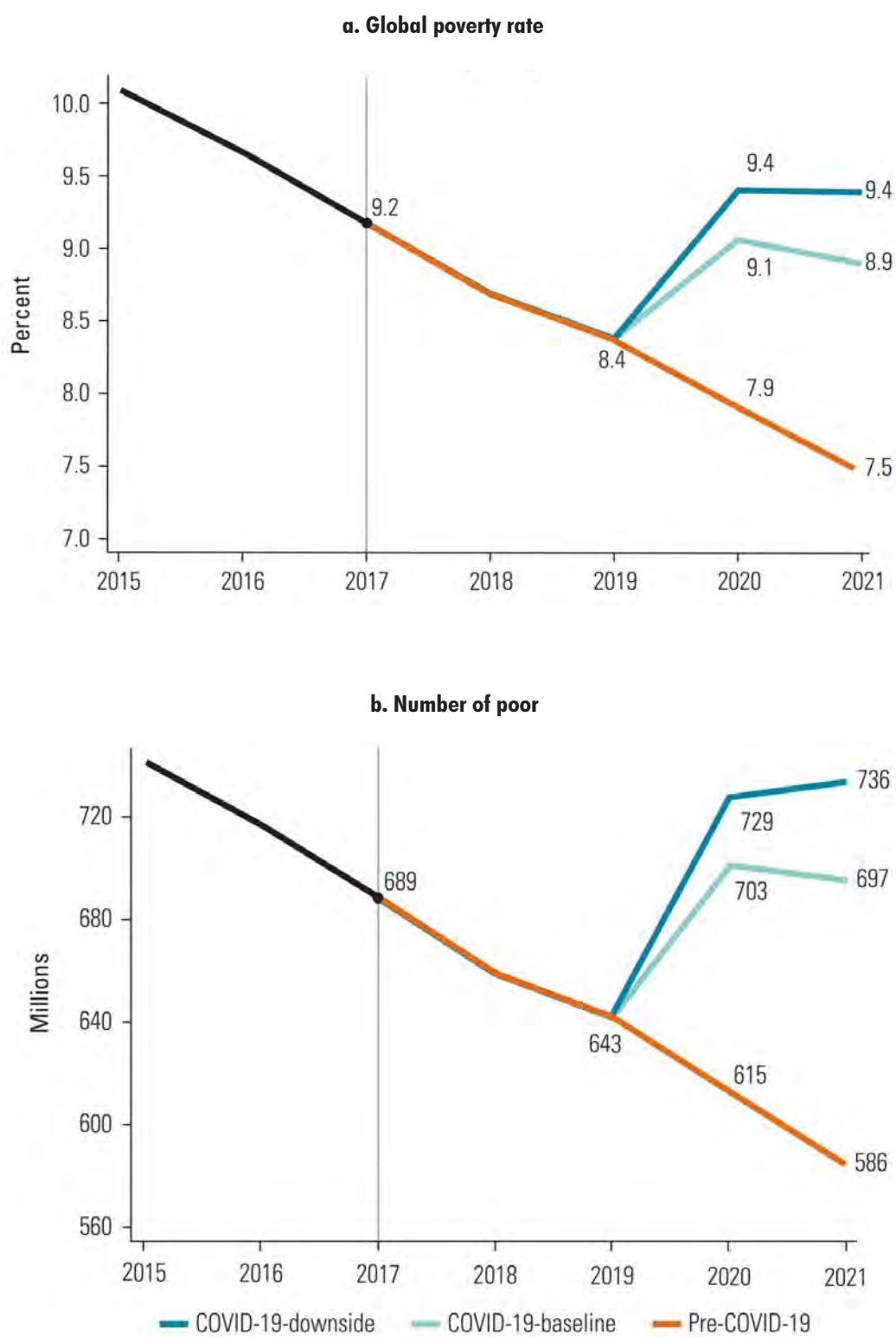
Figure 1 shows the development of global poverty rate and number of poor over the

period 2015 to 2021. It is apparent from Figure 1(a) that while the global poverty rate was declining before the outbreak of COVID-19 and stood at 8.4 percent in 2019, both rates measured by COVID-19-downside and COVID-19-baseline have risen to 9.4 percent and 9.1 percent respectively in 2020, whereas the expected pre-COVID-19 rate was estimated at 7.9 percent in 2020 and 7.5 percent in 2021. Figure 1(b) shows the number of poor as estimated by the COVID-19-downside and COVID-19-baseline has risen from 643 million in 2019 to 703 million and 729 million in 2020, respectively, and would increase to 736 million under the COVID-19-downside in 2021; whereas, the number of poor was expected to reach 586 million in 2021 under the Pre-COVID-19 scenario.

According to a UN report, the COVID-19 pandemic led to erasing more than four years of progress against poverty. It is converging with conflict and climate change to undermine food security, leaving about 1 in 10 people worldwide suffering from hunger, with food shortages triggered by the Ukraine crisis for the world's poorest people. Russia and Ukraine are major exporters of foodstuffs, with a share of 30 percent of wheat, 20 percent of maize, and 80 percent of sunflower of global exports. Furthermore, global economic recovery is hampered by new waves of COVID-19, rising

FIGURE 1

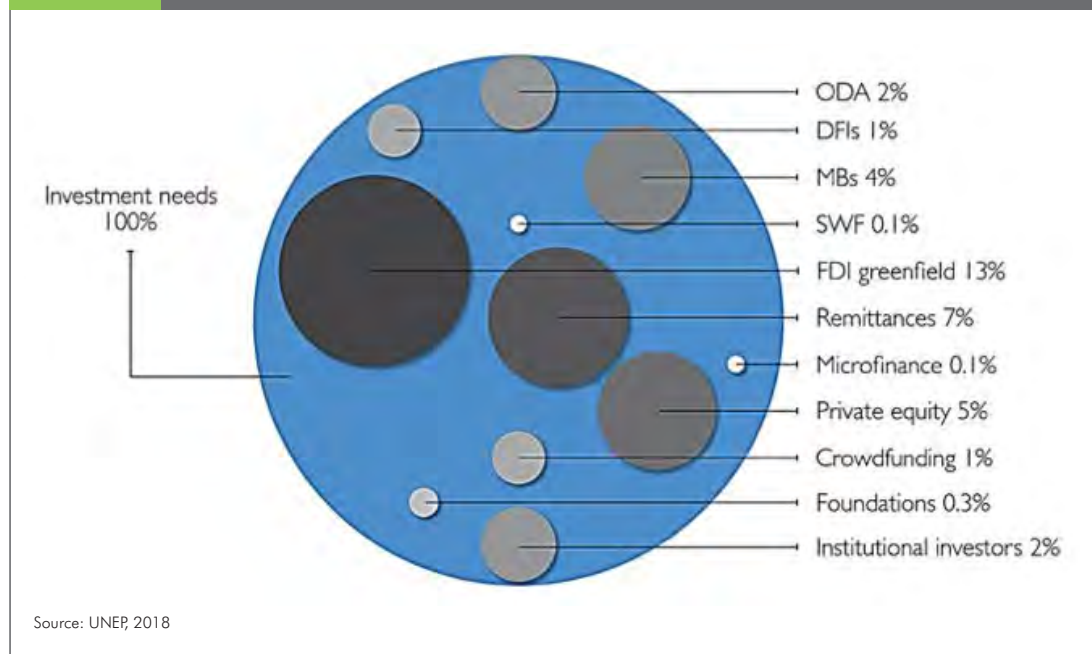
**NOWCASTS OF THE GLOBAL POVERTY RATE AND NUMBER OF POOR AT THE USD 1.90-A-DAY POVERTY LINE, 2015-21**



Source: various, cited in World Bank, 2020a

FIGURE 2

## SDG ESTIMATED ANNUAL FINANCIAL FLOWS RELATIVE TO SDG INVESTMENT NEEDS



inflation, supply chain disruptions, policy uncertainties and labour market challenges (UN, 2022).

The magnitude and enormity of the challenges facing the progress on the SDGs demand addressing the root causes that pushed the SDGs off track before COVID-19, and the steps needed to deal effectively with the consequences of COVID-19 and the war in Ukraine. Among other factors that contributed to the failure of keeping the SDGs on track before COVID-19 has been the shortage of funds for financing the SDGs, as well as the targets of the Paris Agreement on climate change.

#### IV. FINANCING THE SDGS AND THE IMPLEMENTATION OF THE PARIS AGREEMENT

Implementation of the SDGs requires huge funds, with a financing gap that had been unresolved since before the outbreak of COVID-19.

Figure 2 reveals a large gap between an estimated cost of the SDG investment needs in emerging markets and developing countries (EMDEs), and the annual contribution to the SDGs from public and private sources.

Implementing the Paris Agreement for climate change is indispensable for achieving the SDGs. SDG 13 (take urgent action to combat climate change and its impacts) is intrinsically linked to all other SDGs. Lack of adequate financing for the SDGs and the Paris Agreement over the past years has been a critical factor in slowing progress on the SDGs, even before the outbreak of COVID-19, particularly in developing countries.

It is estimated that by the end of 2019, spending on SDG-related sectors amounted to USD 21 trillion, mostly attributed to spending by the developed countries, with the developing world left out with an SDG financing gap of USD 3.3-7 trillion per year. It is estimated that in 2020, the COVID-19 pandemic added an estimated USD 2.5 trillion to the SDGs financing gap (ESCWA, 2021).

On the other hand, according to a report by the United Nations Environment Programme (UNEP), commitments by countries fell short of the goals of the Paris Agreement on climate change, and “the world remains woefully off track in meeting the Paris Agreement. Biodiversity is declining, and terrestrial ecosystems are being degraded at alarming rate” (UNEP, 2021). Assisting developing countries with USD 100 billion annually as per the Paris Agreement is way below what is required. “Annual adaptation costs



in developing countries are estimated at USD 70 billion. This figure is expected to reach USD 140-300 billion in 2030 and USD 280-500 billion in 2050” (UNEP, 2021).

These cost figures may not even be adequate to address climate change impacts manifested in recent years, especially in 2022, by unprecedented extreme heatwaves, droughts, wildfires, and storms in various regions and countries around the world, with alarming record and frequency. “New mitigation pledges for 2030 show some progress toward lowering greenhouse gas emissions but are insufficient” (UNFCCC, 2022).

The current enormous challenges facing progress on the SDGs and the implementation of the Paris Agreement place the Agenda 2030 at a crossroads. It has become sufficiently clear that unless the international community, together with all development institutions, the private sector, and other stakeholders strongly reconfirm their commitment to the SDGs, and particularly to SDG 17 (revitalizing the global partnership for sustainable development) the implementation of the SDGs by 2030, or even beyond that date becomes out of reach, and would leave more millions of people behind.

## V. PROGRESS TOWARDS THE SDGS IN ARAB COUNTRIES

Like the rest of the nations around the world, the Arab countries committed to the implementation of the SDGs, which succeeded the Millennium Development Goals (MDGs) adopted by the UNGA in September 2000.

The Arab countries with varied GDP per capita, ranging between USD 1,454.7 for Comoros and USD 61,276 for Qatar in 2021, launched implementation of the SDGs against a backdrop of numerous challenges. These include limited vital resources for sustainable development, particularly arable land and water, conflicts and wars in the region, and severe negative impact of climate change. Nonetheless, the COVID-19 pandemic and the war in Ukraine accentuated progress on the SDGs in Arab countries and took a heavy toll on their economies and the livelihoods of their people. The impact of these challenges on Arab countries are briefly discussed

hereunder.

### A. Limited Arable Land and Water Resources

Land and water are vital resources for achieving the SDGs, but limited arable land and water scarcity, coupled with environmental degradation characterized by soil erosion, desertification, and water pollution have further compounded the challenges facing the capacity of land and water resources to continue delivering their services.

“Water is a cross-cutting issue that affects the achievement of nearly all the 17 SDGs to varying degrees which are explicitly or implicitly linked to SDG 6 to varying degrees” (ESCWA, 2019). SDG 6 (ensure availability and sustainable management of water and sanitation for all) has strong linkages with SDG 2 (zero hunger), and SDG 7 (modern energy for all) and above all, the linkages of these SDGs with SDG 1 (no poverty), which is at the heart of the 2030 Development Agenda, and is an indispensable requirement for sustainable development.

Achieving global, regional, or national progress on the SDGs calls for recognizing and understanding their inextricable linkages with climate change. UNEP highlights the strong linkages between SDG 7 (access to clean energy) and SDG 13 (resilience to natural hazards and disasters), and points out that taking action on those goals supports success on: SDG 1 on poverty, SDG 2 on food security, SDG 5 on women’s employment, SDG 6 on access to water, SDG 10 on inequality, SDG 15 on land and ecosystems, and SDG 16 on peace and security, among others (UNEP, n.d.).

### B. Progress on The MDGS

Progress made towards the MDGs in Arab countries plays a significant role in shaping progress on the SDGs and provides an indication on the extent of efforts and size of resources required for their implementation.

In a report released by the United Nations (UN) and the League of Arab States (LAS) two years prior to the expiry deadline for the MDGs shows that despite the impressive progress made on some MDGs over the period 1990-2012, the achievements remained below expectations and un-even. According to the report, “the region lags behind on some important targets, particularly

TABLE 1 NUMBER OF PEOPLE UNDERNOURISHED (MILLIONS)

	2000	2010	2014	2015	2019	2020
<b>World</b>	800.3	636.8	606.9	615.1	650.3	768.0
<b>Arab states</b>	36.1	45.8	53.9	58.8	64.2	69.0
<b>Low-income economies</b>	17.6	22.0	28.4	31.2	33.6	35.6
<b>Lower-middle-income economies</b>	9.8	9.4	7.8	8.0	9.2	10.4
<b>Upper-middle-income economies</b>	7.2	11.8	15.3	17.2	18.6	20.0
<b>High-income economies</b>	1.6	2.6	2.3	2.4	2.8	3.0
<b>Arab LDCs</b>	16.7	20.7	22.4	24.9	27.9	29.7
<b>Conflict countries</b>	23.8	32.8	42.9	47.5	50.8	53.4
<b>Non-conflict countries</b>	12.3	13.0	11.0	11.4	13.4	15.5

Source: FAO, 2021

TABLE 2 NUMBER OF MODERATELY OR SEVERELY FOOD INSECURE PEOPLE (MILLIONS)

	2014	2016	2018	2019	2020
<b>World</b>	1645.5	1762.9	1978.7	2049.9	2368.2
<b>Arab states</b>	119.7	124.5	134.5	130.9	141.0
<b>Low-income economies</b>	37.8	38.6	43.9	45.1	48.1
<b>Lower-middle-income economies</b>	50.4	53.4	54.6	50.3	53.8
<b>Upper-middle-income economies</b>	20.3	22.7	25.2	24.5	27.6
<b>High-income economies</b>	11.3	9.7	10.8	10.9	11.3
<b>Arab LDCs</b>	34.5	36.3	41.9	43.3	46.4
<b>Conflict countries</b>	54.4	57.5	64.9	64.6	69.3
<b>Non-conflict countries</b>	65.3	67.0	69.6	66.2	71.7

Source: FAO, 2021

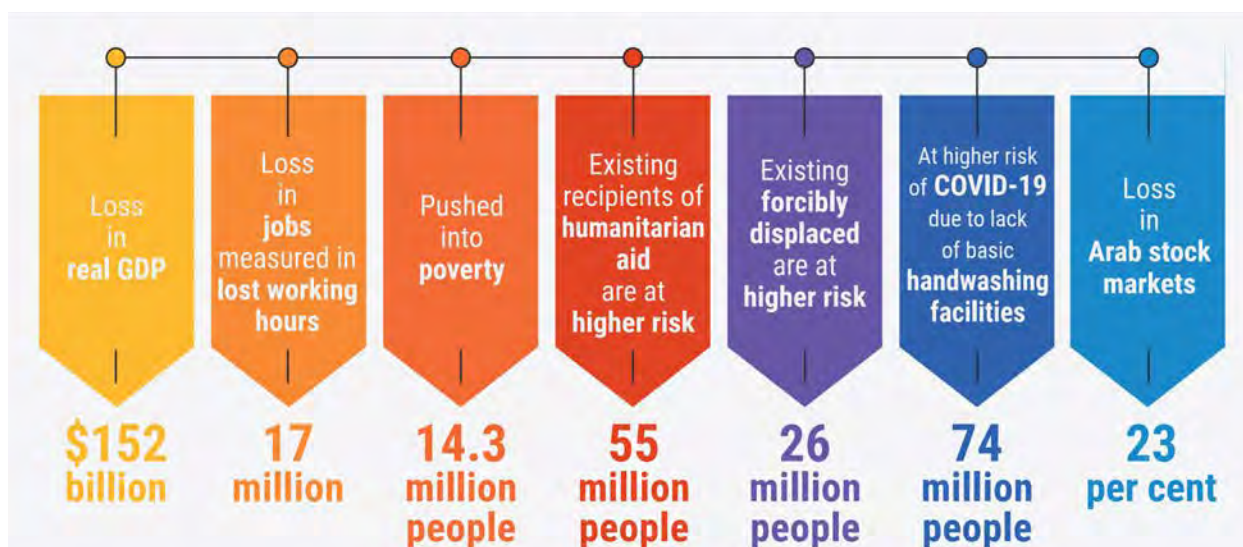
those related to combating hunger, political, social and economic transitions since 2010 have had significant impacts including halting or reversing MDG gains in some countries of the region. Least Developed Countries (LDCs) remain behind on many fronts” (UN and LAS, 2013).

Hunger in the Arab region continued to rise since 2000. The number of people undernourished rose from an estimated 36.1 million in 2000 to 58.8 million in 2015. Conflict countries<sup>1</sup> suffered the most with the undernourished number of people rising from 23.8 million in 2000 to 47.5 million in 2015, equivalent to an increase of over 100 percent over that period, as shown in Table 1.

The rise in undernourishment in the region is closely related to food insecurity, which increased from 119.7 million people in 2014 to an estimated of 124.5 million in 2016, after the 2030 Development Agenda was adopted by the UNGA in 2015. Again, the prevalence of food insecurity in conflict countries was the highest among other Arab regions, with an increase of almost 3 million people from 2014 to 2016, as shown in Table 2.

The trend of hunger and food insecurity before launching the SDGs in 2014, shows that limited progress on the MDGs has staggered the challenges confronting the implementation of the SDGs by 2030. Furthermore, the recent

FIGURE 3 ESTIMATED IMPACT OF THE CORONAVIRUS PANDEMIC IN THE ARAB REGION



Source: ESCWA calculations and estimates (all figures are of July 2020 and are likely to increase as the pandemic evolves), cited in UN, 2020

rising trends of hunger and food insecurity shown in Table 1 and Table 2 “suggest that it will be enormously difficult for the region to achieve by 2030 SDG 2, zero hunger. The region has already been off track to eliminate hunger and food insecurity because of pre-existing vulnerabilities and exposure to multiple shocks and stresses such as poverty, inequality, conflict, climate change and many others” (FAO, 2021).

Nonetheless, Arab countries were making significant strides in reducing poverty, but this trend was reversed because of conflict and war in the region. For example, a decade (1997-2007) of progress on eliminating poverty in Syria was wiped out as a result of the conflict and war. Extreme poverty in the country was estimated at 7.9 percent in 1997 and dropped to 0.3 percent in 2007, but went up again to 7.3 percent in 2012-2013 (UN and LAS, 2013).

Arab countries are pursuing the implementation of the SDGs against a backdrop of inadequate progress on the MDGs, occupation and ongoing conflict in some Arab countries. A study published in 2013 by the League of Arab States (LAS) in cooperation with the United Nations stressed that “Development in the Arab region cannot be addressed separately from regional realities. With the continued Israeli occupation

of Palestine, the region is suffering from the only remaining occupation in modern history. Conflicts and instability in the Arab region continue to take their toll on economic, social, and political life” (UN and LAS, 2013).

### C. Impact of External Shocks

Progress on the SDGs in Arab countries was already off track before the outbreak of the COVID-19 pandemic and the war in Ukraine. These crises have exacerbated the state of progress on the SDGs, with enormous consequences on human lives in the region and its economy, to varying degrees at country level. However, “prior to the COVID-19 pandemic, the Arab States region was already struggling with multiple weaknesses and fragilities, in many cases exacerbated by conflict and political instability. Unsustainable economic practices and economic inequalities limited opportunities for inclusive development” (UNDP, 2022).

#### i. IMPACT OF COVID-19

It is reported that as of July 19, 2020, the COVID-19 cases in the 22 Arab countries reached 819,122 ranging between 250, 920 in Saudi Arabia, and 334 cases in Comoros. Deaths in the region reached 14,956, ranging between 4,302 in Egypt and 7 in Comoros (UN, 2020).

Nevertheless, in addition, according to the Arab Forum for Environment and Development (AFED), the World Health Organization (WHO) estimated that more than 676,000 Arab citizens would lose their lives prematurely in 2020, as a result of exposure to conventional environmental risks, giving rise to diseases in Arab countries, including cardiovascular and diarrheal diseases, respiratory infections and cancers. These disease groups are driven mainly by “ambient and household air pollution, lack of access to clean water, marine pollution, uncontrolled urbanization, land degradation and exposure to waste and harmful chemicals. Unrestrained expansion of residential, industrial and agricultural activities into natural habitats will lead to higher rates of disease transmission, especially viruses, from animals to humans” (AFED, 2020).

These non-communicable diseases (NCDs) “threaten progress towards the 2030 Agenda for Sustainable Development, which includes a target of reducing premature death from NCDs by one-third by 2030. Poverty is closely linked with NCDs. The rapid rise in NCDs is predicted to impede poverty reduction in initiatives in low-income countries, particularly by increasing household costs associated with health care” (WHO, 2022).

In order to tackle the impediments of NCDs, facing progress on the SDGs, Arab countries have to step up their preventive health care, in addition to provision of basic social services such as clean water, sanitation and healthy diets, especially for the poor and low-income people.

The estimated initial impact of the coronavirus pandemic in Arab countries is shown in Figure 3.

In addition to its impact on economic growth, poverty and hunger, the COVID-19 pandemic had severe repercussions on other development related activities. Highlights of the initial estimates of the impact of COVID-19 pandemic on Arab countries as reported by ESCWA (2022) include:

- The Arab region nearly lost around USD 42 billion in income in 2020.
- Continuous decline in oil prices, coupled with the oil price war, has caused the Arab region to lose nearly USD 11 billion in net oil revenues between January and mid-March 2020.

- Exports from the Arab region are expected to decline by USD 28 billion owing to the global slowdown.
- Between January and mid-March 2020, businesses in the Arab region lost massive USD 420 billion in market capital.
- The Arab region may lose 1.7 million jobs in 2020, thus increasing the unemployment rate by 1.2 percentage points.
- The Arab region may witness further shrinking of middle-income class, pushing 8.3 million people into poverty.
- The Arab region may witness food shortages if the corona pandemic continues for several months.
- The corona pandemic threatens 55 million people in need of humanitarian aid in the Arab region.
- Women in the Arab region face further vulnerabilities due to COVID-19 pandemic.

Furthermore, according to the UNDP the COVID-19 pandemic has also impacted important sources of income in some Arab countries, such as tourism and remittances. In this respect, Egypt, Jordan, Morocco, and Tunisia are among those in which the tourist sectors have been devastated by the COVID-19 pandemic (UNDP, 2021)<sup>3</sup>.

Arab countries have been seriously impacted by COVID-19 and other crises which shattered their economies and livelihoods, and pushed more people into extreme poverty. At country level, GDP per capita growth fell sharply in 2020 from its level in 2019, dropping 12.8 percent in Lebanon and 10.3 percent in Yemen and 9.8 percent in Palestine, as shown in Table 3.

The sharp drop in GDP per capita growth in 2020 attributed mainly to the COVID-19 pandemic was accompanied by rising poverty in the Arab region, as shown in Table 4, for 14 countries in the region, where the number of poor people rose from 32.7 million in 2019 to 39.6 million in 2020, an increase of about 7 million people over one year. This number of poor people was expected to rise further in 2021 by about 3 million more people.

Besides COVID-19, some Arab countries have been severely impacted by other crises, such as Lebanon. In an update on the country, the



TABLE 3

GDP PER CAPITA GROWTH, 2019-2021, PROJECTED AND PRE-COVID-19

Country	GDP per capita growth (%)				
	2019	2020	2021	2020	2021
Mauritania	2.2	-4.3	0.4	1.9	2.0
Comoros	0.0	-2.9	-0.1	1.0	1.4
Djibouti	5.3	0.0	4.5	4.6	4.9
Algeria	-0.7	-4.6	0.4	0.4	0.8
Egypt	3.9	-3.4	4.2	3.8	3.1
Iraq	0.9	-8.4	1.8	2.5	3.4
Jordan	-0.7	-5.7	2.7	1.2	1.4
Lebanon	-1.2	-12.8	2.3	0.8	2.2
Morocco	1.5	-3.9	1.6	1.8	2.6
State of Palestine	-1.1	-9.8	0.6	0.0	0.0
Sudan	-4.9	-6.7	-2.4	-2.9	-1.9
Syrian Arab Republic	4.9	-5.4	-2.8	1.2	-1.1
Tunisia	0.3	-6.0	2.1	0.9	2.0
Yemen	-1.6	-10.3	-2.5	1.3	2.1
Average	0.8	-5.7	1.2	1.5	1.7

Source: ESCWA, 2020

World Bank points out that Lebanon has been hit by multiple crises of which “the economic crisis has had the largest (and most persistent) negative impact.” And “that Lebanon economic and financial crisis is likely to rank in the top 10, possibly top three, most severe crisis episodes globally since the mid-nineteenth century” (World Bank, 2020). The consequences of this crisis are far-reaching, including a sharp drop in GDP from about USD 55 billion in 2018 to a projected USD 20.5 billion in 2021, a rise in unemployment, a severe loss in the value of the Lebanese Lira, spiraling inflation, a sharp collapse of basic services, and rising poverty estimated at more than 50 percent of the population (World Bank, 2020). Such a dramatic fallout can lead to uprisings, social unrest, and political instability.

## ii. IMPACT OF THE WAR IN UKRAINE

The war in Ukraine came amid the COVID-19 pandemic’s horrendous consequences, and confronted countries around the world, including Arab countries with new compounded challenges.

The war led immediately to a hike in the price of food, oil and gas, with a diverse impact on the different Arab countries. There are those Arab

countries that have been hit hard by the conflict, because of their heavy reliance on Russia or Ukraine, or both, for their food supplies, especially for wheat and other cereals. The crisis can dramatically threaten access to food in the Arab importing countries. This had been highlighted in many studies, including a joint ESCWA and FAO report in 2017, which stated that “the Arab region is the largest food importer globally, commanding as much as over one third of world imports in some key foodstuffs, particularly cereals” (ESCWA and FAO, 2017). It had a self-sufficiency in cereals of no more than 34 percent, and this rate is expected to further decline, reaching about 30 percent in 2030, as shown in Figure 5.

The Arab region’s reliance on imports of Russian and Ukrainian wheat, a staple food commodity in the region, varies widely among Arab countries. More recent figures (2021) on wheat import dependency of Arab countries on Russia and Ukraine are shown in Figure 6 below:

The threat of food shortages and soaring prices for wheat and other grains caused by the war in Ukraine is of great concern for Arab countries heavily dependent on imports, and is most

TABLE 4

**NUMBER OF POOR (MILLIONS) BASED ON HEADCOUNT POVERTY RATIOS USING \$1.9 PER DAY POVERTY LINE (%), PROJECTED SCENARIO**

	2010	2018	2019	2020	2021
<b>Mauritania</b>	0.3	0.3	0.3	0.3	0.4
<b>Comoros</b>	0.1	0.1	0.1	0.2	0.2
<b>Djibouti</b>	0.2	0.2	0.1	0.2	0.1
<b>Algeria</b>	0.2	0.1	0.1	0.2	0.2
<b>Egypt</b>	1.7	3.2	2.5	3.3	2.9
<b>Iraq</b>	0.8	0.8	0.8	1.3	1.4
<b>Jordan</b>	0.0	0.0	0.0	0.0	0.0
<b>Lebanon</b>	0.0	0.0	0.0	0.0	0.0
<b>Morocco</b>	0.5	0.3	0.2	0.4	0.4
<b>State of Palestine</b>	0.0	0.0	0.0	0.1	0.1
<b>Sudan</b>	5.5	5.1	6.0	7.8	9.0
<b>Syrian Arab Republic</b>	0.2	7.3	6.8	7.7	8.4
<b>Tunisia</b>	0.2	0.0	0.0	0.0	0.0
<b>Yemen</b>	2.7	14.8	15.5	18.1	19.2
<b>Region</b>	<b>12.4</b>	<b>32.3</b>	<b>32.7</b>	<b>39.6</b>	<b>42.4</b>

Source: ESCWA, 2020

alarming for low-income countries in the region with constrained fiscal balances. However, Arab oil exporting countries stand to benefit from higher oil and gas prices which provide them with more revenues that mitigate the impact of the food imports. Algeria, UAE, Oman, and Qatar rely heavily on wheat imports from Russia, Ukraine, and other sources, but are less affected by food shortages than other countries like Egypt and Lebanon who are major importers of wheat from Russia and Ukraine. On the other hand, Arab oil importers are vulnerable to increases in energy prices, and their food imports remain constrained by fiscal balances.

Arab countries earning additional revenues from higher oil and gas prices could enhance their investments to enhance food security in the region, especially agricultural-based countries. Other development related activities that can contribute to progress on the SDGs, such as elimination of hunger and poverty, should also be promoted.

The threats of COVID-19 and the war in Ukraine have not passed, and the initial assessment on their impact shows serious consequences on the progress towards the SDGs in Arab countries.

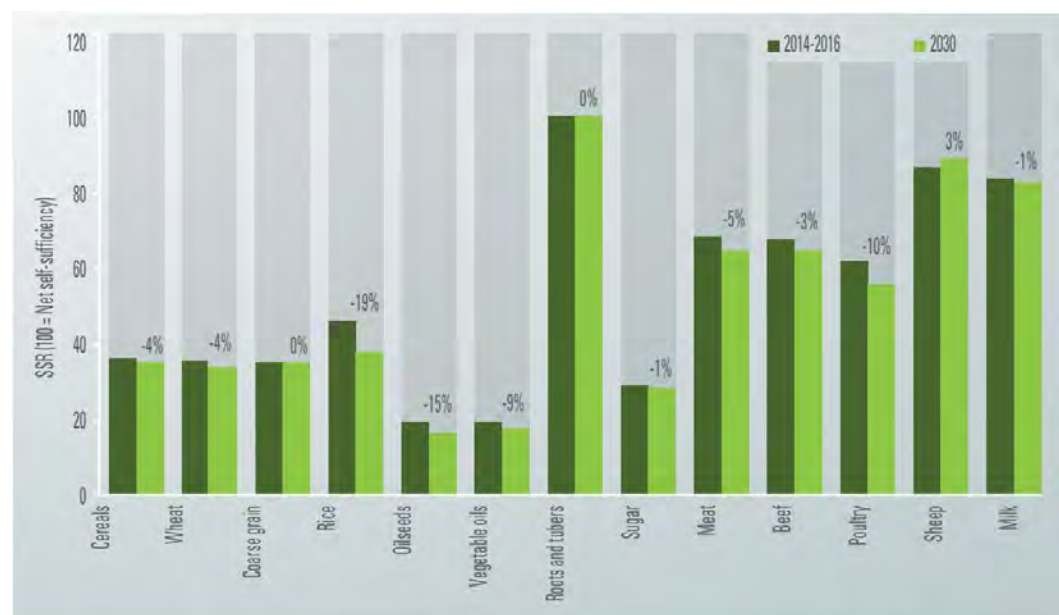
Countries have to address the multiple economic, social and environmental issues that existed before the emergence of COVID-19 and the outbreak of the war in Ukraine. Although the state of progress on the SDGs indicates that their successful implementation is out of reach by 2030, Arab countries need to remain fully committed to the implementation of the SDGs, even beyond 2030: "Development gains have been lost, but deep reservoirs of human talent and capacity remain, waiting to be unleashed as a force for development and transformation" (ESCWA, 2014).

The scope, complexity, comprehensiveness, and interconnectedness of the SDGs call for designing a framework for the implementation of the SDGs to address the economic, social, and environmental dimensions of sustainable development. Delivering results requires close cooperation and coordination among all stakeholders, including governments, the private sector, non-governmental organizations, and civil society.

The current state of progress on the SDGs in the Arab countries is far behind on the road to 2030, requiring renewing commitment to pursue their

FIGURE 5

## SELF-SUFFICIENCY RATIOS IN THE ARAB REGION, SELECTED COMMODITIES, 2014-2016 AND 2030



Source: ESCWA and FAO, 2017

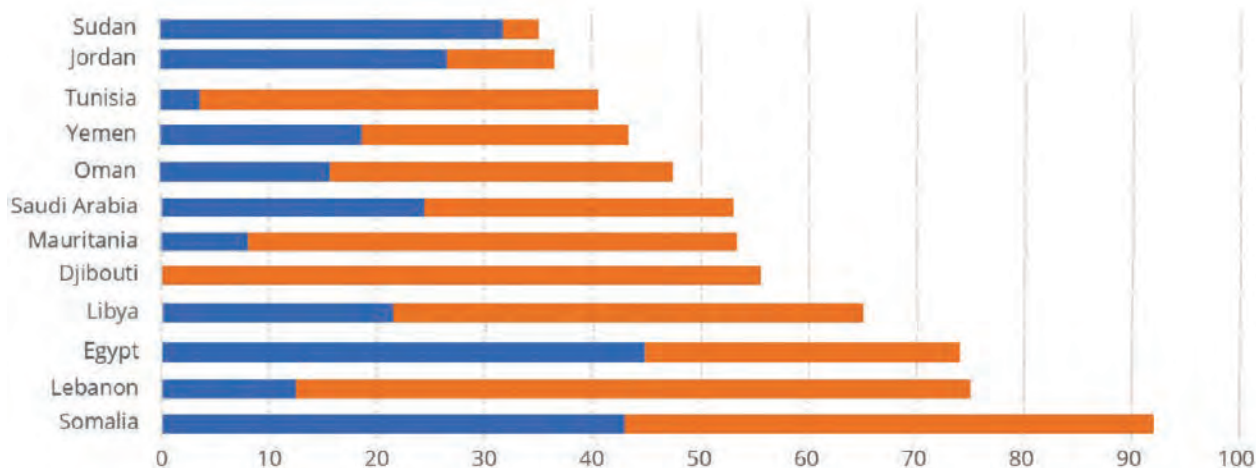
implementation beyond that date, taking into consideration the lessons learned over the past six years. In this respect, to facilitate implementing the SDGs requires an integrated and holistic framework for action that responds to the inclusiveness of the SDGs and their targets, as well as to the targets of the Paris Agreement on climate change. It is critically important for such a framework to include, among other things, the following:

- A clear understanding of the SDGs and their targets, and the synergies between them and those related to climate change.
- Assigning priority to implementing activities that are central to sustainable development, such as SDGs with critical linkages to eradicating poverty in all its forms.
- Defining processes and procedures for implementing each activity for achieving the intended SDG and its targets.
- Designing policies for coordination among activities in charge of implementation of SDG projects.
- Preparing comprehensive feasibility study for each SDG project, including reasonable cost estimate.
- Securing financing for projects from both

domestic and external sources.

- Implementing projects with full transparency, affording equal and fair opportunity for all qualified and competent consultants and contractors to compete.
- Providing adequate information and data for assessing progress on the SDGs.
- Employing competent and skilled personnel to collect and analyze relevant data relating to measuring progress on SDGs.

Although the implementation of the SDGs in Arab countries was off track before the COVID-19 pandemic and war in Ukraine, the latter crisis has further led to tightening the fiscal balance of most Arab countries, including securing financing for the SDGs. In its 2018 report, AFED estimated that the Arab countries would need a minimum USD 230 billion annually for attainment of the SDGs, with an estimated gap of USD 100 billion in Arab countries with deficit. A cumulative total of USD 1.5 trillion is required for supporting the achievement of the SDGs through 2030. Furthermore, the report “warns that the price tag is expected to rise much more taking into account the losses in economic activity due to wars and conflicts in the region since 2011, and the implications of ongoing instability across

**FIGURE 6 WHEAT IMPORT DEPENDENCY, NET IMPORTERS, 2021 (%) FOR ARAB COUNTRIES**

Source: Adapted from FAO, 2022, (Figure 15)

the region on the implementation of sustainable development goals” (AFED, 2018). Nevertheless, the devastating impact of those crises on development related aspects will further push up the financing requirements for the SDGs, and calls for exerting more efforts by Arab countries to mobilize funds from various local and external sources for implementing the SDGs.

## VI. CONCLUSION AND RECOMMENDATIONS

Global progress on the SDGs is still off track, and in the Arab region it has been further derailed by a backdrop of enormous challenges in terms of limited arable land, growing water scarcity, environmental degradation, and climate change. Conflicts and wars in the region have stifled economic growth, deepened income inequality, pushed millions of people into poverty, endangered food security and increased hunger, malnutrition, and undernourishment.

The outbreak of the COVID-19 pandemic in 2020 has taken a heavy toll on human lives and livelihoods, and frustrated progress towards the SDGs in the world at large, and particularly in the Arab region. While the threat of COVID-19 was not over yet, the onset of the war in Ukraine shocked countries around the world, with a new crisis that has far-reaching implications

especially on countries, like most Arab ones, with high reliance on Russia and/or Ukraine for their food security.

The impact of the pandemic and the war in Ukraine have not yet unfolded their full repercussions, casting uncertainty about further progress on the SDGs. Nevertheless, Arab countries need to address all challenges with utmost diligence, guided by transformative policies capable of curbing the mismanagement of resources and improving their efficiency and productivity, with due consideration to implementing the targets of the Paris Agreement for climate change.

To proceed on an uninterrupted path of progress towards the SDGs, the Arab countries need, as a matter of urgency, to address ending conflicts and wars in the region and adopt a framework of action, with sequenced priorities and policy responses that drive towards achieving the SDGs.

To ensure progress on implementation of the SDGs in an enabling environment, Arab countries need to deepen their regional cooperation in all development related projects and activities that would unleash the benefits of coordination and cooperative advantage at regional level to promote progress towards the SDGs, and the fulfillment of the foremost aspiration of leaving no one behind.

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## NOTES

1. Conflict countries include Iraq, Libya, Somalia, Sudan, Syria and Yemen. Non-conflict countries include all other Arab countries.
2. More details on each of COVID-19 pandemic impacts on Arab countries are discussed in ESCWA, 2022.
3. Further details of the COVID-19 impact on tourism and remittances in Arab countries are discussed in UNDP, 2021.



## OPINION

## CLIMATE ACTION IN TIMES OF PANDEMIC AND WAR

**Mahmoud Mohieldin**

During 2022, the world found itself surrounded by ‘polycrises’: inflation, currency crises, energy shortages, severe debt distress, food crises, and concerns of a looming global recession. This surplus of crises – in addition to a decline in trust between and within nations – has further curtailed cooperative development efforts, including climate action. And this while the climate crisis was also in full swing during this period. The devastating floods in Pakistan, among many other climate disasters worldwide, sound the alarm on the pressing need for urgent and powerful climate action.

Adequate climate action can only materialise in the presence of adequate and just finance. Between 2011 and 2020, average annual climate finance stood at around USD 650 billion, which is one tenth of the annual global climate finance needs, as highlighted by the Sharm El-Sheikh Implementation Plan (SHIP), and around two-thirds of the USD 1 trillion of developing countries’ external financing needs per annum until 2030 (except China). However, as the international community was suffering from ‘polycrises’ and their ramifications, there was a clear risk that climate action would be pushed down the global action agenda.

The world has been in an ‘emergency economic situation’ mode for almost three years now and is likely to remain in that mode for a few years more. If anything, polycrises have become the new norm, around which we need to build a more resilient world better equipped and prepared for absorbing shocks. At the outset of 2020, the COVID-19 pandemic marked the beginning of a series of disturbances. It came with a sharp hit that froze the entire global economy in the span of days.

To revive economic activity, most countries lowered interest rates and disbursed fiscal stimulus in an attempt to counter the shutdowns. The Arab countries, though, took a relatively balanced approach, similar to other emerging markets and developing economies, employing protective measures to stop the spread of the pandemic, while minimising the impact on economic activity. However, with multiple major revenue streams at a standstill – namely oil and tourism – the Arab economies were left in a relatively

vulnerable position after multiple waves of the pandemic.

On their pathway to recovery, the Russia-Ukraine conflict started, forming a tipping point for many of the region’s economies, namely those with significant energy and grain import bills. With prices of all key commodities skyrocketing in the midst of an overall global supply-chain bottleneck, the world economy faced a wave of inflation that triggered an abrupt U-turn from the expansionary policies adopted at the height of the pandemic. As a result, multiple countries in the region, as was the case with other developing nations, faced severe debt burdens, currency crises and increased prices prompting firmer emergency economic responses, austerity measures and fiscal tightening.

The series of policy actions and reactions from 2020 onwards were focused on the pressing task of managing the repercussions of the pandemic and then the war. This meant that global action to tackle climate change was at best sidelined and at worst ignored as a number of countries opted for a return to highly polluting fossil fuels such as coal to adapt to the energy crisis. The Sharm El-Sheikh Climate Change Conference (COP27) consequently needed to put climate back on top of the global agenda.

With an aim for a more balanced approach to addressing the adverse impacts of climate change, COP27 addressed mitigation as an immediate priority to meet the 1.5°C target of the Paris Agreement, while recognizing that the damage already done necessitates strong adaptation efforts as well as responses to losses and damages that will intensify as the crisis worsens. To realise these ambitions, the conference in Sharm El-Sheikh markedly raised the ambition on just climate finance and set more concrete targets in light of the alarming findings from international reports, including the IPCC and UNEP, that show significant deficiency of funds.

At a time when our world is grappling with a lengthy thread of cascading risks and overlapping challenges including grave geopolitical tensions and polarization, unsettling energy and food crises and uneven post-pandemic recovery, COP27 represented a watershed moment for multilateral climate action that focused on implementing

climate commitments and pledges. Many will look at the Loss and Damage Fund as the magnum opus of Sharm outcomes, which it undoubtedly is. Yet, the conference also succeeded in making progress on the three other pillars of the Paris Agreement: adaptation, finance and loss and damage while also bringing the Sustainable Development Goals (SDGs) back into the limelight as an indispensable and guiding framework for implementing climate action.

The outcomes of COP27 also included calls for greater climate justice. This means that countries that contribute the least to climate change while suffering most of the brunt of its adverse impacts, should be accorded the fair treatment they deserve through a genuine just transition and sufficient and accessible means of implementation. New pathways for cooperation were identified regarding the future of energy, just transition, innovative financing, food and water security and enhancing support to vulnerable communities.

The absence of a progressive resolution on the 1.5-degree goal was at times criticized – despite SHIP's affirmation of the importance of sticking to it – as echoed in the G20 meetings that took place in parallel to COP27. Furthermore, IEA projections right after COP27 show that pledges made through the conference put the world on track to 1.7 degrees of warming by 2050 instead of 1.8 degrees a year before. A new mitigation work program was also launched at COP27 to find ways to scale up decarbonization efforts to further bring down warming to reach the Paris targets. On adaptation, the Sharm El-Sheikh Adaptation Agenda was introduced with five impact systems, including water and agriculture, to enhance resilience for four billion people by 2030.

As the driving force behind all climate action, COP27 worked towards scaling up existent flows of funds while opening up new avenues of climate finance. Most notably in that regard were the calls for reforming the global financial architecture in a way that reimagines and revamps the operational model of the international financial institutions, especially multilateral development banks (MDBs). Long-term concessional debt was also noted as a vital component of accelerating climate finance, particularly amongst middle income countries in need of more financial resources but unable to take on more debt at market rates.

For the first time at COP, a global pipeline of implementable, financeable and investable projects for emerging markets and developing economies, covering all areas of adaptation and mitigation, were presented. This global pipeline of projects was derived from a series

of Regional Finance Forums co-hosted by the COP27 Presidency, the UN Regional Economic Commissions, and the High-Level Champions. Across these forums, over one hundred projects were presented, requiring financing of approximately USD 120 billion, with this selection of projects having been derived from a list of over 450 projects.

Prior to COP27, the Egyptian government launched an unprecedented initiative on mobilising climate action at the local level, offering an example to be replicated regionally and internationally in future COPs every year. The initiative addresses the needs of the ordinary citizens in local communities, through building an investment map for all regions in Egypt, in a localised bottom-up approach. Selecting the greenest and smartest of projects through a national competition, in six categories, affecting the different economic and social groups. A total of 18 winning projects were selected spanning different sectors and governorates.

Globally, there is a reason for cautious optimism with investments in low-carbon energy matching investments in fossil fuel subsidies at USD 1 trillion in 2022. However, the challenge now will crucially be in how to go from USD 650 billion in annual climate finance to ten times that amount without additional debt burdens. This entails the deployment of new innovative financial mechanisms such as debt swaps, which are gaining traction and popularity specifically among Small Island Developing States (SIDs).

Developing carbon markets and carbon pricing tools is also a must for internalising pollution into cost calculations. Leveraging the private sector as a key player in climate finance is another means of resource mobilisation, notably through global alliances such as the Glasgow Financial Alliance for Net Zero (GFANZ) and the Net Zero Asset Owner Alliance (NZAOA). Environmental, social, and corporate governance (ESG) investments must also become the norm for the private sector and must be held to strict standards of accountability to avoid greenwashing.

With COP28 in Dubai coming against the backdrop, and building on the outcomes, of Sharm El-Sheikh, the Arab countries have a chance to show that they can deliver economic value and growth beyond fossil fuels in a more just and equitable manner that catalyses sustainable development across the region. Consistently referred to as one of the most promising for renewable energy from solar to wind and green hydrogen, the Arab region has all the tools necessary, including a youthful and large population, to lead the way with the energy transition, investments in human capital and poverty eradication.

# ENERGY TRANSFORMATION IN ARAB COUNTRIES

THE POTENTIAL, THE INITIATIVES AND THE IMPACT OF WAR AND PANDEMIC

MOHAMED ABDEL-RAHMAN





## I. INTRODUCTION

Though large strides are made in transforming the energy sector worldwide, especially, in the area of wide use of renewable energies, we are still lagging on the implementation of the Paris Agreement, both at the global level and in the Arab region. More effort is needed to reach our targets and achieve a net-zero carbon economy. COVID-19 and the impact of the crisis in Ukraine have put extra pressure to accelerate our efforts to increase renewables installed capacity. It is worth noting that the world is seeking solutions in all directions to secure its energy needs both in the short- and long-term. In this quest, nuclear options are sought together with energy efficiency measures. Carbon capture as a tool to use fossil fuel while still maintaining the environment is another way to go.

Considering the renewable energy component of energy transformation, almost all countries managed to move forward with different degrees of success. Arab countries have set a regional target of 80 GW by 2030, which looks to be achievable in light of the current increase of installations and the declaration of new project agreements signed during the Climate Summit in Sharm El-Sheikh (COP27). They have the potential to become a global stabilizing element

in energy markets by two channels: (i) strong interconnections to carry renewables to their neighbors, and (ii) by investing in storage technologies, green hydrogen in specific. Fossil fuel exporting countries have a window of opportunity to achieve this transformation, with the extra cash flows arising from the high fuel prices due to the Ukraine crisis, which more than compensates for the decline in demand during the COVID-19 pandemic.

Arab countries, under the umbrella of the League of Arab States, ought to consider collective initiatives on renewable energy-based water desalination, electric vehicles and green hydrogen.

## II. BACKGROUND

New technologies have always brought with them changes that eventually resulted in the rise and fall of different civilizations. Humanity is already witnessing climate change. The conventional wisdom in the electricity industry has been established to build large centralized generation plants, transmit the generated electricity to load centers and eventually distribute the electricity to the final consumers. It is under this arrangement and the high reliance on fossil fuels – especially gas – for electricity generation and heating, that Arab



countries gained a large part of their importance in the global arena. With 48 percent of proven oil reserves and 40 percent of proven gas reserves (BP, 2021) Arab countries are very important global players as far as energy stands. Four Arab countries provided 39 percent of global oil exports and two Arab countries provided 16.5 percent of global gas exports in 2020 (IEA, 2021).

Nonetheless, technologies have been developed to harness energy in its primary form, either as wind or sun. Other forms of these renewable resources exist, e.g., tidal energy, geothermal, biomass, etc. The impetus behind this thrust for innovation in renewable energy technologies was: (i) ensuring energy security and (ii) environmental concerns of global warming and reduction of greenhouse gas emissions. Research and development in this direction as well as trials to overcome the hindrance of the high cost to store electricity have come to fruition. One tool to push research and development in this field and to make use of economies of scale in manufacturing is to create demand by a set of policies. The concept is that demand should bring the cost of such technologies down. The result is that the levelized generation cost (free of any other balance of system costs including storage costs) of 1 kWh of PV electricity went down from USD 0.381 in 2010 to USD 0.057 in 2020. For wind, the levelized cost went from USD 0.089 per kWh in 2010 to USD 0.039 per kWh in 2020. With numerous technological advancements in power electronics and batteries, together with the convergence of the power industry with information and communications technologies (ICT) to form the concept of smart grids, a new operation philosophy is underway.

This came as the result of numerous initiatives and policy directions set to put forward incentives for energy production from renewables. Those initiatives include feed-in tariffs, net metering and competitive bidding. However, as of 2019 electricity produced from renewable resources accounted for about 10 percent of global electricity production, whereas fossil fuels accounted for about 63 percent. It should be noted, though, that this is a remarkable development as compared to 2000, when renewables accounted for less than 2 percent of generated electricity, while fossil fuels accounted for about 62 percent (IEA, 2021). For PV power plants, the annual energy production remarkably jumped from 96 thousand GWH

in 2012 to about 831 thousand GWH in 2020 (IRENA, 2022). For on-shore wind farms, the annual generated power jumped from 511 TWH in 2012 to more than 1,488 TWH in 2020. This huge jump in production corresponds to PV and wind installations of 697 GW and 710 GW respectively in 2020. It is worth noting that although both wind and PVs are nearly at the same order of installed generation capacity, the produced energy from wind is nearly 1.8 times that produced from the PVs. Nonetheless, the rate of growth of PV installations is phenomenal with PV capacity installation in 2012 of 101 GW compared to 261 GW of wind in 2012. If both rates of growth are sustained, PV installed capacity should be in par with wind installed capacity in 2028.

In absolute terms, global electricity production went from about 16,000 TWh in 2000 to about 26,000 TWh in 2019. Renewable electricity production increased about 11 folds during this period, whereas electricity generated from fossil fuels nearly doubled during the same period. This clearly shows that renewables are gaining ground, but certainly not enough. A simple regression may show that if the present growth rates are sustained the energy produced from renewables will never match that produced from fossil fuels in the foreseeable future. It is imperative to mention that failure to combat climate change brings another dimension that makes the picture gloomier. Consequently, more effort should be put to further increase the installation of renewables.

One major factor that still stands in the way of the transformation from fossil-based electricity is the technical and institutional lock-in effect (Seto et al., 2016). Renewables do not yet lend themselves easily to integration within the present electricity grids, due to technological reasons. Moreover, the Ukrainian crisis has proven that we are a long way from achieving independence from fossil fuels. In fact, the world is currently facing a double challenge, specifically the COVID-19 pandemic with the economic consequences of more than two years of lock-down, and the Ukrainian crisis. This double challenge is a motivation to bring energy security into the focus of the international community.

In this context, three pillars have been identified

for future energy policies as outcomes of the COVID-19 pandemic (IEA, 2022):

- (i) Energy security is a cornerstone of our economies;
- (ii) Electricity security and resilient energy systems are of paramount importance to modern societies;
- (iii) Clean energy transition must be at the center of economic recovery and stimulus plans.

Renewables are an integral part of future energy policies to ensure energy security and resilience against natural and man-made disasters.

In the same framework, it is worth noting the international community's aspiration to switch to "Clean and Affordable Energy" as precisely stipulated in SDG 7. The Sharm el-Sheikh Implementation Plan is a thrusting effort towards decarbonization and reaching the envisaged net-zero carbon goal. It calls for the financiers to complement the current financing of about USD 803 billion, which constitutes only 31 to 32 percent of the finances needed to limit the temperature rise below 2°C (UNFCCC, 2022). The Sharm el-Sheikh Implementation Plan also stressed the importance of energy transition towards renewables as an imperative step on the way to combat climate change.

This chapter attempts to project the role of renewables in Arab countries in a hastily shifting global energy market, focusing on the impact of the COVID-19 pandemic and war on the transition process. It concludes by proposing a road map and recommendations for mainstreaming renewable energies into today's energy mix.

### III. TECHNOLOGICAL ADVANCEMENT

The technological advancement witnessed today may be classified into two categories: (i) supply side technologies, which include generation, transmission and distribution; and (ii) demand side technologies. It is worth noting that at present our lives and economies are built on a concept of "power on demand". Power is always available at the flip of a switch. The present core concept of modern day operation of power systems is that supply follows demand, which is currently

under challenge. Demand side management technologies, procedures and policies are an attempt to adjust the demand to power supply availability.

#### i- SUPPLY SIDE TECHNOLOGIES

##### A. Generation

Technologies based on photovoltaic cells (PV) are falling in price and available in abundance with varying efficiencies. Not only do they provide a solution for energy provision in developed economies, they also provide a fast and effective solution for rural electrification in remote or war-torn areas. The popularity of PV systems comes from its simple installation, operation and maintenance requirements. Unskilled workers are fully capable of installing the equipment and maintain it. The technology easily lends itself to application in small scale isolated grids and to large scale grid connected centralized power plants.

Wind technologies, whether on land or off-shore, are more sophisticated mechanically and electrically. They vary in size from a few kW's to 4-5 MWs. A 2 MW wind turbine typically has blades length nearing to about 40 m and a hub height of about 70 to 80 m. It also comprises numerous rotating parts and sophisticated power electronics. Consequently, the technology is not simple enough for unskilled workers to operate or maintain, though the electricity cost may be cheaper as compared to PVs.

Geothermal energy is the most utility-friendly renewable source of energy for electricity generation, as long as the geothermal source has been identified and localized. The performance of a geothermal power plant is similar to a thermal power plant.

Tidal energy, ocean stream energy, solar towers, etc., are still experimental or at their infancy as technologies.

##### B. Storage

Numerous technologies for energy storage are available. Energy storage in reasonable amounts thus far may be achieved by: (i) chemical reactions storage, e.g., batteries or fuels; (ii) kinetic energy, e.g., fly wheels or other rotating masses; or (iii) hydro storage through pump and storage





technique. Nonetheless, electrical energy may be directly stored in electric fields in super capacitors or magnetic fields in superconducting inductors.

Chemical storage is achievable through battery technologies, including advanced types like lithium-ion, as well as green hydrogen. The concept is to convert energy by the process of water electrolysis into hydrogen, that may be used in itself or converted into a hydrogen rich fuel for later application either in gas turbines or fuel cells. This type of hydrogen, which depends on electricity sourced from renewable energy is termed green hydrogen as compared to that blue hydrogen, which depends on electricity sourced from fossil fuels with carbon capture and storage to mitigate the impact on the environment. Rare metals, are a limiting factor to the widespread use of electrolyzers. Research is directed towards eliminating the need of such metals. IRENA predicts that green hydrogen, which depends on renewable electricity, should be equal in cost to blue hydrogen by 2030. (IRENA, 2020).

Also, the spread of the battery technologies is limited by the availability of rare metals used in its manufacturing. Hydrogen has the advantage that the storage medium can be easily used with present power systems. Moreover, it can be used for energy intensive industry as a replacement of fossil fuels. Therefore, it presents a fast track alternative for the conventional fuels.

### **C. Transmission and distribution**

Transmission and distribution technologies are well established, with the convergence of information and communication new concepts of smart grid which have emerged, providing more flexibility and ability to control the load.

### **ii- THE LOAD SIDE**

#### **A. Efficient equipment**

Technology managed to provide more efficient equipment in residential, administrative and industrial applications. However, the increase of ownership of different equipment and appliances

is driving the demand up. To compensate for the increased connectivity, most equipment sold by 2030 must match today's best standards. IEA states that energy efficiency policies have brought fruition, yet not to the extent to reach the zero net carbon target (IEA, 2021a).

### **B. Electric vehicles**

Electric vehicles are becoming more visible in the streets. It is safe to state that the operation and maintenance cost is lower than normal internal combustion engines vehicles. It is the capital investment, range anxiety and prolonged charging times that are the current hurdles against EVs. It is the lock-in effect of carbon economy that constitutes the biggest obstacle against EVs. However, fast paced technical innovation together with economies of scale will foster this transition. In achieving this transition for the clean economy numerous countries has set targets to reach a certain percentage of EVs or to phase out internal combustion engines completely. IRENA projects that annual EVs sales to reach 200 million by 2030 from 2 million in 2016 (IRENA, 2022).

### **C. Water desalination**

Water desalination technology can be envisaged as a potential electricity consumer. Such technology can further increase the electricity demand sustainably and provide a reliable source of drinking water with its challenging demand.

Such technology can be cost-effective in supplying drinking water and not for agricultural purposes. Efficiency may be reached by reverse osmosis technology that needs only 4 kW of power to desalinate one meter cube instead of the thermal technology that uses 20 kW (Fayes, 2021).

## **IV. RENEWABLE ENERGIES IN ARAB COUNTRIES AND SUPPORTING POLICIES**

Arab Countries receive between 22 and 26 percent of all solar radiation to the earth. Wind energy is distributed throughout the Arab countries, with some of the most favorable conditions localized in the Gulf of Suez area in Egypt and the shores of the Atlantic in Morocco and Mauritania. To locate those resources, numerous countries invested in the development of resources atlases, wind or solar. Eighteen member countries of the League of Arab

States declared target renewable energy installed capacities. Annex 1, provides an estimate of those targets as per the World Bank (2021).

In achieving those targets, Arab countries opted to numerous policies, namely:

### **i- SELF-CONSUMPTION**

In the self-consumption scheme, energy is mainly produced to cover the load. Higher self-consumption rates can be achieved if there is adequate alignment between onsite distributed energy resources (DER) generation profile and the load profile. The benefits of self-consumption is that it helps consumers reduce their bills rather than buying energy from the utility. Furthermore, in liberalized electricity market environments, it can allow consumers to actively participate in the market and create profits. Self-consumption can be used with commercial, residential, industrial and agricultural loads (EU, 2015).

### **ii- NET-METERING**

The net-metering scheme is defined as the policy that allows consumers to connect a generation facility inside their own network. The difference is that consumers can inject energy to the grid and recover it when they need it. Such implementation of the net metering assumes that the grid is like a battery and thus can take surplus energy and re-feed it to consumers when needed (MEDREG, 2015).

### **iii- COMPETITIVE BIDDING**

To further promote economic efficiency, a competitive bidding process can be tendered by the incumbent transmission company, the off-taker. The scheme should manage to reduce the leveled cost of energy from renewable energy sources.

### **iv- MERCHANT POWER PLANTS**

To further promote renewables and allow for consumer choices, the merchant scheme, or the so-called independent power produce model (IPP Model) may be put in place in the wholesale electricity market. Under this scheme, the IPP signs a bilateral contract – the power purchase agreement – with a large customer, e.g. with a capacity that is higher than 20 MW. To transfer the energy produced, the transmission network is compensated with the wheeling charge which is determined by the regulator.

TABLE 1

TOP 5 ARAB COUNTRIES WITH PRESENT INSTALLED RENEWABLE CAPACITIES

Country	Total Installed Renewable Capacity (GW)	Installed Solar Capacity (GW)	Installed Wind Capacity (GW)
<b>Egypt</b>	3.5	1.9	1.6
<b>United Arab Emirates</b>	2.6	2.6	0
<b>Morocco</b>	1.9	1.2	0.7
<b>Jordan</b>	1.7	0.6	1.1
<b>Saudi Arabia</b>	0.78	0.4	0.4

Source: GEM, 2022

## V. EXPERIENCE IN THE ARAB COUNTRIES

Most Arab countries, except the ones going through crises, have programs utilizing the aforementioned policies to put incentives for renewables (ESCWA, 2019). These policies have helped Arab countries make big strides in reaching their targets, with varying degrees of success.

Moreover, Arab countries have taken collective action to formulate their position as far as renewables stand. In 2013, the Pan-Arab Strategy for the Development of Renewable Energy, 2010–2030 was adopted at the third Arab Economic and Social Development Summit by the League of Arab States. This initiative is the basis for regional co-operation to drive renewable energy deployment in the Arab world. Leaders committed to increasing the region's installed renewable power generation capacity from 12 gigawatts (GW) in 2013 to 80 GW in 2030 (GEM, 2022).

Further to this collective effort, nearly all Arab countries have set their own initiatives that are not limited to renewables but extend to promoting energy efficiency and combating climate change. Those efforts no longer stop at the extent of a donor or government financing, as the private sector now also plays an active role, be it as micro or small roof-top producers or as utility scale renewables developers.

Meanwhile, Arab countries have collectively managed to develop 12 GW of operating utility scale solar and wind power plants. Still, in fulfilment of their obligations as set by LAS in 2013, Arab countries are pursuing the

development of an additional 49.5 utility scale solar projects and 11.3 GW of wind projects. Table1 exhibits the top five Arab countries in terms of current operating utility scale projects.

The other Arab countries are gaining momentum in the same direction, i.e., investing in utility scale solar and wind power plants. Oman, Morocco, Algeria, Kuwait and Iraq are the top five Arab countries with the prospective utility scale solar and wind capacity additions.

Oman aims to have 3.05 GW renewables-based generation capacity by 2025. Morocco managed to increase the share of renewables in its energy mix to 37 percent. It is projected that Morocco will have 16.3 GW of renewables-based generation capacity by 2030. Algeria has set a target of 15 GW of renewable based generation by 2035. Algeria has the largest potential for wind power in Africa, with a 7.7 GW generation potential. Kuwait targets a renewable energy generation target of 4.3 GW by 2030. If all utility-scale solar and wind projects are materialized, Kuwait should reach 9.7 GW of renewables based generation by 2030. Iraq has set a target of 12 GW of solar capacity by 2030. Egypt has set a target by its Integrated Sustainable Energy Strategy of 52 GW of renewable based generation, both utility and distributed scales. United Arab Emirates plans to have a 20 GW of installed solar generation by 2030. The top five Arab countries with total utility scale renewable installations are projected to be: Morocco with 16.3 GW, Oman with 15.5 GW, Algeria with 10.5 GW, Kuwait with 9.7 kW, and Egypt with 6.8 kW (GEM, 2022).

One characteristic of renewable energy power plants in Arab countries is that they are large.

The average size of solar farms in the region is four times that of the rest of the world. For wind farms, the average size is about 1.5 times the rest of the world. It is noteworthy that the off-taker for all the generated energy are the public utilities.

The drivers for these large sizes are:

- (i) The favorable conditions for development of renewable projects, e.g., GCC countries receive an average of 0.6-0.6 kW/m<sup>2</sup> of solar energy on every km<sup>2</sup> per year, which is equivalent to 1.5 million barrels of crude oil.
- (ii) A strong will to remain an active player in the global energy market, as the region transforms into a transcontinental node for renewable energy exports, via electrical interconnections.
- (iii) The prospect for energy storage, especially in the form of green hydrogen for export.

In this context a number of Arab countries are actively pursuing green hydrogen or ammonia projects, namely Saudi Arabia, Egypt, Morocco, the UAE and Oman. Saudi Arabia has already announced the 4 GW NEOM Green Hydrogen Project. Egypt has declared a 100 MW green hydrogen project in Ain Sokhna. Morocco announced the 10 GW Total Eren Guelmim-Oued Noun solar farm project. Finally, Oman has declared a 25 GW green hydrogen initiative, which is set to be the largest initiative in the world.

However, for the feed-in tariff, the bills become long-term liabilities on the off-taker. For the net-metering and self-consumption schemes, utilities are being stripped of the able consumers who constitute the actual cash streams balancing their books. Mainstreaming renewable energies and attempting to allocate their fair share of system charges have proved to be challenging.

For self-consumption and net-metering such penetration will lead to reduced sales and thus reduced utility revenues, presenting some cost recovery challenges for utility regulated investments. Under such circumstances, regulators may allow utilities to increase tariffs to make up for the avoided revenues. However, such a solution would jeopardize consumer welfare. These seem to be matters of policy trade-offs that are reflected at the regulatory level. However, increasing tariffs will push other consumers to install certain technologies known as behind-the-

meter technologies (Fayes, 2021). To ameliorate those effects, Arab countries tended to put caps or limits on the different programs. Integration fees to account for the costs incurred to the grid by the absorption of renewables were proposed but proved to be unpopular.

There is a need to revisit the tariff setting mechanisms and tariff structures to allow the increased penetration of renewables, while maintaining the financial health of utilities (Hendam et al., 2022). Utilities will have to adapt to these emerging technologies and implemented policies, while preserving their existence and profitability. Indeed, this is challenging and highly competitive in a world abound with such technology developments pushing the incremental cost of electricity to zero, while adding more and more to the capital investment cost. Utilities may opt to change to become a sort of transaction facilitator or enabler rather than a seller or a buyer in the market.

## VI. EFFECTS OF THE UKRAINIAN CRISIS

As of February 2022, and as the world was seeking recovery from the COVID-19 pandemic, it witnessed a test of its reliance on renewable energies. The Ukrainian crisis and the ensuing disruption of supply of natural gas with the events in the Baltic Sea, where Nord Stream 1 and Nord Stream 2 explosions disrupted the gas supply, have set frantic actions by the incumbent states to secure the energy supply before winter. For the short term they will seek natural gas from another source to face the coming winter. This is not a surprise, as renewable energy generation covers at most 10 percent of the needs for electricity generation, ignoring fuel for transport and heating applications. The rest comes from fossil, nuclear and hydro. Nonetheless, the determination of increasing the renewables to reach energy independence is expected to increase, with the vision to eventually achieve independence from fossil fuels.

In fact, the world has been going through two major overlapping crises: (i) the COVID-19 pandemic; and (ii) the Ukrainian crisis. Both crises disrupted the basic concept of globalization





and global interdependence. The disruption in the global supply chains in commodities, food basics and fuel in specific will in fact give rise to the concept of self-sufficiency, which was of lesser importance as a consequence of depending on reliable supply chains.

Therefore, though on the short term renewables may face a decline compared to other forms of energy, in the longer term more efforts will be put to increase the share for renewables. Parallels can be drawn to the crisis after the 1973 Arab-Israeli war. However, a limitation is always present, if not the geographical location of the fuel, it is the location of rare metals. Therefore, for the foreseeable future, renewables will still gain more shares but fossil fuels will be around for quite some time. The current crisis is transient. The globe is yet to reach a steady state. Renewables are squeezed from the supply side and from the cost of capital, as well as from the demand side (Attia et al., 2022).

For fossil fuel producing countries, the situation is unique. Increased prices translate into higher revenues. It is not certain which way fossil fuel producing countries will choose, as they may either be trapped into the comfort zone of high hydrocarbon revenues or continue with their plans and initiatives as declared. For Arab countries already leaning towards renewables, it is hard to imagine that this resolve will wane away. In fact with the excellent geographical location and abundance of renewable resources, Arab countries have the opportunity to capitalize on their legacy as the largest energy source for the globe. The excess finances are expected to fuel the development of the Arab countries with spillover effects from energy exporters to energy importers, especially in the renewable energies field. This is evident by the initiative for green hydrogen and ambitious interconnection projects.

The UN Brief No. 3, entitled “Global Impact of War in Ukraine on Food, Energy and Finance



systems”, states that in the coming four years, the world needs to double down on the use of renewable energy sources to achieve the net zero goal, tackle energy poverty and diversify the global energy mix. The report further asks governments to identify bottlenecks in renewable energy supply to foster clean energy, including unlocking manufacturing capacity in developing countries. For the longer term the UN calls for promoting energy efficiency together with the establishment of a set of regulations that ensures predictability of investment in renewable energies (UN, 2022).

The future is definitely greener. Renewables and green technologies will continue to gain an increasing share of the global energy mix. They should play a role in self-sufficiency of different states. Although complete self-reliance might not be achieved by all countries, it is well expected that many countries will continue to reach this aim. By all means and as impressive as the achievement may be, still more work needs to be done if we are to seriously seek net-zero economies.

## VII. MAINSTREAMING RENEWABLE ENERGY

Treating renewable energy as any other energy source is a challenging process. Integration of renewables into the grid comes at a cost. If this cost is not borne by the renewable energy generators, other customers will shoulder it.

Experience shows that considerable level of awareness on renewable energy has been established at all levels. Yet, concrete steps are to be considered so as to enable the utility to absorb those technologies, which are beyond control and at the hands of the consumers. Liberalized electricity sectors is one option. Reconsidering volumetric tariffs is another option to consider. Indeed the competitive prices reached by renewables today, together with the ease of use and installation, are the outcome of many years of development. The change of the modus operandi of the utilities is a tedious and cumbersome project.

Interconnections with the resulting positive impacts on the grid dynamics have the potential to assist in absorbing more renewables. Efforts championed by the League of Arab States should

eventually lead to the establishment of a joint Arab electricity market. Geographical distribution over various time zones will have positive effects and should result in synergies among Arab grids.

Numerous initiatives are taking shape to increase the electrical connectivity among the Arab countries and to the neighboring region, the European continent in specific. The Pan-Arab Electricity Market (PAEM), an initiative led by the League of Arab States, aims at increasing electricity trade among Arab countries from 2 percent in 2021 to about 40 percent in 2035. The spread of the Arab countries over a large area with different time zones, makes interconnection a techno-economic feasible and favorable solution. In fact, the more the Arab grids are interconnected, the more renewable energies can be absorbed into the interconnected grid. It is estimated that the savings can be as high as USD 44 billion between 2020 and 2030 as a result of optimal operation, if the market with the underlying infrastructure is in place (Oxford Business Group, 2021).

Numerous interconnection projects among the Arab countries and neighboring regions are at different stages of development and conception. Morocco-UK, and Egypt-Greece are two examples of interconnection projects sighting exports of renewables to Europe.

## VIII. CONCLUSION AND RECOMMENDATIONS

Technological advancement has brought competition to renewable energies, though restricted by the operational limitations of present centralized power systems. Still, more advancement is expected especially in storage, whether in batteries or green hydrogen. The emergence of smart grids makes it possible to perceive distribution or transmission networks as enablers for transactions among different market players. A gradual transformation of Arab utilities to adapt to new technologies is inevitable. Efforts recommended include gradually revisiting tariff structures and mainstreaming renewables into the energy mix.

Investing in interconnections both within Arab countries and to neighboring regions will enable

Arab countries to export renewable energy in the form of electricity. Green hydrogen is still in its early stage, but it has the potential to bring a huge opportunity to Arab countries to remain a leading reliable source of energy to the world. Concrete strategies and steps are ought to be considered.

Electricity markets, both at country and pan-Arab levels, can formulate the commercial environment for the widespread penetration of renewables in Arab countries. Electricity markets should allow the private sector to act not only as a generator, but also act as the off-taker.

On the demand side, water desalination is one area that is worthy of more efforts. Firm strategies for green hydrogen, electric vehicles and water desalination, similar to the League of Arab States Initiative on Renewables, are ought to be considered.

The COVID-19 pandemic and the Ukrainian crisis brought back our awareness on the importance of energy security. Arab countries, by strengthening their connectivity to neighboring regions and by investing in green hydrogen, have the opportunity to be a stabilizing factor for more global energy security that might be less impacted by crises such as the ones experienced over the past years.

## ANNEX

### TARGET ADDITIONAL INSTALLED RENEWABLE ENERGY CAPACITIES IN ARAB COUNTRIES

Country	Target Additional Renewable Installed Capacity 2030 (MW)
Algeria	22,000
Bahrain	700
Egypt	10,700
Iraq	6,200
Jordan	2,830
Kuwait	2,000
Lebanon	1,000
Libya	2,200
Morocco	10,000
Oman	2,650
Palestine	-
Qatar	1,800
Saudi Arabia	58,700
Sudan	5,520
Syria	-
Tunisia	4,700
U.A.E.	5,030
Yemen	-

Source: World Bank, 2021.

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## TOWARDS A HYDROGEN ECONOMY IN THE ARAB COUNTRIES

**Ibrahim Abdel Gelil**

The accumulation of carbon dioxide and other greenhouse gases in the atmosphere due to combustion of fossil fuels is the major culprit of climate change worldwide. It is responsible for annual global emissions of about 24 billion tons, accounting for more than 85 percent of global carbon dioxide emissions. The international community has been looking for a response to the challenge of climate change, such as by commitments under the 2015 Paris Agreement which mandates that the world will strive to limit global warming to 1.5°C above the pre-industrial average, and to achieve net-zero GHG emissions by 2100. A growing number of countries are pledging to reach net-zero carbon dioxide (CO<sub>2</sub>) emissions by mid-century with the goal to meet the Paris aspiration. This includes some Arab countries, which have already pledged their net-zero targets by 2050 (UAE) and 2060 (KSA, Bahrain).

In a world aspiring to net-zero emissions, there exists a dual challenge: transforming the energy system to meet the increasing energy demand of a growing global population – set to reach 10 billion by 2035 – while also lowering global emissions in line with the goals of the Paris Agreement.

Hydrogen could play a key role in the energy transition and in supporting the ambitions to reach net-zero emissions. Hydrogen in general is a suitable energy carrier for applications that require a high energy density. Hydrogen can be used as fuel at refueling stations for fuel-cell electric vehicles such as buses, trains, and car. It can also be injected directly into the natural gas grids for lower carbon heating and other natural gas applications. It can serve as a feedstock to produce a range of synthetic fuels and feedstocks such as ammonia fertilizers and methanol. Hydrogen can be produced from a variety of feedstocks including fossil resources such as natural gas, as well as renewable resources such as biomass and water with input from renewable energy sources (e.g. sun, wind, or hydropower).

Low-carbon hydrogen, called grey hydrogen, is complementary to, and will be an enabler of, the growth of green hydrogen in the coming years by repurposing and reusing the existing natural gas infrastructure and distribution network, and by providing sufficient initial volume growth to encourage the build-up of new infrastructure. Grey hydrogen is produced from natural gas or methane using steam methane reformation. Green hydrogen, on the other hand, is produced utilizing water electrolysis to generate hydrogen and oxygen, using renewable electricity in the process. Advances in electrolysis technology

and the falling cost of renewable energy are enabling the mass production of green hydrogen, which is more environmentally sustainable.

In addition to achieving the Paris climate goal of zero carbon, the war in Ukraine has emphasized the importance of hydrogen as a sustainable energy carrier to address the threat to energy security in the EU due to shortages in the supply of gas.

Although many countries have ambitious plans for green hydrogen, the Arab countries also have unique advantages that could allow them to lead the efforts toward the hydrogen economy. By seizing the green hydrogen opportunity, Arab countries can lay the foundation for economic growth in a decarbonized world and ensure their continued influence in the energy market.

Due to the region's huge fossil fuels endowment, its vast solar energy potential, the well-developed gas infrastructure, and the current volatility of the oil and gas market, the Arab countries are in a perfect position to play a leading role in the hydrogen economy. Due to its geographic location, the Arab region has an enormous potential for solar energy all year round. It has high quality solar resources with an annual average of global solar radiation varying from 4 to 8 kilowatt hours per square meter (KWh/m<sup>2</sup>)<sup>(1)</sup> per day. Solar energy could be used to generate electricity through photovoltaic cells, which could be used to produce hydrogen through water electrolysis. The technology of water electrolysis is well developed and has been in use in the region for decades in the desalination industry. Concentrated solar power (CSP) plants can provide electricity needed to power the very energy-intensive desalination plants and produce hydrogen as well.

For grey hydrogen, the Arab region has a competitive advantage in terms of abundant oil and gas resource base with low costs of extraction and low carbon content. The capacity to use CO<sub>2</sub> as a feedstock in the petrochemical/refining industries or store it in depleted geological oil and gas formations needs further development. For green hydrogen, the two main elements that need to be addressed are low-cost electricity from renewable energy sources and electrolysis. The Arab region has a highly competitive advantage in generating low-cost renewable electricity with high-capacity factors reaching 20 percent, where the levelized cost of renewable electricity in the region has reached world-record levels nearing USD 10.4/MWh (in the 600 MW Al Shuaiba PV project in KSA)<sup>(2)</sup>. As for electrolyzers, the technology risk resides in scaling up to higher energy density of the electrolyzers that can be operated with intermittent



renewable energy sources at high efficiencies. It is expected that the cost curve of green hydrogen will decline with time, and it will be cost-competitive with grey hydrogen by 2030<sup>(3)</sup>.

To seize this opportunity, the region recently showed a determined political will and commitments. The number of hydrogen projects announced in the Arab countries until the end of March 2022 increased to 38 projects, with 24 projects dedicated to the production of green hydrogen and green ammonia, nine for blue hydrogen and blue ammonia, and five projects for hydrogen applications in the field of land, sea and air transport.

Green ammonia can be produced from green hydrogen. Ammonia is easier and cheaper to store and transport and it can be readily “cracked” and purified to give hydrogen gas when required. In addition, green ammonia is emerging as one of the most feasible low-carbon fuel pathways. Leading manufacturers are working on engines that can run on ammonia and are anticipated in 2024<sup>(4)</sup>.

As many as eight Arab countries lead these projects, with Egypt at the forefront, followed by Oman, the UAE, Saudi Arabia, Iraq, Mauritania, Algeria, and Morocco.

The most recent initiative in this regard was the UAE’S Net Zero 2050 strategic initiative, the first of its kind in the Arab region aligning with the Paris Agreement. Furthermore, the United Arab Emirates is working on including hydrogen in its next five-year energy plan. The plan aims to acquire 25 percent of the global hydrogen fuel market by 2030.

During COP27 host country Egypt launched the Hydrogen Strategic Framework, with a strategic vision to position itself as one of the global leaders in the low carbon hydrogen economy, utilizing its excellent renewable resources, sizable gas reserves, and its strategic geographic location. Egypt is currently updating its Integrated Sustainable Energy Strategy 2035 to include green hydrogen. Hydrogen would be a key element of the drive to make renewable energy account for 42 percent of the country’s energy mix by 2035. Egypt also signed a number of agreements with international consortia to produce green hydrogen, and green ammonia. During the same COP27 summit, Egypt announced the first green hydrogen facility in the Suez Canal Economic Zone and the first integrated green hydrogen plant in Africa. The USD 80 million loan extended by the European Bank for Reconstruction and Development (EBRD) will be used to acquire and construct a 100 MW electrolyser facility powered by renewable energy. When fully developed, the facility will deliver up to 15,000 tonnes of green hydrogen annually. This, in turn, will be used as an input for the production of green ammonia to be sold on the Egyptian and international markets<sup>(5)</sup>. At full capacity, the facility’s green hydrogen production will save more than 130,000 tonnes of CO<sub>2</sub> emissions per year.

Oman is implementing one of the largest green fuel projects – the Oman Green Energy Project – with a capacity of 25 gigawatts using solar and wind renewable energy. The project, which is planned to start in 2028 is expected to produce more than 1.8 million tons of green hydrogen annually.

Saudi Arabia has announced a target of 4 million tons of green hydrogen by 2030, or about 25 percent of the global market. The current focus is to gain a large market share in blue hydrogen, particularly in the form of blue ammonia. The NEOM Green Hydrogen Project is the world’s largest utility scale, commercially-based hydrogen facility powered entirely by renewable energy. When commissioned in 2026, it will produce 650 tons of hydrogen per day and 1.2 million tons of green ammonia per year.<sup>(6)</sup>

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# IMPACT OF PANDEMIC AND WAR ON FOOD SECURITY

MAHMOUD EL SOLH





## I. INTRODUCTION

Food security is currently more threatened than ever globally, and particularly in the Arab region. This is due to the serious implications of COVID-19 and the internal and external wars, most recently the Russia-Ukraine war. The implications of these challenges on food security are much more serious in the Arab region since it has already been facing other serious challenges concerning food security that are widening the gap between domestic food production and consumption. These other challenges include high population growth; natural resource degradation including the already limited water resources; land degradation or desertification; loss of biodiversity; implications of climate change including more frequent droughts and high temperatures; shorter crop growing season; high level of food wastage; emerging diseases and insect pests; salt water intrusion in coastal areas due to rise in sea level; rural to urban and overseas migration; and the lack of enabling institutional and policies supporting sustainable agricultural development. In addition to these challenges wars, conflicts, and civil strife in several Arab countries make the Arab region the largest food deficit region and the only region in the world where poverty is projected to increase by 2030

according to the World Bank, 2014. The other challenge is insufficient regional cooperation.

Considering the global food crises of 2007/2008 and the current crisis because of the COVID-19 pandemic and the Russia-Ukraine war, it is critical for Arab countries to give high priority to reducing the gap between domestic food production and food consumption to reduce reliance on food imports and enhance food security. Global food crises make most food exporting countries ban food exports, thus, even the rich Arab countries that rely heavily on food imports to achieve food security may not be able to find the needed food commodities in the global markets. However, Arab countries differ in their economic capabilities and agricultural resources. As will be discussed later, several countries have high potential for sustainable agricultural development to achieve food security, considering the size of arable land and renewal water resources (El Solh, 2017). However, irrespective of level of the potential for sustainable agricultural development, it is essential that all Arab countries fully exploit their potential and aim at regional cooperation to achieve food security at the regional level.

The Conference of Parties for Climate Change 27 (COP27) held in Sharm el-Sheikh, Egypt in



FOOD Holly Wilmeth, USAID

FIGURE 1

**THE FOUR KEY PILLARS OF FOOD SECURITY (BEFORE ADDING SUSTAINABILITY AND AGENCY) AND WHAT THEY COVER AND THEIR LINKAGE TO NUTRITION****Availability**

- domestic production
- import capacity
- food stocks
- food aid

**Access**

- poverty/purchasing power
- transport and market infrastructure
- food distribution

**Stability**

- weather variability
- price fluctuations
- political factors
- economic factors

**Utilization**

- food safety & quality
- clean water
- health & sanitation
- care and feeding

Source: FAO (as cited by Magongo 2016)

2022 hosted representatives from 200 countries and included plans and initiatives with a focus on the agricultural industry and food production. The agriculture-based plans aim to reduce the sector's impact on greenhouse gas emissions and help farmers with the challenges of growing and raising food in the face of changing climates. (<https://modernfarmer.com/2022/11/cop27-agriculture-initiatives/>)

## **II. SDG 2- FOOD SECURITY DIMENSIONS AND COMPONENTS OF FOOD SYSTEMS**

Before presenting the impact of wars and the COVID-19 virus pandemic on food security in Arab countries, it is important to introduce Sustainable Development Goal 2 (SDG 2) – the dimensions of food security – since these are affected at different scales or levels by these two major challenges.

### **A. SDG 2**

The Food System Summit held on September 23, 2021 in New York confirmed the need to spur national and regional actions to deliver the UN's 17 Sustainable Development Goals (SDGs) through transforming food systems. Among these goals to be achieved by 2030 are zero hunger (SDG 2), zero poverty (SDG 1), gender equality

(SDG 5) and climate action (SDG 13).

SDG 2 aims to achieve “zero hunger”, end all forms of malnutrition and hunger by 2030, and ensure that everyone has sufficient food throughout the year, especially children (United Nation, 2015). It is one of the 17 Sustainable Development Goals established by the United Nations in 2015. Officially, SDG 2 aims to: “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”(UN, 2015; Goal 2, 2022). SDG 2 highlights the complex inter-linkages between food security, nutrition, rural transformation, and sustainable agriculture (HLPE, 2017).

SDG 2 has eight targets and 14 indicators to measure progress. The five “outcome targets” are: ending hunger and improving access to food; ending all forms of malnutrition; increasing agricultural productivity; sustainable food production systems and resilient agricultural practices; and genetic diversity of seeds, cultivated plants and farmed and domesticated animals; investments, research, and technology (United Nations, 2017). SDG 2 has direct and indirect impact on all other SDGs including SDG 6 on Cleaner Water and Sanitation. Water security is a prerequisite for food security, particularly in Arab countries. All SDGs are very important to national sustainable development and the well-being of people. Both wars/civil strife and the

COVID-19 pandemic had negative impact on achieving SDG 2 and other SDGs by 2030.

### B. Food Security Definition and Dimensions

The Rome Declaration of 1996, adopted at the World Food Summit, noted the following about food security: “Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life” (FAO, 1996). In the following years, food security has been widely understood as resting on four key pillars, as shown in Figure 1: availability, access, stability, and utilization. More recently, the concept of food security has evolved to recognize the centrality of two additional dimensions, namely agency and sustainability, described below (CFS/HLPE, 2020).

Agency refers to the capacity of individuals or groups to make their own decisions about what foods they eat, what foods they produce, how that food is produced, processed, and distributed within food systems, and their ability to engage in processes that shape food system policies and governance (CFS/HLPE, 2020; Clapp, 2022).

Sustainability refers to “food system practices that contribute to long-term regeneration of natural, social, and economic systems, ensuring the food needs of the present generations are met without

compromising food needs of future generations” (CFS/HLPE, 2020).

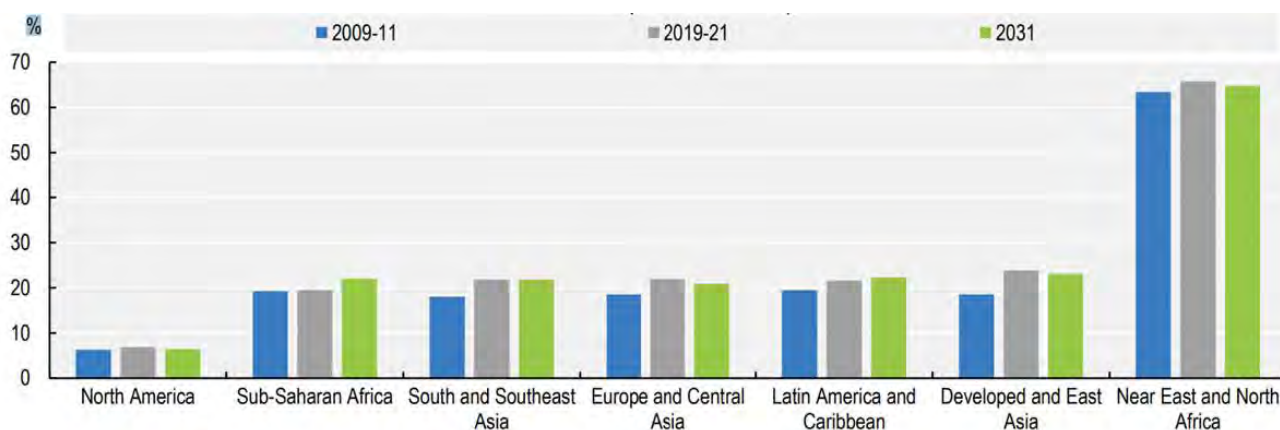
### III. CHALLENGES FACING FOOD SECURITY IN THE LAST TEN YEARS

In the last ten years and before the COVID-19 pandemic and Russia-Ukraine war, food security in the Arab region faced many serious challenges including: environmental degradation which continues to be due to unsustainable use of already limited natural resources namely water, land and biodiversity; serious climate change implications including drought; low agriculture productivity; low investment in science and advanced technology; lack of economic and social development; high birth rate (2.3 percent compared to 1.9 percent in other developing countries); high level of food wastage; political unrest and wars and civil conflicts (El Solh, 2017). The recent COVID-19 pandemic exacerbated these challenges.

The most critical challenge has been the very low investment in agriculture research, science and technology in almost all Arab countries. Arab countries have invested on average 0.32 percent and 0.29 percent of their domestic agricultural production (DAP) on agricultural research in 2018 and 2019 (AOAD, 2020). Although almost all Arab countries have put agriculture and food security high on their national agenda after the 2008/2009 food crisis and after the 2008 Riyadh Declaration on enhancing

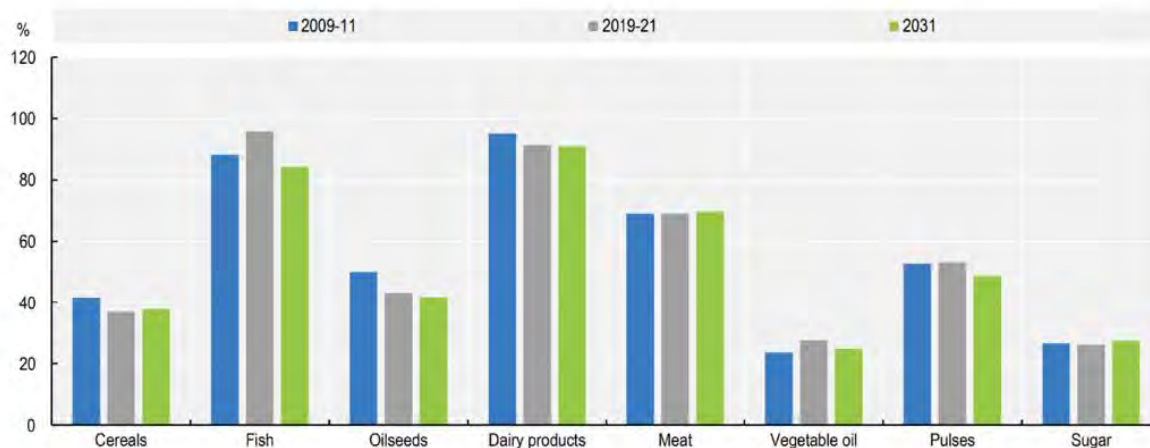
FIGURE 2

#### SHARE OF IMPORTS IN CONSUMPTION IN DIFFERENT REGIONS OF THE WORLD



Source: OECD/FAO, 2022


FIGURE 3

**SELF-SUFFICIENCY RATION FOR MAJOR FOOD COMMODITIES IN 2009/2011, 2019/2021 AND THE PROJECTIONS FOR 2031 IN THE NEAR EAST AND NORTH AFRICA**

Note: Self-sufficiency ratio calculated as  $(\text{Production} / (\text{Production} + \text{Imports} - \text{Exports})) \times 100$

Source: OECD/FAO (2022), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>

Source: OECD/FAO, 2022

StatLink  <https://stat.link/lvc1m0>

regional cooperation to face the food crisis, these countries invested less than 1 percent of their DAP on agriculture research and development. Exceptions are Oman, Palestine and Qatar, which have spent 2.91 percent, 1.62 percent and 1.28 percent, of their DAP on agriculture research and development, respectively. Only three countries, namely the United Arab Emirates, Morocco, and Tunisia, invested between 0.5 percent and 1 percent on agriculture research and development. Surprisingly, the three countries with high potential for sustainable agricultural development, namely Sudan, Algeria, and Iraq, have spent 0.15 percent, 0.08 percent and 0.03 percent of their DAP on agricultural research and development, respectively (AOAD, 2020).

#### IV. STATUS OF FOOD SECURITY

The Arab region covers a wide range of countries with diverse agroecologies, income profiles and potential for agriculture development, although they often face similar challenges related to sustainable agricultural production development (Solh et al., 2017; OECD/FAO, 2022). Both arable

land and water resources are limited. Only about 5 percent of the total land area is arable in the Arab region. The Near East and North Africa, mostly the Arab region, is the largest food deficit region in the world since there is a growing gap between domestic food production and consumption. This is well reflected in Figure 2 – the share of imports in food consumption is not only the largest in the world but also constitutes more than 60 percent of food consumption compared to less than 30 percent for other regions of the world (OECD/FAO, 2022). Currently all Arab countries are net food importers and the vast majority of people rely on imported food, thus they are highly vulnerable to fluctuations of global food prices (Maystadt et al., 2014). Furthermore the gap between domestic food production and consumption has been widening considerably. The gap was 55.8 million tons between 1996 and 1998, which was increased to 119.8 million tons in the period 2016-2018 with an increase of 114 percent. The value of the imports increased from USD 16.9 billion to USD 55.5 billion, constituting a 205 percent increase (AOAD, 2022). The AOAD projections for imports are 130.83 m tons and 194.47 m tons for 2030 and 2050, respectively.



With global food crises in 2007/2008, almost all Arab countries put agriculture and food security high on their national agenda. However, today food insecurity remains a major concern to all Arab countries despite all efforts. This was due to the lack of investment in agriculture research and development, wars and conflicts and more recently the COVID-19 pandemic.

Self-sufficiency ratios in Arab countries for most food commodities are low on average, particularly for cereals, vegetable oils and sugar, as shown in Figure 4. The high level of dependence on imports to meet the food demand and consumption makes the Arab countries highly vulnerable to trade shock related uncertainties, such as the impact the COVID-19 pandemic and impact of the Russia-Ukraine war on global trade (OCED/FAO, 2022).

It is apparent from Figure 3 that self-sufficiency ratios for the Arab region between 2019 and 2021 for cereals was less than 40 percent, for fish was about 95 percent, for oil seeds was around 40 percent, for dairy products was 85 percent, for meat was about 60 percent, for vegetable oil and sugar were around 30 percent and for pulses around 50 percent. The OECD/FAO (2022) projections for 2031 indicate slight declines in the self-sufficiency for fish, oil, and pulses with projected stabilization for other major food commodities. AOAD 2020 Report indicates similar levels of self-sufficiency ratios of these major food commodities in the Arab region. The report additionally indicates self-sufficiency levels of 95 percent for vegetables and

fruits, about 92 percent for tubers and about 80 percent for eggs.

The indicators for food security in the Arab region and globally for 2019 and 2020 are presented in Table 1. The general indicators for food security were 61.4 and 60.4 out of 100 in 2019 and 2020, respectively. Food availability, which reflects domestic food production, is 56.5 and 55.8 out of 100 in these two years. The indicators for access to food, which reflects the socio-economic status of the population, were 67.6 and 66.9 in 2019 and 2020, respectively. Except for food safety there is a slight decline in the general indicator for food security and other indicators for food availability and access to food. There is a significant decline in the indicator for natural resources between 2019 and 2020, including the ability to face the challenges facing food security in the Arab region. However, all the indicators are comparable with those for the world as whole except for the indicator for natural resources and the ability to face the challenges facing food security in 2020.

Arab countries are diverse in economic and income profiles, in the size of arable land, renewal water resources, human resources and the potential sustainable agriculture development to enhance food security (Solh et al., 2017). The countries' food self-sufficiency ratios in 2005, 2011 and 2014, as shown in Table 2, reflect the levels before the impact of civil wars and that of the COVID-19 pandemic (AOAD, 2007, 2012 & 2015; El Solh et al., 2017). In 2005, the self-sufficiency ratios range from 91.15 percent for

**TABLE 1** INDICATORS FOR FOOD SECURITY (OUT OF 100) IN THE ARAB REGION AND IN WORLD IN 2019 AND 2020

Indicators for Food Security (FS)	Arab Region		World	
	2019	2020	2019	2020
<b>General FS Indicator</b>	61.4	60.4	60.9	59.4
<b>Food Availability</b>	56.5	55.8	56.7	57.3
<b>Access to Food</b>	67.6	66.9	66.8	65.9
<b>Food Safety</b>	68.0	69.5	68.0	67.6
<b>Natural Resources and Ability to Hold</b>	50.9	42.1	50.8	49.1

Source : Economist Intelligence Unit, 2021

TABLE 2

**FOOD SELF-SUFFICIENCY RATIOS IN ARAB COUNTRIES IN 2005 AND 2011 AND FOOD ACCESS INDEX LEVELS IN DEGREES FOR 2019 AND 2020 (AOAD, 2007, 2012 AND 2020 AND SADIK, 2014)**

Year/ Country	Food Self-Sufficiency Ratio1 (%)			Food Access Index Levels2 (in degrees)		
	2005	2011	2014	2019	2020	Change
<b>Egypt</b>	83.68	78.96	88.0	74.3	75.2	0.9
<b>Saudi Arabia</b>	44.52	34.49	32.7	70.7	73.0	2.3
<b>Qatar</b>	12.18	9.90	15.8	69.5	70.7	1.2
<b>Kuwait</b>	28.38	21.68	25.0	60.0	68.3	8.3
<b>United Arab Emirates</b>	21.13	18.66	21.3	66.8	66.8	- 0.3
<b>Oman</b>	45.21	34.52	49.4	63.9	59.1	- 4.8
<b>Bahrain</b>	12.96	12.81	19.0	56.2	56.8	0.6
<b>Tunisia</b>	71.78	68.49	89.5	59.6	56.7	- 2.9
<b>Algeria</b>	53.48	70.04	75.2	59.0	55.7	- 3.3
<b>Morocco</b>	89.60	80.40	100.0	51.9	51.4	- 0.5
<b>Jordan</b>	56.26	53.09	66.6	51.7	48.2	- 3.5
<b>Syria</b>	85.23	80.62	79.3	42.4	41.3	- 1.1
<b>Sudan</b>	91.15	86.84	94.4	37.5	30.8	- 6.7
<b>Yemen</b>	51.53	31.45	63.2	27.3	27.5	0.2
<b>Iraq*</b>	75.34	82.84	94.4	-	-	-
<b>Lebanon*</b>	73.23	61.03	74.7	-	-	-
<b>Mauritania*</b>	68.49	70.03	88.8	-	-	-
<b>Palestine*</b>	81.55	72.26	79.3	-	-	-
<b>Somalia*</b>	69.17	74.26	96.0	-	--	-
<b>Arab Region</b>	<b>70.48</b>	<b>71.69</b>	<b>84.4</b>	<b>56.5</b>	<b>55.8</b>	<b>- 0.7</b>
<b>World</b>				<b>56.85</b>	<b>57.12</b>	<b>0.5</b>

Source: AOAD, 2007, 2012 & 2020; Sadik, 2014  
No data was presented by AOAD on levels of Food Access Index

Sudan to 12.18 percent for Qatar, with an average of 70.48 percent for all the Arab countries. These values in 2011 ranged from 86.84 percent for Sudan to 9.9 percent for Qatar with an average 71.69 percent for all Arab countries. In 2014, these values ranged from 100 percent for Morocco to 15.8 percent for Qatar, with an average of 84.4 percent for all Arab countries. The fluctuations in food self-sufficiency within countries between 2005, 2011 and 2014 are mostly due to the variation in climatic conditions, particularly in rainfall affecting greatly the productivity potential and production of rainfed areas which are predominant in almost all Arab countries except Egypt.

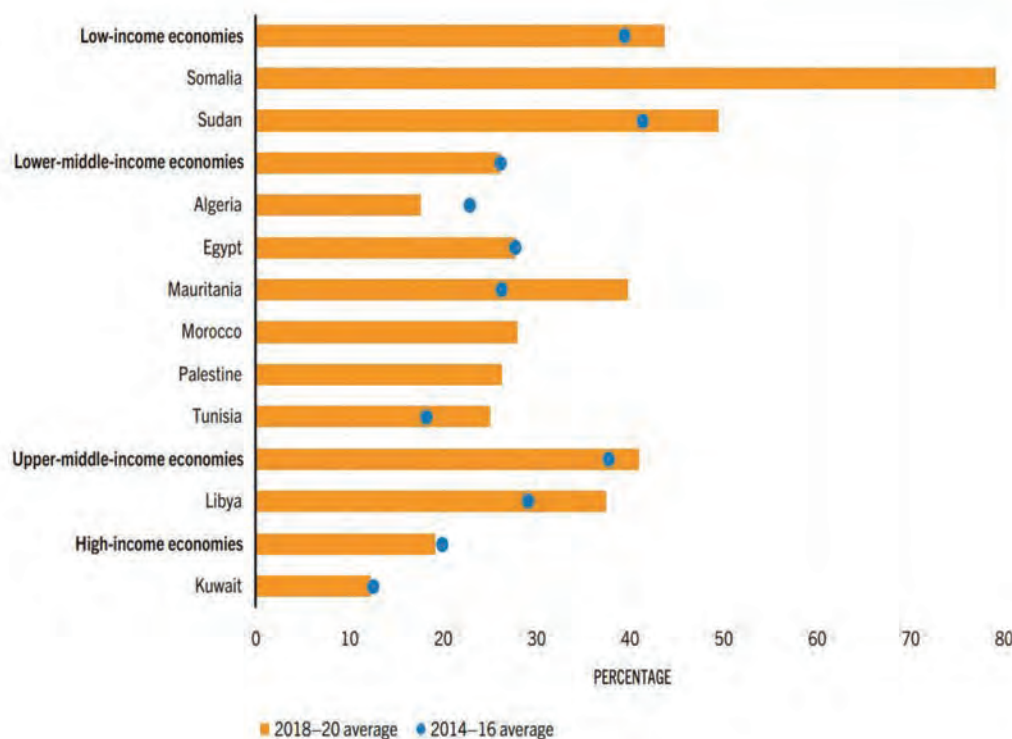
After the civil wars and conflicts and COVID-19 pandemic, the food self-sufficiency ratios declined

significantly in most countries except for Algeria, where the self-sufficiency ratio increased by 16.78 percent (Table 2). With civil wars and conflicts that escalated after 2011, self-sufficiency levels declined drastically in several Arab countries including Syria, Iraq, Sudan, Libya, and Yemen. Under this situation, it is better to use the food access index which reflects the economic, physical, social and policy environment. This will have a direct impact on food security at the household level. Furthermore, the deteriorating economic, social and policy environment in Lebanon significantly affected the food access to households even though the country is not affected by civil war.

Levels of food insecurity in several Arab countries is presented in Figure 5 (FAO, 2021). The level

FIGURE 4

## LEVEL OF FOOD INSECURITY IN SEVERAL ARAB COUNTRIES



Source : (FAO, 2021).

of food insecurity is highest in Somalia (about 78 %) where civil strife has been going on for more than 15 years, followed by Sudan (49 %). The situation is worse where there is conflict and wars as it is the case in Yemen and Syria. According to the World Bank, 2021, the UN estimates the number of Yemenis affected by food insecurity at 24 million (about 83% of the population) in 2021, with 16.2 million needing emergency food. The civil war in Syria which started in 2011 has had devastating consequences on the agricultural sector, and over 12 million Syrians are food insecure, representing 68% of the population (UN OCHA, 2022). As apparent in Figure 4, food insecurity increased in several Arab countries, namely Sudan, Mauritania, Tunisia, and Libya between 2014-16 compared to 2018-2020. Algeria is the only Arab countries where food insecurity decreased during the same period.

According to FAO, 2021, hunger in the Arab region has continued to increase since 2014 mostly because of wars and civil strife in number of Arab countries, and more recently because of the COVID-19 pandemic. Consequently, the number

of undernourished people reached 69 million in 2020, or 15.8 percent of the population in Arab Region, a 91.1 % increase in the past two decades (FAO, 2021). The implications of COVID-19 pandemic brought another major shock to food security in the Region, increasing the number of undernourished people by 4.8 million compared to 2019. According to FAO, hunger increased across all income levels, in both conflict-affected countries and non-conflict countries. Somalia and Yemen, both conflict-affected, had the highest levels of undernourishment in the Region in 2020.

According to FAO, 2021, moderate and severe food insecurity levels have also continued its increasing trend, affecting an estimated 141 million people in 2020. With the recent trends in hunger and food insecurity, it will be extremely difficult for the Region to achieve zero hunger (SDG 2) by 2030. This is certainly because of the exposure of the Arab Region to multiple shocks, stresses, and challenges, such as poverty, inequality, conflict, climate change, degradation of natural resources, particularly water, disease and pandemic, among others.

## V. IMPACT OF WARS ON FOOD SECURITY IN ARAB COUNTRIES

The national civil strife and wars in several Arab countries had significant impact on both national, household, and individual food security. Internationally, the recent Russia-Ukraine war had serious negative implications on global and national food security of several Arab countries that rely heavily on imports of major food commodities from the two countries.

### A. Impact of National Wars/Civil Strife

Wars, conflicts, and civil strife reduce food availability and access to food by impacting food production. The destruction of agricultural assets, physical and irrigation water infrastructure interrupts the food chain and markets and drives up food prices, thus leading to food insecurity (IFPRI, 2014). Wars and civil strife had a major impact on several Arab countries including Iraq, Libya, Palestine, Somalia, Sudan, Syria, and Yemen. Considering the size of arable land, the untapped renewal water resources, both Iraq and Syria have high potential for sustainable agricultural development and had high levels of food security compared to most Arab countries before wars and civil strife (El Solh et al., 2017). Before the impact of wars and conflicts on the agricultural sector of these countries, food self-sufficiency ranged between 75.34 percent and 82.84 percent in Iraq and between 80.62 percent and 85.23 percent in Syria for 2005 and 2011 period. The following will illustrate the impact of wars and conflicts on the agricultural sector and strategic crops in both Iraq and Syria.

Although Iraq is an oil-rich country, agriculture represented more than 18 percent of the country's national gross domestic production (GDP) in 1995. However, over the last 30 years the Gulf War, the US invasion of Iraq, the internal conflicts and ISIS's occupation of northern Iraq in 2014 greatly devastated the agricultural sector. By 2019 the agricultural sector accounted for only 2 percent of the national GDP (Bernadaux, 2021). Drought and the reduced flow of water from the Tigris and Euphrates rivers coming from Turkey had a serious impact on agricultural production in Iraq. The poor security situation in the country contributed to the negligence of

TABLE 3

WHEAT AREA, PRODUCTION AND YIELD IN IRAQ BETWEEN 2014 AND 2018

Year	Area in hectares (ha)	Production 1000 tons	Yield Kg/ha
2014	1,401,100	7,093	5,063
2015	545,800	3,266	5,984
2016	521,700	3,993	7,694
2017	544,300	3,728	6,849
2018	376,500	2,450	6,500

Source: Iraqi Ministry of Planning and Development Cooperation (IMPDC). Central Agency for Statistics and Information Technology. Crops and vegetable production report for year 2018.

the irrigation projects, which caused a massive depletion of irrigation water sources (Bernadaux, 2021).

Wheat, a strategic crop in Iraq, was greatly affected by wars and civil strife over the last 20 years (Table 3). Although productivity per unit area of wheat has increased considerably between 2014 and 2018, wheat acreage has dropped by more than 60 percent between 2014 and 2015 and dropped further by more than 30 percent between 2015 and 2018 (IMPC, 2018).

Date palm, which originated in Iraq, is the most tolerant fruit tree to salinity, high temperatures and harsh environment, has a low water requirement and is well adapted to desert ecosystems and climate change implications. Date palm is important in improving the desert ecosystem environment, providing good income in rural areas and contributing to food security. For all these advantages, date palm is a strategic fruit tree for almost all Arab countries, particularly Iraq, Egypt and the Gulf and North African countries.

Wars and civil strife in Iraq since 1980 have seriously impacted the acreage and production of date palm. In 1950, Iraq had 32 million trees, dropping to 20 million in 1980 (IMO, 2020) with a production of nearly one million tons of dates, representing 75 percent of global consumption before 1980 (Bernadaux, 2021). The government's negligence of the agriculture sector during of the Iran-Iraq war between 1980 and 1988 caused massive destruction of date palm trees, and as a result date production was reduced by 40 to 50 percent by the end of that war (IMO, 2020; Bernadaux, 2021).

Vast areas of date palm were destroyed in Basra Governorate, which used to cultivate 13 million palm trees, and in other south and southeast areas close to the Iraqi Iranian border which were the war grounds. Further destruction of the date palm plantation in Iraq was due to the Second Gulf War and the US invasion of Iraq in 2003, as presented in Figures 6 and 7 on the number of palm trees and production, respectively. The number of palm trees reduced by 56 percent while production was reduced by 25 percent in 2004, compared to 1980. The palm plantations were destroyed for security reasons to avoid the trees from providing shelter for armed Iraqi

resistance to the US invasion. Since 2003, the Iraq security situation continued to worsen and in 2014 ISIS occupied a good part of Iraq. Date palm production further deteriorated under these circumstances.

The Syrian agricultural sector provides economic resources for more than 46 percent of the population, in addition to its significant contribution to the Syrian national economy where more than 31 percent of the total Syrian exports come from the agricultural sector (Al Bakeer, 2018; Central Bureau of Statistics, 2011 as cited by Mohamed et al., 2019). The FAO mission findings on “Counting the Cost” of the civil strife in Syria was well presented in the FAO 2017 report on “Agriculture in Syria after six years of crisis”. The report indicated that vast areas of agricultural land with orchards or crops have been destroyed and farmers are facing shortages of agricultural inputs (seeds, fertilizers, fuel to power irrigation pumps, etc.) or are unable to afford them due to soaring prices (FAO, 2017). The livestock subsector accounted for the highest proportion of damage. The overall financial cost of damage and loss in the agriculture sector over the 2011–2016 period is estimated by FAO to be at least USD 16 billion, which is equivalent to just under one third of Syria’s GDP in 2016. The irrigation systems and other agricultural infrastructure, such as buildings, was estimated at USD 3.2 billion (FAO, 2017).

The civil strife in Syria had serious negative impact on three major strategic crops, namely wheat, cotton, and olives. Wheat is grown on more than 1.7 million hectares, cotton on 172,414 hectares and olives on 79,000 hectares (Mohammed et al., 2019). The long-term analysis of the production of these three strategic crops from 1960 to 2007, before the serious drought in 2008, showed a significant positive change in the production of these crops (Figure 5). However, a significant negative change was noticed up to 2016 due to the civil strife in Syria. The highest reductions in the production of wheat and olives were 47.53 percent and 64.18 percent, respectively, in 2014; and the reduction in cotton production was more than 93 percent in 2016.

Before the civil strife, Syria used to be the only Arab country that was self-sufficient enough to

FIGURE 5

**THE PRODUCTION OF THE THREE STRATEGIC CROPS IN SYRIA, WHEAT, COTTON AND OLIVES BETWEEN 1960 AND 2000 (TOP PANEL) AND BETWEEN 2000 TO 2016 (BOTTOM PANEL)**

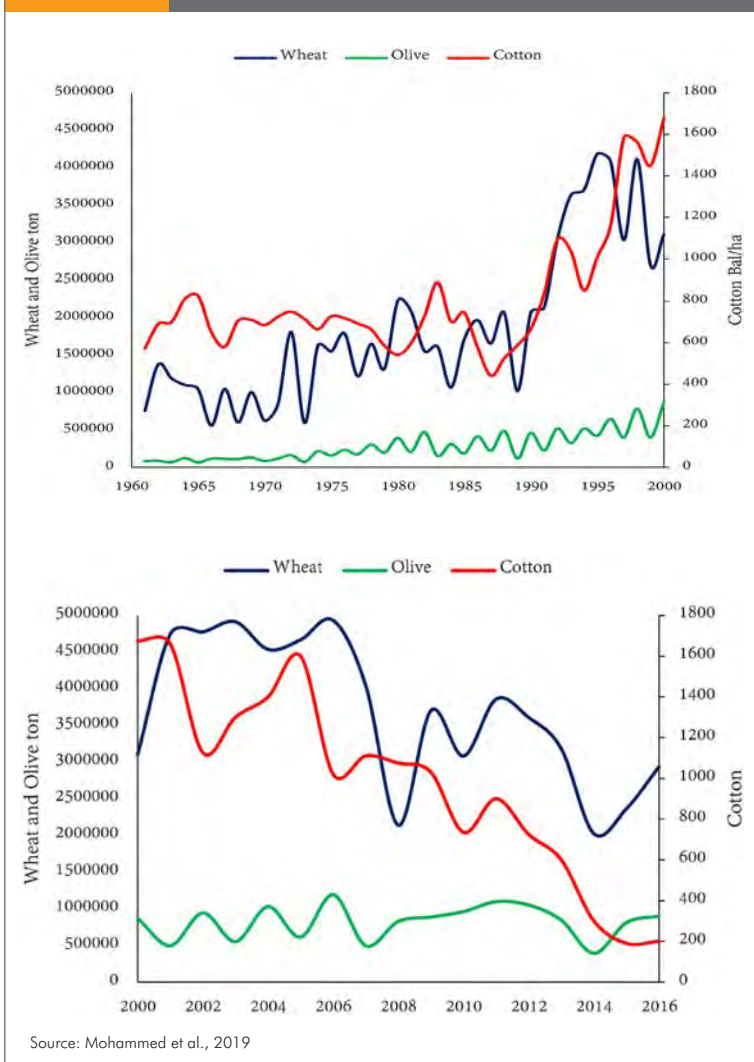
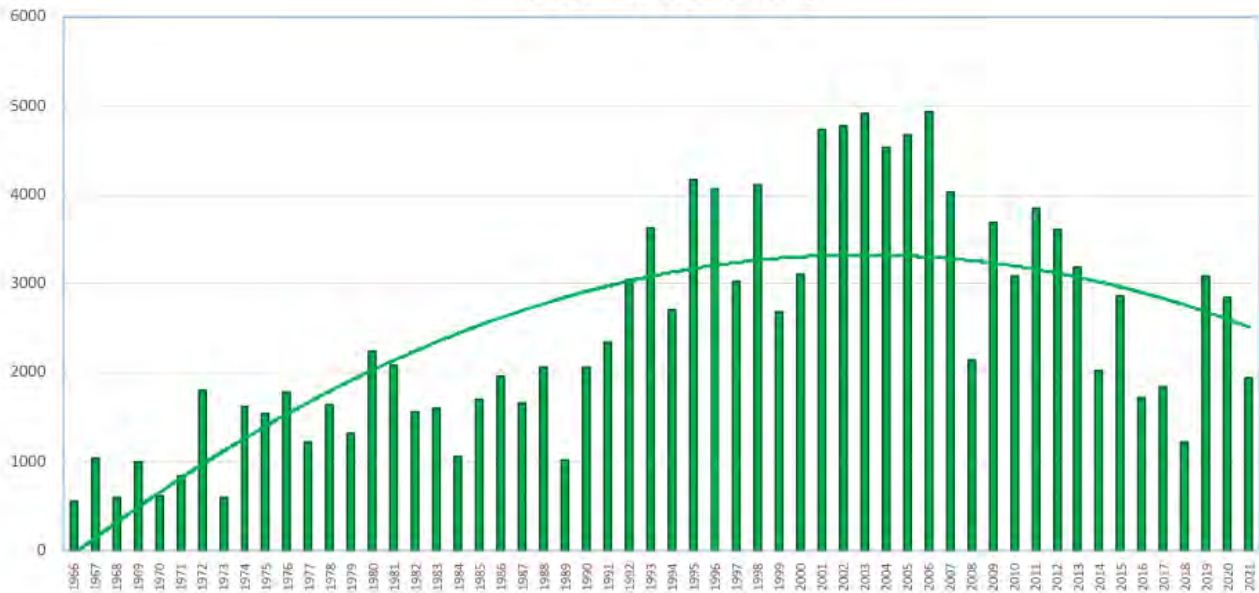




FIGURE 6

WHEAT PRODUCTION IN SYRIA BETWEEN 1966 AND 2021

Thousand Tons



Source: Ministry of Agriculture, 2022; ICARDA, personal contact

meet its domestic needs of wheat in the 1990's, after having difficulties in this regard in the 1960's until the 1980's. A decision was made at highest level in Syria to set policies to enhance wheat production to achieve self-sufficiency in wheat. This was achieved in the 1990's and in good rainy years in 2000's wheat production reached up to about 5 million tons, meeting the domestic demand of 3.5 million tons and exporting the surplus of 1.5 million tons (Jamal, 2014). After 2018, Syria started to recover in wheat production slowly, as presented in Figure 6, although parts of the country still have security problems, particularly in the north where wheat is grown as the major crop.

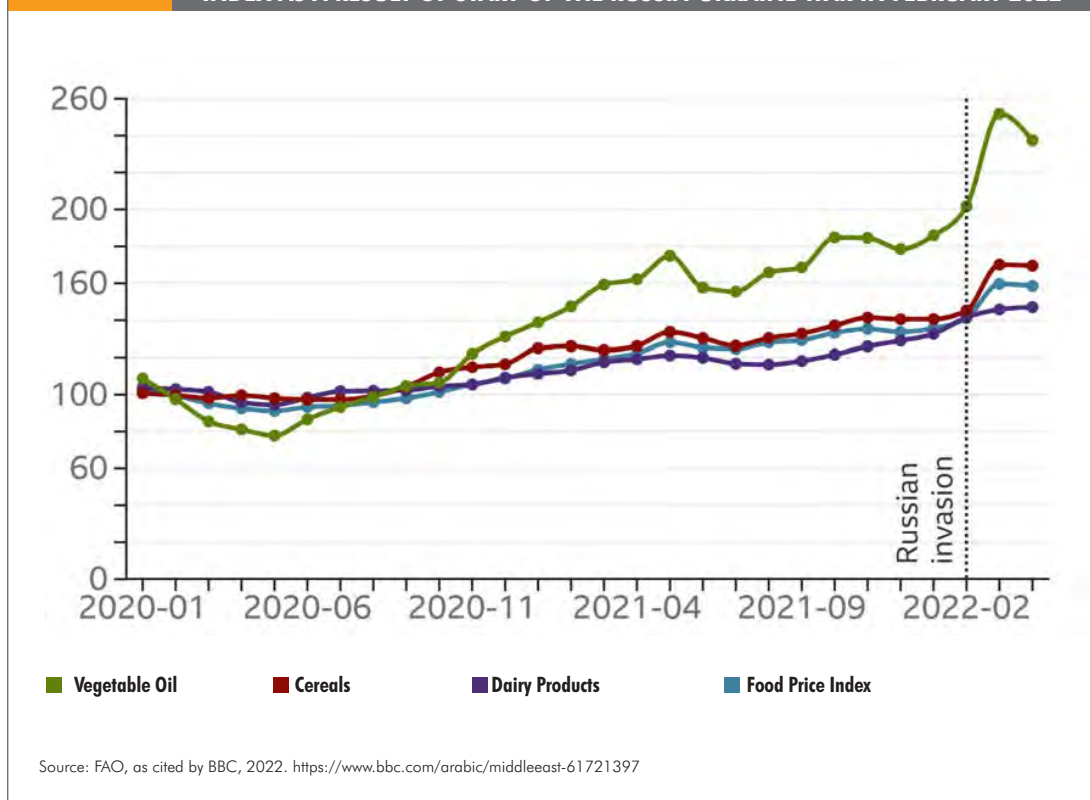
### **B. Impact of the Russia-Ukraine war**

According to the World Food Program (WFP) the Middle East and North Africa region is severely affected by the continuing impact of the Russia-Ukraine war. Currently all Arab countries rely heavily on food imports, making them highly vulnerable to the substantial increase in food prices because of this war, as

shown in Figure 7 (BBC, 2022). As indicated by the BBC, just before the Russia-Ukraine war broke out in February 2022, world food prices reached their highest levels ever due to food supply and demand levels, high production cost, and international trade disruptions of the food supply chain due to the COVID-19 pandemic. The war has added to the vulnerability of the global markets of major food commodities since both Russia and Ukraine are among the largest producers and exporters of major food crops. Both countries contributed to 28 percent of global wheat exports in 2021 (39 m tons by Russia and 17 m tons by Ukraine), with high share of sunflower, barley and rice markets (BBC, 2022; Economist, 2022).

Thus, the disruption of the food exports from both Russia and Ukraine is having serious impact on food security globally and on several Arab countries that rely on food imports from these countries. Figure 11 shows that these countries include Oman, Lebanon, Egypt, Libya, United Arab Emirates, Jordan, and Yemen. Wheat imports in these countries ranged from 40 percent to 70 percent and according to WFP

FIGURE 7

**THE SUDDEN INCREASE IN MAJOR FOOD COMMODITIES AND THE FOOD PRICE INDEX AS A RESULT OF START OF THE RUSSIA-UKRAINE WAR IN FEBRUARY 2022**


(as cited by BBC, 2022), 42 percent of wheat imports and 23 percent of vegetable oil imports for Arab countries are from Russia and Ukraine. According to The Economist (2022) 85.6 percent of the wheat imports in Egypt and 75.5 percent of the wheat imports are from Russia and Ukraine (Figure 9). In addition, 22.8 percent of other MENA countries' wheat imports are also from Russia and Ukraine.

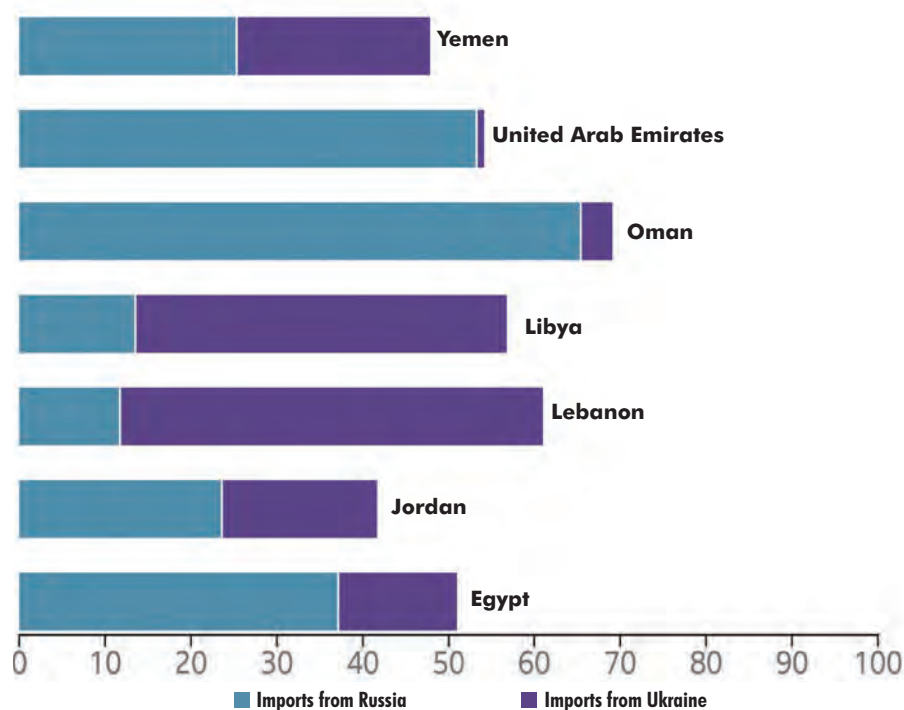
As early as March 2022, the World Food Programme (WFP) warned of serious impact of the war in Ukraine on food prices in the world, including Arab countries. Already wheat flour prices were increased by 47 percent in Lebanon, 15 percent in Egypt and Libya, 14 percent in Palestine, 11 percent in Yemen and about 10 percent in Syria. It has been estimated that few months into the Ukraine war, the cost of a basic food basket – the minimum food needs per family per month – registered an annual increase of 351 percent in Lebanon, the highest in the region. It was followed by Syria, with a 97 percent rise, and Yemen with 81 percent hike. The three countries, all reliant on food imports, also reported sharp

currency depreciation. Meanwhile, a drought in Syria has also impacted the country's annual wheat production. They warned that this will have serious implications on households' and individuals' food security. In a later report, FAO and WFP reported further deterioration, issuing a stark warning of multiple, looming food crises, "driven by conflict, climate shocks, the fallout from the COVID-19 pandemic, and massive public debt burdens - exacerbated by the ripple effects of the war in Ukraine which has pushed food and fuel prices to accelerate in many nations across the globe." (WFP, 2022; FAO-WFP, 2022)

However, the tripartite agreement involving Russia, Ukraine, and Turkey to resume exports of major food commodities from the Ukraine to various parts of the world including Arab countries helped to ease the situation, with regular bottlenecks reflecting the conditions on the battlefield. Egypt and Lebanon already received the first shipment, which has eased the prices of major food commodities. Nevertheless, food security will continue to be a major concern both globally and in several Arab countries

FIGURE 8

## RUSSIAN AND UKRAINIAN WHEAT IMPORTS BY SEVERAL ARAB COUNTRIES



Source: FAO through the Breakthrough Institute, as cited by BBC, 2022

because of the serious implications of the Russia-Ukraine war on the production of major food commodities. Ukraine already announced that the production of wheat and other major food commodities will be reduced by 50 percent in the 2022/2023 season.

## VI. IMPACT OF COVID-19 ON FOOD SECURITY AND NUTRITION (FSN) IN ARAB COUNTRIES

The COVID-19 pandemic crisis emerged recently to complicate further the economic, social and food security and nutrition situation in Arab countries. Besides the serious health implications of the COVID-19 pandemic on the people of the region, the pandemic has short, medium and long-term implications that will affect and have affected directly and indirectly food security and nutrition (FSN), both globally and in Arab countries (Figure 10, CFS/HLPE, 2020).

The COVID-19 pandemic is already affecting food systems directly, apparent directly in food

supply and demand and indirectly in decreased purchasing power and capacity to produce and distribute food.

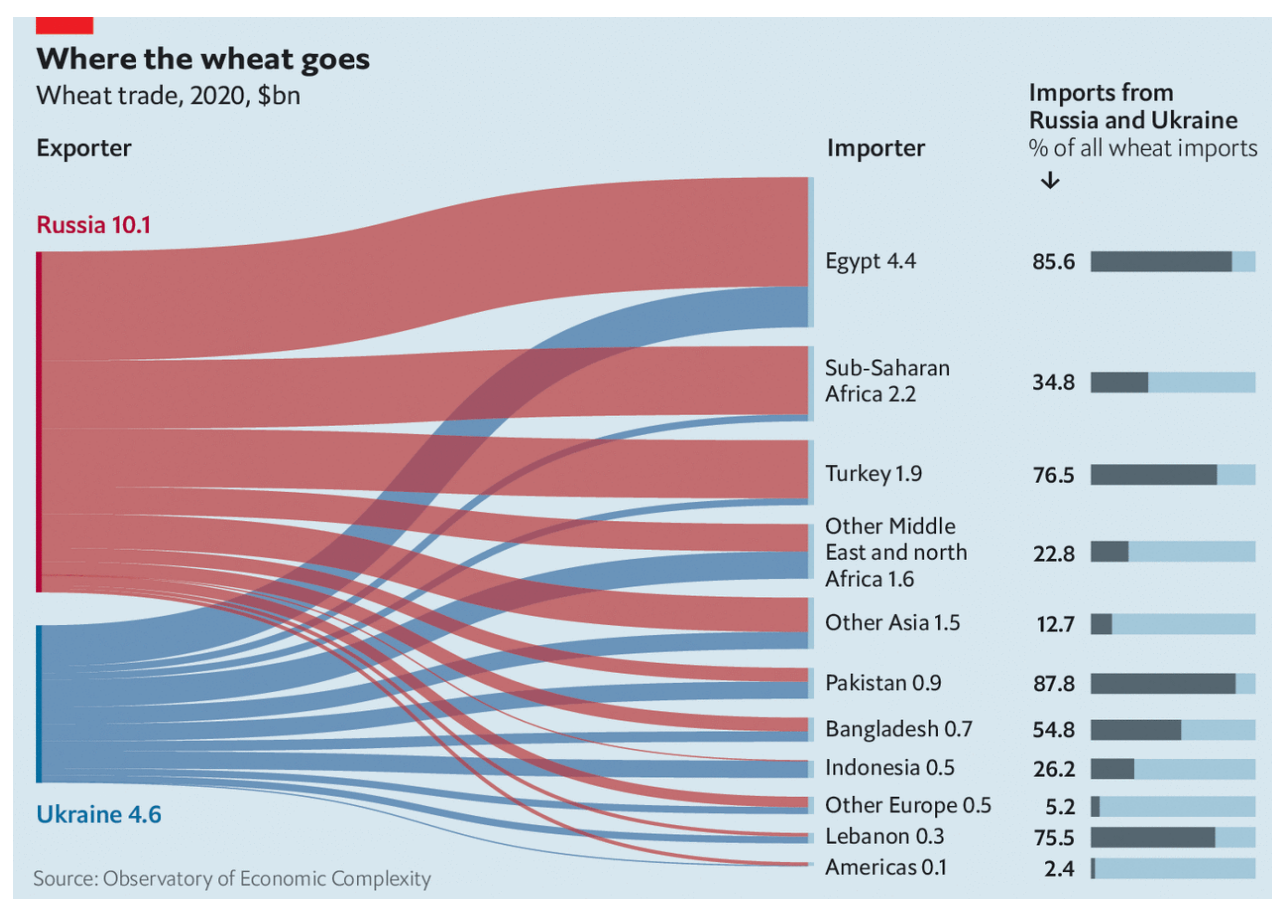
The most affected have been the poorest and most vulnerable segments of the population. People working in as casual labor, services, restaurants, and retail markets have faced massive job losses because of social distances and lockdown.

Even the oil-rich Arab countries were affected seriously by COVID-19. We witnessed a sudden and significant drop in world oil prices due to low global demand for energy because of the measures of the lockdown and social distancing in both industrial and non-industrial countries. However, in 2022 oil prices jumped again after the Russia-Ukraine war because of the European and US embargo on Russian oil and gas.

All six pillars or components of FSN are already affected by the COVID-19 crisis globally and in the Arab region (Figure 11). This includes food availability and food production, which is affected in the short, medium, and long terms; access to

FIGURE 9

## IMPORTERS OF WHEAT FROM RUSSIA AND UKRAINE AND THE PERCENTAGE OF WHEAT FROM EACH OF THE TWO COUNTRIES



The Economist

Source: The Observatory of Economic Complexity, The Economist, 2022

food is compromised and reduced drastically because of an increase in unemployment, and food stability is negatively affected since agriculture inputs are already in shortage and are not available to farmers timely. Markets for agricultural inputs are already highly unstable, leading to a great degree of uncertainty in availability. Limited access to food certainly has serious impact on the progression of the pandemic, by weakening human immunity system.

The dynamics of the impact of COVID-19 on economic, social, food production and environment that would lead to increased poverty and food security are presented in Figure 12. These projections apply directly to the many parts of the Arab region, where poverty is expected to increase up to 2030. This figure demonstrates the current

and potential future threats of COVID-19 for the full long-term impacts of COVID-19 on food security have yet to be realized and will take several more years to be fully understand.

The present crisis due to the COVID-19 pandemic highlights existing challenges in food systems in the Arab region and the urgent need for improved resilience in the food supply chain and in the food system, taking into consideration clear measures to cope with the crisis implications on all six dimensions of food security.

## VII. THE WAY FORWARD

Wars, civil strife and the COVID-19 pandemic have had a great negative impact on food security in Arab countries. Specific immediate



measures need to be taken to better cope with such challenges in the future to enhance food security. There is a grave need for comprehensive strategies and policies to be adopted at national and regional levels to address these challenges.

### **A. Coping with the Impact of Wars/ Civil Strife on Food Security**

With regards to the impact of the Russia-Ukraine war, the Arab countries need to strategically follow two routes: the first is to invest more in domestic production of major food crops to enhance self-sufficiency at the national and regional levels; the second is to enhance regional cooperation to achieve food security at the regional level, building on the comparative advantage of each country considering that the Arab countries are diverse in economic and social profiles and in agricultural potential.

Fortunately, based on the very recent tripartite agreement involving Russia, Ukraine and Turkey, exports of major food commodities were resumed from Ukraine. As a result global food prices went down. However, the impact of the war

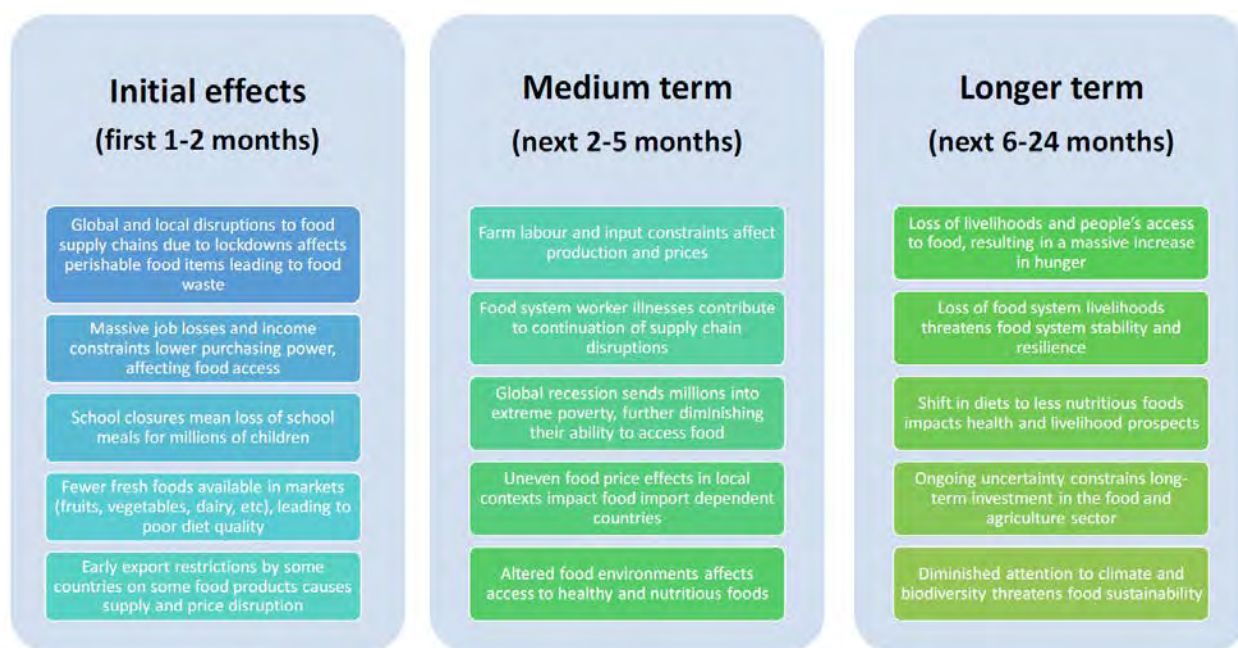
in the Ukraine and the embargo on Russia will continue to have a negative impact on exports of major food commodities, which will affect food security in several Arab countries for several years to come.

With respect to wars, conflicts, and civil strife in Arab countries, it is essential to build resilience to conflicts (IFPRI, 2014) and develop a strategy and action plans in post-conflict countries to rebuild the agricultural sector. This includes the reviving of agricultural research and development involving both the public and private sector. Resilience to conflict can be built through food security policies and programs, as demonstrated in by IFPRI (2014) in four case studies involving Egypt, Somalia, Sudan, and Yemen.

It should be emphasized that food insecurity is not only a consequence of conflict, but can also instigate conflicts by leading to poverty, unemployment of young people, inequalities in income, land, and natural resources, and most important, poor governance (IFPRI, 2014). It can drag civil strife for many years, as was the case in Syria and Iraq. Before wars and civil

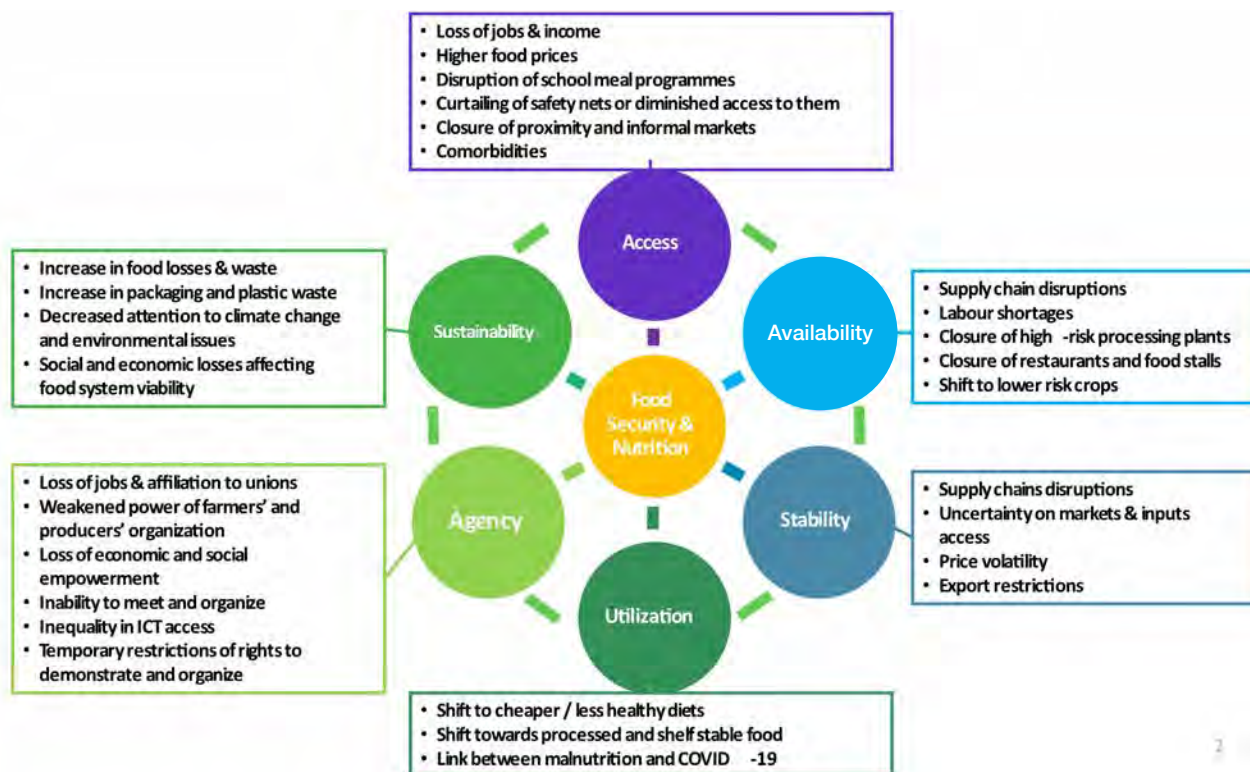
FIGURE 10

#### **INITIAL, MEDIUM- AND LONG-TERM IMPACT OF COVID-19 PANDEMIC ON OF FOOD SECURITY AND NUTRITION (FSN)**



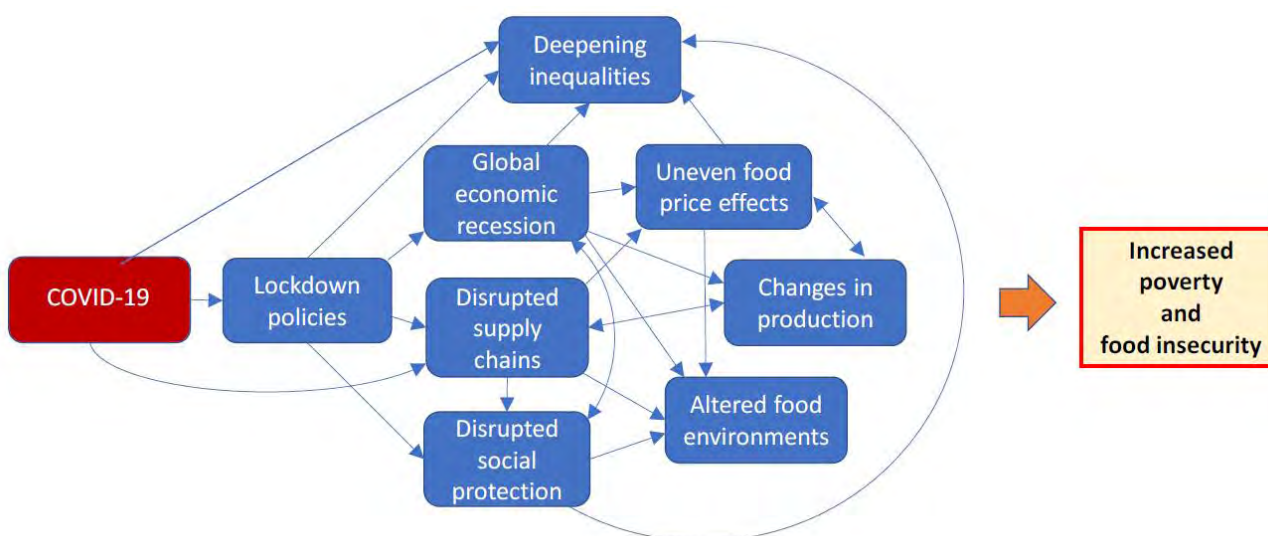
Source: CFS/HLPE, 2020

FIGURE 11 IMPACT OF COVID-19 PANDEMIC ON THE SIX DIMENSIONS OF FOOD SECURITY



Source: CFS/HLPE, 2020

FIGURE 12 DYNAMICS OF THE IMPACT OF COVID-19 ON ECONOMIC, SOCIAL, FOOD PRODUCTION AND ENVIRONMENT THAT WOULD LEAD TO INCREASED POVERTY AND FOOD SECURITY



Source: CFS/HLPE, 2020 and CFS/HLPE, 2021.



conflicts escalated in 2011 in Arab countries, food riots occurred because of higher food prices in Bahrain, Egypt, Jordan, Morocco, and Yemen in the 1970's and in Jordan and Morocco in the 1980's and 1990's (The Economist, 2012). Studies show that food insecurity at the national and household levels is a major cause of conflict in Arab countries, more so compared to the rest of the world (Maystadt et al., 2014). This supports the wide belief that food insecurity has been among the key factor that triggered upheavals and revolutions in the Arab world starting in 2011 (Breisinger et al., 2012).

### **B. Coping with the Impact of COVID-19 Pandemic on Food Security**

The following are specific measures to cope with the challenges facing Arab countries related to the implications of the COVID-19 pandemic:

- Continue vaccination to build immunity at the community and national levels and reduce social distancing and lockdown.
- Ensure that both agriculture and food production system are high priorities in national strategies for national sustainable development. Unfortunately, this was not the case before the COVID-19 crisis, although a good number of Arab countries advocated self-sufficiency instead of self-reliance in major

food commodities through local production or foreign investment immediately after the spike in food prices during the 2008/2009 economic and food crises.

- Effective governance is essential, including commitment to multilateral cooperation and coordination involving all stakeholders in the food system from production, post-harvest handling, distribution and marketing and consumption.
- A robust research agenda and development support are needed on a wide range of FSN issues, including newly emerging issue because of interruption of the food chains, food system such as the increase in unemployment because of the COVID-19 pandemic, especially their impact on the most marginalized and vulnerable people.
- Provide incentives and protection to small farmers to continue their important contribution to national food production and cope with the negative implications COVID-19 on small farmers.
- Continue to develop and monitor sufficient stocks of reserves of strategic food commodities for at least six months.

## **VIII. CONCLUSION AND RECOMMENDATIONS**

Considering all the challenges facing food security





Viktor Smith

at national and regional levels in Arab countries, it is critical for the Arab countries to give high priority to reduce the gap between domestic food production and consumption to reduce reliance on food imports. Global food crises make most food exporting countries ban food export, thus, even the rich Arab countries that rely heavily on food imports to achieve food security may not be able to find the needed food commodities in the global market.

It is essential to implement effectively the AOAD Strategy for Sustainable Agriculture Development and the Program to Enhance Food Security in Arab Countries already approved by the Arab Summit. This will help achieve food security at the regional level and reduce and even eliminate the growing import bills.

Political stability and security are prerequisites for enhancing food security and nutrition. Thus, it is essential to build resilience to conflicts and develop a strategy and action plans in post-conflict countries to rebuild the agricultural sector, including rebuilding agricultural research and development involving both the public and private sector.

Special attention should be given to the serious interruption of the food supply chain by COVID-19 by: continuing vaccination to achieve social protection, providing incentives and compensation to small farmers to continue their important contribution to national

food production and cope with the negative implications COVID-19, and continue to develop and monitor sufficient stocks of reserves of strategic food commodities for at least six months.

To enhance food security in Arab countries at national and regional levels it is essential to fully exploit the agriculture potential in each country, in addition to strengthening regional coordination and cooperation. Arab countries differ in their economic capabilities and agricultural resources. Several countries have high potential for sustainable agricultural development to achieve food security considering the size of arable land and renewal water resources (El Solh, 2017). These include Sudan, Iraq, Morocco, Algeria, Syria, and Egypt. On the other hand, almost all Gulf countries – namely Bahrain, Kuwait, Oman, Qatar, and UAE – have extremely limited sustainable agriculture potential. Nonetheless, several of these countries achieved self-sufficiency in date palm and vegetable crops through protected agriculture (El Solh, 2017). Studies already demonstrated great potential to bridge the gap between wheat domestic production and wheat consumption through the adoption of advanced technologies in eight Arab countries (Halila, 2014). Considering the diversity in Arab countries in sustainable agricultural development, regional coordination and cooperation is also critical to enhance regional food security and reduce reliance on food imports.



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# IMPACT OF PANDEMIC AND WARS ON WATER

ALAA EL-SADEK AND MONA RADWAN



## I. BACKGROUND

Population pressure and current agricultural policies constitute the core challenges to the development of water resources in the Arab region, where water demand rates exceed the anticipated water resource development rates. Currently, many Arab countries are experiencing large water deficits, which they compensate for by mining groundwater resources, relying on expensive desalination plants and expanding the reuse of treated wastewater. The interdisciplinary nature of water requires new methods to integrate the technical, economic, environmental, social, and legal aspects of this resource into a coherent framework of Integrated Water Resources Management (IWRM). A balanced approach between supply and demand management needs to be achieved, closely linking water security and food security. With water consumption in the agricultural sector reaching 88 percent of total water use, there is an urgent need to integrate agricultural and water policies. Improving irrigation techniques and agriculture systems to improve water use efficiency is one of the most urgent needs and prerequisites for sustainable food production in the region. In addition, Arab food security could be achieved through regional agricultural cooperation, where countries with

comparative advantages in land and water resources, human resources, or financial resources would combine their advantages to achieve food security (El-Sadek, 2011). In addition to the issue of shared water resources among countries within the region, the sharing of these resources with countries outside of the region represents another challenge. This challenge is associated with threats to regional stability, water and food security, and overall water resources planning. Surface and groundwater resources shared between riparian states should be given high priority in order to reach agreement and form treaties regarding water allocation, including quality considerations, according to international water law.

The COVID-19 pandemic has exposed serious fault lines and vulnerabilities in societies, institutions and economies all around the world. The pandemic spread at a time when the Arab region was under great pressure of various kinds. The responses of Arab states to the threat of the pandemic, as well as the international context in which the pandemic took place, had the potential to aggravate some of the existing problems. The global emergency threatened to turn socio-economic challenges into political crises and intensify the demands for change that are spreading through various countries.



Al Wahda Dam in Morocco



The Arab region, home to 436 million people, 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 (UN-Water, 2016). 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.

The environmental costs of the pandemic come on top of pre-existing patterns of economic growth that largely relied on the excessive extraction of scarce, non-renewable natural resources and substandard waste management. Unsustainable patterns of consumption and production over the past decades combined with the consequences of climate change have contributed to growing water scarcity, increased energy consumption and associated greenhouse gas emissions; thus exacerbating land degradation and desertification and escalating water, food and energy import bills. COVID-19 has been a wake-up call for the importance of ensuring access to clean water, sanitation and hygiene for all to protect health and welfare. Handwashing with soap and water is globally understood as the best prevention against COVID-19 transmission. What seems like a simple recommendation, grounded in basic hygiene principles, becomes much more complicated in the water scarce Arab region where over 362 million people live with less than 1,000 cubic metres of fresh water per person per year, and 18 of the 22 Arab countries are considered water scarce (ESCWA, 2020a).

Armed conflicts can disrupt water systems in diverse ways, with negative consequences ranging from basic service provision to development efforts (World Bank, 2011). Over the past decades, several international organizations have been monitoring the impacts of conflict on water and other development indicators. It is therefore important to clearly distinguish the theme of “water as a driver of conflict” in discussing transboundary water management as a process that can be affected by armed conflict within or between the riparian countries (UNICEF, 2019).

## II. IMPACT ASSESSMENT

Water demand for handwashing in households increased by 9 to 12 litres per person per day as a result of COVID-19 mitigation measures, representing an average increase of 5 percent in household water demand. This is equivalent to 4–5 million cubic meters per day in the Arab region as a result of COVID-19. This conservative estimate does not include increases in household water demand that are associated with increased laundry, cleaning and food washing. The situation is complicated by insufficient and intermittent piped water supply in ten Arab countries, where 70 million people do not have a continuous water supply. Increased demand for water for domestic uses cost the Arab region around USD 200 million per month to satisfy additional water needs owing to COVID-19. While mitigating the effects of the pandemic requires changes in behavior and consumption patterns, this also results in a new normal of increased expenditures and domestic water demand relative to industrial and agricultural water uses (ESCWA, 2020b).

Over 74 million people in the Arab region are at a higher risk of contracting COVID-19 owing to a lack of access to basic handwashing facilities. Given the need to ensure hand hygiene to prevent the spread of COVID-19, the risk of transmission is higher in households that do not have access to a handwashing facility with water, a sink and soap. An estimated 26 million refugees and internally displaced persons (IDPs) were at greater risk of contracting COVID-19 owing to a lack of adequate water, sanitation and hygiene (WASH) services. Typically, refugees and IDPs live in overcrowded camps and informal housing lacking basic water and sanitation services, further exacerbating their vulnerability to outbreaks of waterborne diseases and COVID-19 (ESCWA, 2020a). Any disruption to humanitarian aid programs will only exacerbate the situation and expose them to greater risks, which also impact host communities and create tensions. Reports indicate that water supplies are being interrupted intentionally or as a collateral effect of military operations in some conflict-affected areas in the Arab region, which exacerbates risks to human health under the current pandemic. This poses additional risks to vulnerable communities, and particularly to women and children living under conflict. The United Nations Secretary General

has repeatedly called for the cessation of hostilities to reduce the risk of COVID-19 transmission in shelters, and prevent further pressures on health-care facilities and vulnerable communities. Arab territories under occupation lack access to their water resources, and are at greater risk because of diminished capacity to independently manage and provide fresh water and sanitation services. Nearly 1.8 million Palestinians need water, sanitation and hygiene assistance. In the Gaza Strip, one of the most densely populated areas in the world, just 1 in 10 households has direct access to safe water. The Gaza population faces the dual challenge of limited water quantity and poor water quality (ESCWA, 2020c).

Water and sanitation service providers are under increased pressure to continue providing safely managed water and sanitation services, with increased demand for materials, restricted movement of staff, and reduced cost recovery (Tignino, 2011). The COVID-19 pandemic, and resulting increase in demand for water and sanitation services of the highest quality, requires service providers to ensure a continuous supply of chemicals needed for water and wastewater testing and treatment. This is coupled with possible restricted movement of staff under quarantine conditions or due to health concerns. Moreover, diminished financial resources, owing to the economic impact of the pandemic, resulted in more customers defaulting on their water bills and in fewer resources for operations, management and repairs (ESCWA, 2020b). Increased consumption of water associated with more cleaning and disinfecting resulted in increased domestic wastewater that needed to be

safely treated. This poses challenges in countries where wastewater treatment remains limited, and polluted waters flow into surface and coastal waters, and permeate groundwater resources. Similar concerns are presented by the need for the safe disposal of hazardous medical equipment to avoid the contamination of surface waters and leaching into groundwater.

As the COVID-19 pandemic evolves globally, water stress rises owing to increased allocation of water resources to the agriculture sector to offset lower food exports by food producing countries. Many countries in the Arab region depend on food imports, especially for staples and protein rich food. The region imports 65 percent of the wheat it needs. Agriculture is already the biggest consumer of water in the region, with 84 percent of all withdrawals going to the sector. Some Arab countries seek to increase local production to offset any foreseen food import shortages, which would shift already scarce water resources from the domestic sector to the agriculture sector. Similar response measures were taken at the village and household levels, resulting in increased water pumping from surface and groundwater resources (ESCWA, 2020d).

### III. IMPACTS OF CONFLICTS ON WATER RESOURCES

When resources become scarcer or the demand for them increases, this usually leads to a rise in conflicts among the groups competing for them. Distribution conflicts between neighboring countries situated on the banks of cross-border rivers, such as the Jordan and Euphrates rivers, clearly show how common access to drinking water can become an issue about territorial rights and political power. Internal conflicts within countries can frequently arise or be exacerbated by a shortage or unequal distribution of water resources when, for example, migration causes the demand for water to increase in the countries that take in these migrants. Not only the availability of water resources, but also how they are managed harbors crisis potential: when the necessary mechanisms are not in place, additional water stress during periods of drought or economic shock can cause frustration towards the state on the part of the population. In Syria, for example, a period of drought due to the lack of adaptation







Ben Barber, USAID, Egyptian Farmers

strategies and years of mismanagement of water resources led to an agricultural crisis and endangered the basic provision of water for the population. However, water conflicts are not always entirely about water resources but are caused by more profound factors such as the threat to one's own existence or the loss of power or territory. In the Arab region, for example, the unequal distribution of water resources between the Palestinian territories and Israel provides a stark narrative. In this light, any negotiations or compromises reached on this topic would be seen as an existential threat and loss of control.

There are different ways in which conflict can affect water resources. Modern warfare, starting with the First World War, is assumed to have more extensive effects on ecosystems than earlier, less industrialized wars due to the higher potential of modern weapons to cause environmental harm (Junk, 2002). The effects of war can materialize both directly by causing damage to water resources and contamination from weapon residue, and indirectly by increasing the frequency or intensity of detrimental processes (Francis, 2011). Such processes may occur naturally, for example, erosion, or anthropologically, for example, industrial pollution.

In the Occupied Palestinian Territories of the West Bank and Gaza, the West Bank military ruler declared after the 1967 war the West Bank water resources to belong to Israel. In the years 1967-1968, military orders were issued establishing the Israeli military ruler's authority over all water-exploration and well-drilling works. Israel's national water companies, Mekorot and Tahal, were contracted to drill water wells and sell water to the Palestinians; Mekorot continues to drill wells in the West Bank to date. The Israeli-Palestinian Interim Agreement "Oslo II" acknowledges the Palestinians' water rights. Nonetheless, the details of securing and distributing water, in addition to the sanitation network, were left to be decided after negotiations over the final status of the West Bank, which have not taken place, leaving the water authority mostly in the hands of Israeli authorities. Recent studies indicate the presence of 40 groundwater wells to provide the Palestinian population with drinking water, with an abstraction of about 30 million cubic meters. Evidently insufficient, the shortage is compensated by buying water from the Israeli water company or by collecting spring waters. Palestinian per capita domestic water consumption is estimated at 50 to 70 liters/day (UNEP, 2003), while it is 260 liters/day for the Israeli settlers.





The situation is not better in the water-resource abundant occupied Golan Heights, where Israel exploits all of its water resources, supplying 30 percent of its annual water requirements. It utilizes around 100 mcm/year from water wells and wellheads drilled in the occupied heights. The Golan settlement's actual consumption in 1986 was estimated at around 38 mcm/year (UN-ESCWA, 1993). Most of the water in the Carrier is purely Arab (total discharge of the three rivers is about 550 mcm/year, equivalent to the volumes pumped into the National Water Carrier of Israel) (Droubi, 2006). Meanwhile, Golan-neighboring Syrian cities and rural areas of Damascus are thirsty. Even Damascus itself suffers from water outages in the summer extending to more than 17 hrs/day, while the Golan water reservoir is as close as 35 km. Syria continues to explore water resources hundreds of kilometers away (from the Syrian coast or Euphrates river) to meet its current and future water needs. Pumping from these far water resources requires huge funds estimated at over USD 2,000 million with high operating costs, while the Golan water is sufficient to meet all its needs for the next 20 years. All this explains Israel's obstinacy against returning the Golan without a concrete settlement for the water situation (Droubi, 2006). Accordingly, more attention should be paid to the issue of water resource management under

occupation situations, so that occupying forces are not permitted the utilization of occupied territories' resources and denying the original inhabitants and their respective countries of their natural right to such resources. (UNEP, 2003).

Studies on environmental pollution caused by conflicts identify several possible pollution sources. For instance, during the Gulf War, water resources in Kuwait were heavily polluted from oil spills following attacks on oil fields, increasing the concentration of trace metals along the coast of the Arabian Gulf and impacting regional aquaculture. During the Syrian civil war, discharge of untreated wastewater into the environment, both intentionally and unintentionally, deteriorated the water quality in affected areas. Other examples include damage to wastewater treatment plants in the Gaza Strip during Israeli military operations "Cast Lead" in 2008 and "Protective Edge" in 2014, causing untreated wastewater to leak, and damage to sewage lines and a wastewater treatment plant in Israel during the 2006 Lebanon War, where large amounts of sludge were deposited directly into the Mediterranean Sea. More recently, the forced migration of a large number of refugees from Syria to Jordan has exacerbated water shortages in the receiving areas. At the same time, however,



the decrease in irrigated agriculture in southern Syria led to an increase in water availability in the Jordanian reservoirs that are located further downstream along the shared Yarmouk river.

In armed conflicts, water infrastructure is a popular target of attacks used to demonstrate and consolidate power by threatening the enemy's existence. Air strikes on water reservoirs in Yemen and Syria are good examples of how conflicts can cut off the water supply. Serious supply bottlenecks are the result, worsening the humanitarian situation of the population. Migration caused by conflicts also has negative repercussions on the water supply. The departure of specialists from conflict regions can lead to the failure of state institutions and utilities. This lack of specialists can also be caused by parts of the country being seized by armed groups or by the state being unable to pay salaries in acute crises. Especially in conflicts about distribution of water among countries' neighbouring rivers, water can also contribute towards resolving conflicts. Regulating water usage by drawing up corresponding contracts is primarily an adaptation strategy for a scarce resource.

Agricultural production in Arab countries will be severely affected by the combination of disrupted supply chains, increased costs of energy (both affected by the conflict in Ukraine), and water scarcity, and increasing temperatures (both are climate change related). The impact of these stress factors on agricultural production are the highest in "Critical Crisis" contexts, and the lowest in "Contained Crisis" contexts. The aggregated crisis factors that are affecting agricultural production are surprisingly high in Tunisia, reportedly at the same level as Libya.

As oil and gas exporters, the Arab Gulf states stand to benefit from the increase in oil and gas prices because of the Ukraine crisis. Saudi Arabia, for example, needs the price of crude oil to be slightly less than USD 70 a barrel to balance its budget. After the start of the conflict in Ukraine, the price shot up to over USD 130 a barrel, before settling at somewhat less than USD 100, then rising again following the United States' ban on oil imports. For Gulf leaders, the price increase is welcome, as government income had been shrinking amid the COVID-19 pandemic (ICG, 2022). On the other hand, most Arab countries

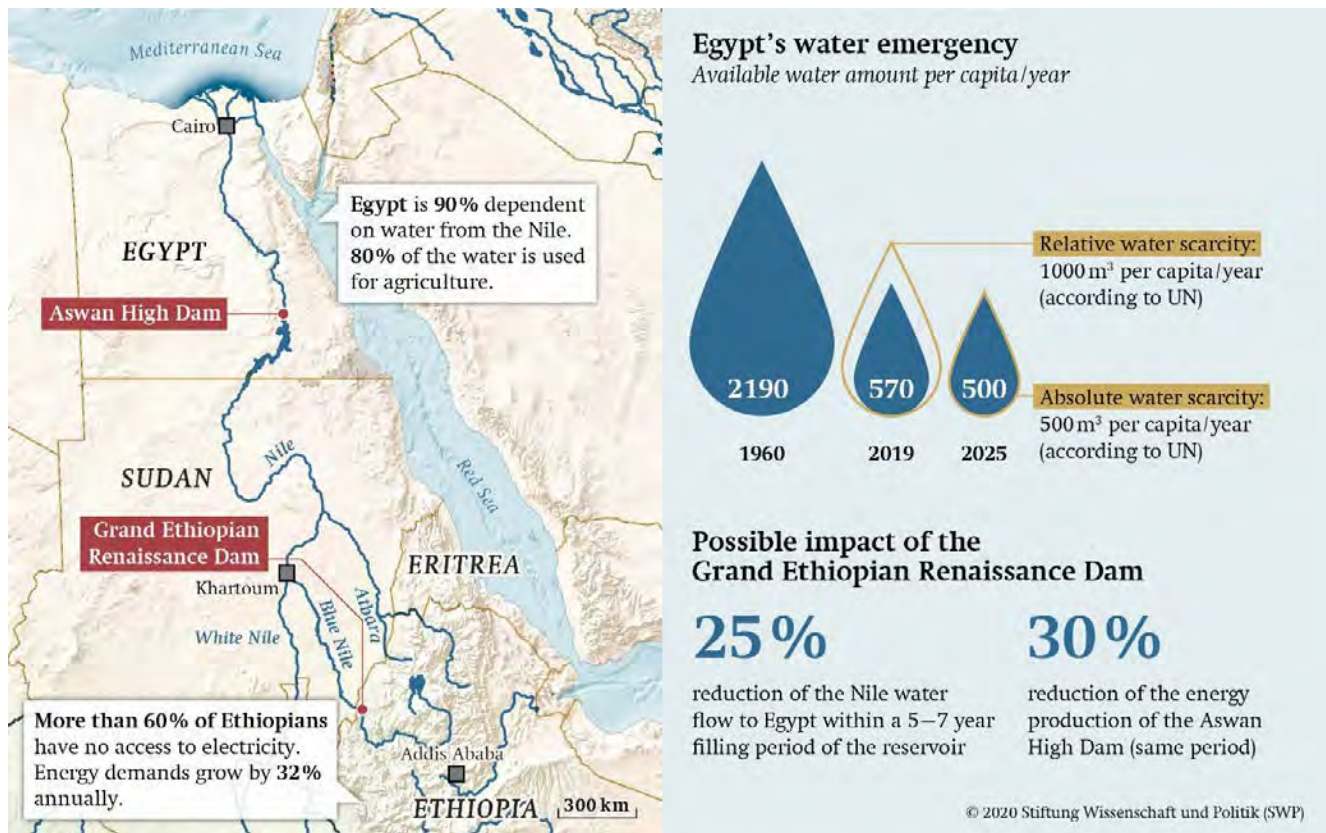
are depending on water desalination to fill the gap between water supply and demand in their water budget. All Arab countries are affected by the conflict in Ukraine due to high energy prices on operating cost of generating electricity, which is a main component of water desalination, and recycling of wastewater as well in delivering and pumping water, including irrigation.

Nevertheless, the common management of water resources also serves as a platform for (political) dialogue and de-escalation. Therefore, water management is explicitly mentioned in a number of peace processes, for example the Oslo II peace process. The same has been observed in post conflict situations. History shows that when an armed conflict has ended, returning refugees settle first in areas where water resources are available, and they often prefer these places to their prior homes. This is why rebuilding of water infrastructure should take high priority to guarantee a basic supply for the returning population and contribute in this way to long-term rehabilitation.

#### IV. WEAPONIZING WATER

The weaponization of water and water infrastructure gained public and scientific attention due to the hostilities in Syria and Iraq. The fight for control over dams along the Euphrates and Tigris rivers has been the focus of several studies that assessed the capacities and shortcomings of international law in protecting water resources, and preventing the use of water as a weapon. Large portions of Iraq's water infrastructure were constructed as part of the British war efforts against the Ottoman Empire during the First World War to establish control along the Euphrates and Tigris rivers and gain a strategic advantage. For Israel, the expansion of irrigated agriculture, and thus the allocation of water resources to agricultural production, has constituted an important tool to solidify territorial control over the past decades.

There are three motives to weaponize water in a conflict setting: political, tactical, and psychological. The political dimension entails the domination of the access to water as a means to consolidate one's own power position. This often manifests as exerting pressure on the opposing



political leadership or on local populations to fall in line or suffer from the lack of water (Pahl-Wostl, 2009). The tactical approach is closely linked to the mental image conjured up by the term “water as a weapon”. From this perspective, water and water infrastructure are directly used for military gains, for example, by flooding an area to block the route for invading opponents (Gizelis & Wooden, 2010). Psychologically, the mere threat of the weaponization of water resources can create an anxious atmosphere among local populations who would suffer extensive and potentially longlasting damages. In addition to its role in the weaponization of the resource, water infrastructure is also an attractive target, since a direct hit can have far-reaching and widely noticeable consequences. For instance, during the Gulf War, Kurdish forces targeted Iraqi water installations, which they perceived as symbols of the state's presence. Deliberate attacks on water infrastructure were repeatedly condemned by the United Nations and are, nowadays, predominantly carried out by non-state actors or proxy conflict parties who act on behalf of seemingly uninvolved states.

As interstate conflicts are becoming increasingly scarce and “new wars” featuring non-state groups increasingly common, the implications of domestic conflicts and civil wars for transboundary negotiations are gaining importance. Since stable institutions play a key role in transboundary water governance and are a prerequisite for participation in multilateral platforms, civil wars that weaken state institutions can cause a deadlock in negotiation and cooperation processes. Political instability and a lack of state authority in one country can also create uncertainty regarding the availability of shared water resources in downstream countries (Petersen-Perlman, et al., 2017), as shown for the case of the Hasbani basin, which is primarily located in southern Lebanon. The emergence of a strong non-state actor that takes control over water resources introduces a new dimension to transboundary water negotiations, as such non-state actors do not abide by formal agreements between states. The capture of key water infrastructure in Iraq and Syria is a case in point. It is usually not in the interest of riparian states to include non-state actors in formal negotiations so as to deny them

any legitimacy as a state-like actor. At the same time, the presence of armed non-state actors can also provide an entry point for transboundary cooperation between states as they collaborate to limit the control of such non-state actors over shared water resources.

The Blue Nile is the largest tributary of the Nile River, providing a vital source of the freshwater to Sudan and Egypt. The Blue Nile contributes from 60 percent to 70 percent of the total annual River Nile discharge. Recently the Ethiopian Renaissance Dam has been the greatest threat to Egypt's water security. In light of the available information on the renaissance dam, it will be 170 m high with a 74 billion m<sup>3</sup> storage capacity. The Grand Ethiopian Renaissance Dam will become the largest dam for hydroelectric power in Africa. Since the fifties, Egypt's share of water has not changed despite the high population and high rates of development; accordingly the Renaissance Dam directly affects that share of the Nile water. There are two direct effects on the Nile discharge: the reservoir capacity of the dam is roughly equivalent to the annual flow of the Nile water to Egypt, and the evaporative losses from the dam's reservoir would permanently reduce the flow of the Blue Nile. It is certain that the Grand Ethiopian Renaissance Dam will affect the quota of Egypt and result in a fall in the water levels of Lake Nasser. The low discharge through the Aswan High Dam will lead to the reduction of its power generation. The lowering of the lake's level will lead to a decline in fisheries and thus the socio-economic status of the fishing community that could cause a big conflict in the blue river basin (El-Sadek, 2022).

## V. CONCLUSION AND RECOMMENDATIONS

COVID-19 serves as a reminder of the critical importance of fresh water and sanitation services, and should encourage governments to prioritize the availability and sustainable management of fresh water and sanitation for all, as stipulated in Goal 6 of the 2030 Agenda for Sustainable Development and the Human Right to Water and Sanitation: Ensure access to water and sanitation for all- even to those who cannot pay. The urgency to ensure the provision of water services to those who may have been disconnected



Irrigating rice, Nile Delta, Egypt, François Molle, IRD

from the water supply, or residing in informal conditions, is necessary to avoid the transmission of COVID-19. Several governments and utility operators have taken extraordinary measures to reconnect services and waive tariffs for an interim period to alleviate economic hardship, which should be emulated in all Arab countries. Governments should prioritize and coordinate the provision of emergency clean water, handwashing and safe sanitation facilities to areas without coverage. This includes ensuring safe access to public water collection points during periods of imposed movement restrictions in areas where water is not available on premises, and providing adequate handwashing facilities with soap at such points. The continuity and upscaling of WASH services is necessary in refugee and host communities. As a basic rule, water should not be used as a weapon of war in areas suffering from conflict and occupation. This includes ensuring that water-related infrastructure and services are not interrupted, seized or destroyed.

Water service providers should increase quality assurance measures on fresh water and wastewater treatment systems. Sampling, monitoring and testing of water quality should be increased and extended. Service providers should ensure that wastewater collected from affected communities and health facilities tending to COVID-19 patients is properly treated, and not simply filtered and released into the environment. A regional cooperative framework should be established to identify and disseminate best practices for the safe and sustainable management and disposal



of bleaches and disinfectants, and of medical and hazardous waste, to prevent a waste management crisis that risks impacting coastal areas and groundwater resources, given limited wastewater treatment capacity in some Arab countries. The synthesis of overarching results reveals several common research themes, which were grouped into two broad categories: (a) the role of water resources in conflicts, either as a target or casualty or as a weapon used by conflict parties, and (b) the implications of conflict on human systems related to water. The emphasis on the latter is an indication for the strong applied science focus of research on water in conflict settings, including many studies on the performance of water provision systems and humanitarian interventions (Weinthal and Sowers, 2019).

Many factors influence the extent to which crises and conflicts can be cushioned through a functioning water supply. The strengthening of institutional capacities and the political system, the implementation of fair water distribution patterns and the capacity of water management are

approaches that can strengthen robust structures in crisis-stricken countries in the long term. By providing or rehabilitating water infrastructure, conflicts among refugees and the communities absorbing them can be reduced, perspectives can be created for returning refugees and the humanitarian situation of the population can be improved. A framework for cooperation in the management of shared water resources should be developed, to convert the potential conflict into a cooperation potential (PC to CP). In this regard, many lessons can be learned from the Nile Basin Initiative (NBI), an intergovernmental partnership among ten Nile basin countries. Furthermore, it is projected that the current critical water situation in the Arab region will be further aggravated by the impacts of global climate change. It is anticipated that water scarcity and quality deterioration will increase in the region, with negative impacts including decreases in food production. These impacts need to be addressed properly in national and regional water resources planning, and appropriate adaptation measures need to be integrated into water strategies and programs.

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# FINANCING THE GREEN ECONOMY TRANSFORMATION

HUSSEIN ABAZA



## I. INTRODUCTION

The colossal impact of human activity on the planet's climate and ecosystems has become increasingly undeniable and costly in recent decades, including in the Arab region. Climate change has been taking a heavy toll on natural assets, including among others in terms of increasing water scarcity, pollution, land degradation, desertification, and biodiversity loss. All of these factors massively impact the region's natural resources capacity to continue delivering their services for present and future generations. The growth of investments contributing to greenhouse gas (GHG) emissions, with severe repercussions on climate change and its devastating impacts, call for green investments to curb further environmental deterioration. Without green investments, the cost of placing continued pressure on our planet's natural resources will continue to rise.

Against this backdrop, in the past few years a number of additional major pressures have been added. The COVID-19 pandemic has had a tremendous impact worldwide, not only on human health, but also through negative economic and social repercussions. The war in Ukraine, besides its direct tragic human toll, has negatively impacted energy and food supplies and prices, contributing to higher inflation rates and sluggish growth globally. These effects have been particularly strongly felt in developing countries and the most vulnerable groups, for whom the war has contributed not only to further economic hardship, but also worsened food insecurity.

The economic consequences of the pandemic and war have prompted countries to introduce emergency measures, including monetary policies to reduce the impacts on the economy and the poor segments of the population. Moreover, tightening the monetary policy in the USA is likely to have an impact on the global financial situation and financial flows and investments in countries across the globe. Furthermore, contraction of economic activities in China, resulting from the pandemic, is having a negative impact on key export commodities, prices, and global trade flows.

The combined impact of these multiple crises have generally had a negative impact on the Arab region,

driving and contributing to high inflation rates (projected to exceed 9 percent), worsening supply chain volatility and interruptions, and fueling rising rates of unemployment. On an aggregate level, the crises have derailed the region as a whole from progress on the SDGs and in carrying out planned investments in green economy.

With an estimated financing gap of about USD 230 billion annually for financing the SDGs in Arab countries, it is imperative that the region not only undertakes massive efforts to mobilize the needed resources, but that these are mobilized as green investments that are critically important for achieving sustainable development. These green investments should not be set as isolated initiatives, but should form part of a comprehensive and integrated national plan.

## II. BACKGROUND

The concept of the green economy began to evolve rapidly since the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, known as the 'Earth Summit', which "recognized that integrating and balancing economic, social and environmental dimensions required new perceptions of the way we produce and consume, the way we live and work, and the way we make decisions." With the passage of time and accumulating experience, UNEP defined green economy as "one that results in improved human well-being, while significantly reducing environmental risks and ecological scarcities. It is low carbon, resource efficient, and socially inclusive" (UNEP, 2011).

The concept is not an alternative to sustainable development, but rather complementary to it. It intends to support investments and policies that foster the conservation of the natural resources of the planet and its capacity to continue providing its services to present and future generations, without impoverishment. To give an example, green investments are required that can combine economic and social development while addressing climate change, to which the Arab region is disproportionately vulnerable; any investments that in the short, medium or long term exacerbate drought, land degradation, floods and hurricanes cannot truly be considered to foster development.

Besides various negative effects, the recent crises have resulted in increased investment in “smart and green” investments across the globe with a focus on digitization, innovation, and environment-friendly technologies. Recovery packages amounted to over 10 percent of GDP in developed countries, to ensure a speedy, green, and inclusive recovery, taking advantage of low interest rates. For making a transition towards a green and sustainable economy, stable and predictable financial flows are essential. Unfortunately, both the amount of financing available and the relative focus on green investments are lower in developing economies – including in the Arab countries.

Four main areas have been suggested as priorities for green investments. First is rebalancing nature, climate and the economy, by designing and adopting a nature-based solutions approach, and enhancing sustainable consumption and production patterns, while promoting public-private partnerships and aligning the financial system with a green transition. Second is investment in digital transformation through greater spending on research and development and the innovations necessary to improve access to digital services. Third is promoting good governance, which involves establishing a new social contract that supports social cohesion, gender equality and stability, while protecting human rights and enhancing the rule of law. Fourth is enhancing social protection, which entails creating systems that can survive shocks and reduce inequalities (Verhagen et al., 2022).

In order to realize the SDGs’ objectives, the UN’s 2030 Agenda emphasizes the need to adopt integrated national finance frameworks (INFFs), which are also instrumental in the implementation of the 2015 Paris Agreement on Climate Change. The global financing gap was estimated, before COVID-19, to be between USD 5 trillion and USD 7 trillion annually. The financing gap for the developing world was estimated at USD 2.5 trillion annually until 2030 (AFED, 2018).

The SDG financing gap for the Arab region has been estimated to be at least USD 230 billion per year (AFED, 2018). According to a recent OECD report, developing economies are currently facing a widening SDG financing gap, which is expected



to increase by 70 percent due to COVID-19, from USD 2.5 trillion to an estimated USD 4.2 trillion, due to a decline in both external private finance and public spending (OECD, 2021a).

Addressing barriers to promoting sustainable and climate finance has become essential to securing the resources needed to finance the badly needed transition. These barriers include the absence of a supportive regulatory framework, promoting a green and resilient economy, and the adoption of environmental, social and governance (ESG) principles by investors and finance providers as a mandatory requirement for accessing finance and for disclosure and reporting.

### III. ROADMAP FOR TRANSITIONING TO A GREEN ECONOMY

An orderly and smooth transition to a green economy in the Arab world requires adhering to a set of necessary measures, ranging from policymaking and governance to specific financial tools. Paramount among these are:



### **1. Integrated policymaking**

The current economic situation has highlighted the importance of addressing the root causes of existing vulnerabilities in order to allow countries, particularly those with emerging and developing economies, to move forward better. This could be achieved by addressing challenges and barriers that have inhibited the necessary structural change needed to achieve a green and sustainable transformation. Mainstreaming environmental, climate change and sustainability considerations into national development policies, plans and budgets should be a priority, with a full understanding and consideration of the relationship and feedback loops between the three pillars of sustainable development: environmental, social, and economic.

Sectoral line ministries should be encouraged to integrate environmental, climate change and sustainability considerations into their policies and programs. This entails the promotion of inter-ministerial coordination and the involvement of relevant stakeholders in the design and implementation of policies, plans, and programs, financing of environmental programs and private-public partnerships.

Climate change should be addressed within the framework of transitioning to a green economy and achieving sustainable development. Climate-related risks, biodiversity loss and environmental preservation should therefore be addressed with the long-term objectives of improving human welfare through sustained, equitable and just development.

### **2. Good governance**

Ensuring good governance is a prerequisite for achieving transformative change towards a green economy. This includes adopting a participatory approach involving relevant stakeholders, including the private sector, NGOs, media, youth, women, people with special needs, trade unions and cooperatives. This approach ensures that adopted policies, plans and programs reflect the priorities and concerns of local communities, and the engagement and empowerment of different stakeholders in the decision-making process. It also requires adopting transparent and accountable systems, and the creation of efficient institutions. Fighting corruption goes a long way in ensuring a just and fair system that utilizes the use of available resources in an efficient and effective manner.

### **3. Social protection financing to reduce inequalities**

General taxation and social security contributions can create fiscal space to finance social protection systems, making societies more fair and resilient. Social contributions and progressive equitable tax systems are the backbones of the financing structure of social protection systems. Arab states' spending on social protection and health is among the lowest in the world and among other risks can make Arab populations less resilient to climate- and other environmental challenges.

### **4. Policy coherence development**

Policy coherence is key to ensuring the effective implementation of policies, plans, and programs and consequently the efficient use of resources. Integration of the three dimensions of sustainability is one prerogative, while ensuring the complementarity and synergies between policies, plans, and programs is another essential requirement in optimizing their effective implementation and achieving the desired outcomes. This requires building a culture of coordination among different government





entities, and between them and the private sector and non-governmental organizations (NGOs), trade unions, and cooperatives.

### 5. Assessment and analytical tools

The transition to a green and sustainable path and the efficient use of natural and financial resources requires the adoption of a number of tools to help assess, manage and improve the various interrelated processes and strategies. The range of analytical tools needed includes developing and applying dynamic models that demonstrate the interrelationship between the three dimensions of sustainability: help design, implement and manage a holistic and integrated approach; decouple economic growth from environmental degradation; apply concepts and tools including life cycle, risk assessment, and multi-criteria analysis; promote the concept of extended producer and consumer responsibility; and further the use of sustainability and human development indicators.

### 6. Legislative framework

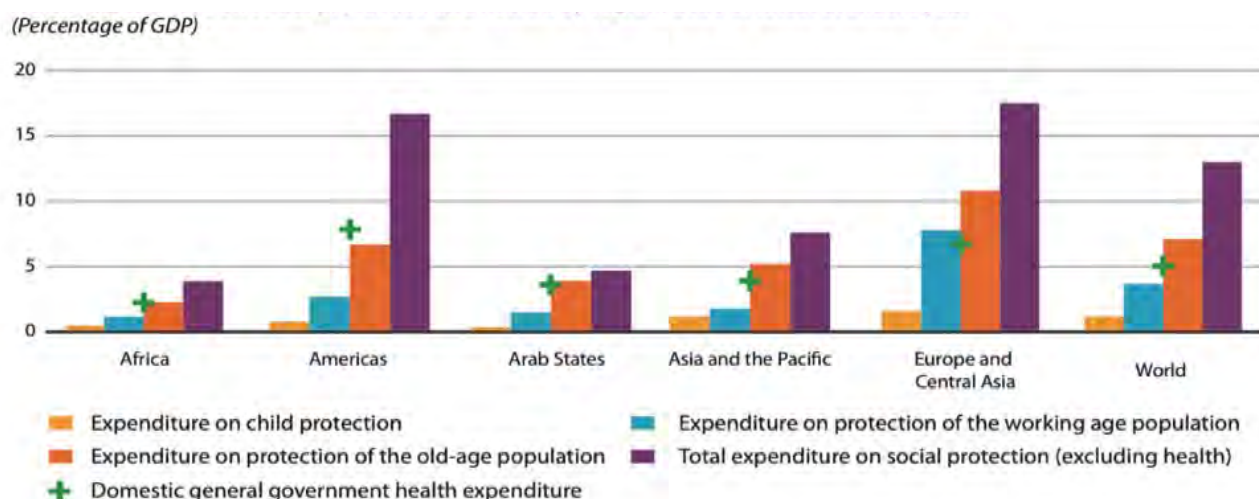
Regulatory frameworks – if properly designed – can be a very effective tool in addressing environmental concerns including climate change, and in achieving sustainable development. It is essential that these priorities are enshrined and mainstreamed through the formulation

of laws, and through enhancing synergies and complementarities between different regulatory frameworks related to specific policies, programs, plans or sectors. Regulatory frameworks should be designed in such a way to reduce the environmental footprint, including reducing CO<sub>2</sub> emissions, conserving biodiversity, limiting desertification and deforestation, promoting the reduction of waste, endorsing the efficient use of renewable and non-renewable resources, and encouraging circularity through recycling and reuse of residues.

### 7. Incentives

Market incentives should be promoted as a tool to internalize environmental and social costs and to alter production and consumption patterns towards more sustainable ones. Internalizing costs will promote efficiency, reduce waste, and encourage innovation. The use of economic instruments to internalize environmental costs will generate income for governments to finance environmental and sustainable development activities. In order to address climate change concerns, energy pricing and the phasing out of harmful fuel subsidies and subsidizing cleaner and greener energy projects instead will encourage private investment in clean energy and promote more sustainable consumption and production patterns.

**FIGURE 1 PUBLIC EXPENDITURE ON SOCIAL PROTECTION AND HEALTH, BY REGION, 2020 OR LATEST AVAILABLE YEAR**



Source: ILO, World Social Protection Database.

Note: Countries grouped by ILO regions, aggregates are weighted by GDP. Total social protection expenditure (excluding health) does not always correspond to the sum of expenditures by age group, depending on data availability, source and year, and on inclusion of non-age-group-specific expenditures.

## OPINION

## REFORM MUST PRECEDE GREENING

**Najib Saab**

A recent international report placed Lebanon among top countries that have made progress in switching to solar energy to produce electricity, by increasing capacity exponentially within three years. Some considered this international recognition of a great national success, overlooking the fact that such sporadic single solutions do not solve communal problems of the public, and do not prevent states from collapsing. This corresponds to the announcement of random 'green' initiatives worth billions in other Arab countries, most of which failed to deliver the promised results, and did not stop the terrible economic collapse. It is fair to ask whether the real problem is in the economy and the system as a whole, or in the 'green' alternative component.

The answer to this question requires a careful analysis of the situation in each country. It is imperative that individual initiatives and private sector contributions – important as they are – do not lead to general results that are sustainable and benefit all people, unless they are part of a comprehensive national plan. The erroneous and unproductive policies of governments are capable of erasing the potential benefits of all individual initiatives. Those who believe that it is possible to build a real economy through auxiliary initiatives, based in countries governed by crumbling public institutions, are disillusioned and daydreaming at the best. The only beneficiaries in these cases are a group of those who know what side the bread is buttered. Facts confirm that those Arab countries suffering from bankruptcy, with the majority of their population living below the poverty line, are the same ones that are home to some of the richest individuals, most of whom accumulated their money from illegal sources, by exploiting the loopholes of chaos and arbitrary policies.

Going back to the Lebanese "greening" model, we find that sharing the benefits of monopolies and exclusive privileges prevented real change, as in renewable energy. During two decades of futile discussions, successive governments were unable to pass a law to connect solar electricity produced on rooftops to the public grid. While the arguments to delay action centered around fake reasons such as technical obstacles, the actual motive had always been to protect the monopolies of companies that had exclusive rights, for decades, to buy electricity produced by public plants at prices below the real cost, and sell it to consumers with a large profit margins. With the complete collapse of public

electrical services in the country, the monopolies shifted to a handful of communal generator operators, who supply consumers with limited electrical energy in exchange for exorbitant fees. While public administrations and some environmental groups wasted time for years measuring air pollution, from the chimney of a restaurant here and a wood stove there in a scandalous waste of millions of grants and loans, dilapidated power stations and private generators – operating on the dirtiest types of polluting fuel – continued to spew their toxins in midst of crowded neighborhoods.

Amid this utter chaos, which ended with a complete blackout coinciding with the bankruptcy of the state that squandered people's deposits for the benefit of a small corrupt minority, few who could afford it resorted to solar electricity. Only those who were financially able were forced to install photovoltaic solar panels on their roofs as a last resort, and the majority remained in the dark. That was done out of necessity and not to protect the environment, by using the small amount of cash some people were able to rescue from their squandered deposits, or via donations from their family abroad. And because solar energy was required to cover most of their electricity consumption, as a main source and not a supplementary one, they had to install mostly obsolete storage batteries to be used in the absence of enough sunlight. This is an unusual and very expensive process, as generating electricity from independent solar panels, not connected to the grid, is only suitable and economic for remote areas where there are no distribution grids. The primary use in these cases is for communication centers and public services such as water pumping, where the solar panel and battery solution is less expensive than extending the public network, or for basic needs of remote cottages.

While people deprived of electricity in Yemen and Syria installed small solar panels with limited capacity to light a lamp, charge a phone and a cheap battery, or operate a small refrigerator in the best cases, most of the installations in Lebanon aim to obtain electrical supply to operate all appliances and lights for most of the time; this contradicts the basic principles of efficiency and environmental protection. An economically sound operation requires connecting private domestic electricity production to the public grid, where operators buy surplus production during the day to reduce the load of their plants, and sell electricity from their traditional stations to consumers at other times. Some countries like Belgium, moved to a second



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level which requires the installation of efficient storage batteries together with solar panels on private roofs; only surplus production, after instant private consumption and fully charging the batteries, is fed to the public grid. This measure is soon expected to become the norm, combining clean energy and efficiency, while protecting the public grid from overflow, due to fast growth of installations.

As for the Lebanese solution, which some considered an achievement, it is in fact no more than an ad-hoc measure that cannot be sustained. This is because the batteries used do not last for more than two years, causing dangerous pollution when disposed of. The need for electricity supplied by traditional sources will also continue, in the dark days of winter or when consumption exceeds the storage capacity of the batteries. This means that toxic emissions from private generators and public power plants, which use the worst types of fuels, will persist. It would have been more appropriate for the international organizations to support the installation of solar panels and batteries to operate basic public services, such as communications and water stations, which fail regularly due to lack of power on the grid.

A few months ago, I heard an international official praise the support provided by his organization during the past ten years to the Central Bank as well as commercial banks in an Arab country, dedicated for loans to finance "environmentally friendly" projects. He was not amused

when I pointed out that banks in that country were actually, at the time, providing consumer loans to individuals – one of which was intended for plastic surgery – or they were lending customer deposits to a bankrupt treasury to waste on failing public sector and finance corruption, instead of financing productive projects. Since that time, commercial banks have collapsed along with the Central Bank, for obvious reasons that needed to be addressed before granting "green loans", which disappeared along with the rest of deposits.

The economic collapse that some countries in the region are witnessing is not a surprise, except for those who refused to see the facts as they were, or for the corrupt clans who imagined that deception could perpetuate indefinitely. This should be a lesson for those who have been talking about investing in the environment and greening the economy, in isolation from the prevailing economic, political and social conditions. It is not possible to build a "green economy" in the absence of the proper foundations and principles of traditional economy in the first place, because this undermines both environmental and economic concepts. It is also not possible to build viable economic, environmental and social policies and plans in the absence of sound political, military and security foundations. Reforming policies and public systems must precede greening them.

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### 8. International cooperation

The world's global financial architecture is needed to help the world cope with the current multiple crises the world is facing, which will lead many countries to higher debt levels and difficulty servicing their debts. In the medium to longer term, international cooperation is needed to build more resilience. The international financial sector needs to incorporate achieving sustainability objectives and addressing climate change concerns into its top priorities. There is an opportunity and urgent need for coordinated and concerted efforts on the part of multilateral and bilateral donor agencies, and development institutions, to address the multiple environmental and economic crises and challenges the world is facing.

### 9. Fintech

Fintech, a word used to refer to financial technology, is used to describe new technology that seeks to improve and automate the delivery and use of financial services. At its core, fintech is utilized to help companies, businesses and consumers better manage their financial operations, processes, and lives by applying specialized software and algorithms both on computers and, increasingly, smartphones. Fintech solutions are applied across different

sectors and industries such as education, retail banking, fundraising and non-profit related activities, and investment management (Julia Kagan, 2020). Technologies that support fintech business models vary considerably, and include artificial intelligence (AI), blockchain technology, machine learning, and other big data functions like robotic processing automation (RPA). Each case is unique, but the underlying theme is a collective effort to disaggregate the financial services sector, which, historically, has enjoyed a highly protected status due to high levels of regulation (CFI, 2020). The high degree of innovation and dynamism in the fintech (and associated agtech, healthtech, edtech, and others) space is creating new and innovative ways of tackling challenges and improving resilience, for instance by lowering barriers to information and knowledge, and improving the efficient allocation of finance.

### 10. Data

For achieving the objectives of the SDGs, the availability of accurate, well-disaggregated, good-quality, comparable and timely data is essential, to enable policymakers to better understand and manage crises, design well-informed policy actions to achieve the SDGs, monitor progress and identify trends and challenges. To that end, developing economies, including Arab countries, must address outdated information infrastructures and invest in data systems that enable both governments and investors to allocate capital based on reliable data.

### 11. Digital transformation

The pandemic has clearly highlighted the importance of digitization in ensuring the continuity of business across sectors, including finance and trade, as well as payments and commerce. Digitization can support more effective flows or exchange of information, goods and services, with both private sector and (e-)government use cases. At the same time, digitization has given rise to governance and equity concerns associated with the legal risks, such as cybersecurity and data privacy, as well as concerns about the future of the workforce and labour market. For instance, fast digitization and automation are expected to displace about 85 million workers within the next five years while creating 97 million new jobs (WEF, 2020). Governments will need to regulate this sector to





ensure the upside is promoted while the downside is adequately managed.

Since 2015, digital technologies have played a significant role in financing for development (FFD), particularly in financial markets, public finance and development pathways. Main digital technologies include cloud computing, big data, and artificial intelligence.

#### IV. FINANCING THE GREEN TRANSITION

According to the United Nations Environment Programme (UNEP) a 2 percent of GDP green investment across various different sectors can stabilize global energy requirements at current levels by 2050. This would result in about 40 percent less emissions than the business-as-usual scenario, or cutting CO<sub>2</sub> emissions by a third, while increasing global crop yields by 10 percent, and cutting water demand by a fifth (UNEP, 2011). Total GDP of Arab countries amounted to USD 2.9 trillion in 2021, thus 2 percent of total GDP of Arab countries is about USD 58 billion needed annually for green investments.

In 2009 in Cancun, Mexico, industrialized countries pledged to provide USD 100 billion a year of climate finance to developing countries. A large percentage of this amount was expected to be directed to the Green Climate Fund (GCF) to be used to finance mitigation and adaptation efforts in the developing world.

According to the OECD climate finance provided by industrialized countries totalled USD 79.6 billion in 2019, up by 2 percent from USD 78.3 billion in 2018. The increase was driven by a rise in public climate finance, while private and bilateral climate finance dropped.

Loans more than doubled from USD 19.8 billion in 2013 to USD 44.5 billion in 2019. Grants, meanwhile, fluctuated around USD 10 billion per year in 2013–15 and around USD 16.7 billion in 2016–19. The share of loans and grants were 71 percent and 27 percent, respectively, of total public climate finance provided in 2019. Equity investments increased from USD 0.7 billion in 2013 to USD 1.7 billion in 2019, accounting for only around 2 percent (ORF, 2021).

As stated in the UN Secretary General's report, in order to achieve sustainable finance, it is essential to ensure a sustainable, inclusive, and resilient global economy. This includes channeling finance towards green sectors, providing incentives for research and development and finding solutions to addressing increase debt levels of developing countries. It is also essential to achieve a fair and more resilient multilateral trading system and devise new business models based on sustainability and inclusiveness (UN, 2021).

Main sources of finance include:

##### **Domestic public resources**

Public resources remain a main source of green financing and an important priority for Arab countries is to increase their public budgets and improve how these budgets are allocated. It is inescapable to reform taxes in such a way to increase the tax-to-GDP ratio, to promote greater domestic resource mobility.

##### **Private business**

Promoting sustainable and green investments requires a capable private sector, equipped with well-trained and qualified staff to identify and implement green investments, and an investment climate based on laws and regulations that cultivate confidence against political risk.

Although the general trend reflects a slowly falling cost of starting a business, the average cost is still high in many Arab countries, reaching 27 percent of GNI per capita over the period 2009–2019 in Egypt, compared to Morocco (3.6 percent), Saudi Arabia (5.4 percent) and Tunisia (2.9 percent) (LAS, 2022). Such costs and other barriers to entry should be reduced in order to encourage domestic entrepreneurship. Other ways to support the private sector include lowering the administrative costs of regulatory compliance and improving the efficiency of the business environment. Moreover, in order to maximize the private sector's contributions to sustainable development, strategies concerning the private sector must be coherent with the SDGs.

Other measures include regulations that help attract foreign direct investment and domestic private capital towards development,

support focused investments with the proper incentives, and encourage joint financing between public and private parties. There is a need to promote public-private partnership in the region, learning lessons from several successful examples that already exist. These include the promotion of organic agriculture (SEKEM model in Egypt), development of eco-tourism parks (Al Maha Resort model in UAE), development of sector-specific strategies for priority environmental issues (BG Group's Biodiversity Action Plan for Egypt), environmentally friendly hotels, and carbon neutral cities. Promoting eco-tourism could also help reduce coastal degradation and generate additional revenues (AFED, 2018).

Nevertheless, evidence from a recent Enterprise Survey on Private Sector Growth in the Middle East and North Africa, including six Arab countries (Egypt, Jordan, Lebanon, Morocco, Tunisia, and the West Bank and Gaza) revealed that "green investments are low in the region, with most businesses having poor management practices on environment, energy and climate change. Corporate responsibility on environmental, social and governance (ESG) issues lags that in benchmark countries at a similar level of development" (EIB, EBRD, World Bank, 2022).

### **Remittances**

Due to the current multiple crises, remittances to the Middle East and North Africa were estimated to have fallen by 14 percent in 2021. Financial flows are also likely to decline due to slower economic growth in the Gulf countries, with several countries likely to register falls in remittances. Moreover, transaction costs associated with sending funds to the region rose in the third quarter of 2020 to 7.5 percent, compared with 6.8 percent the year before. For example, the cost of sending money from OECD countries to Lebanon continues to be in the double digits (World Bank, 2021).

As fintech companies tend to charge lower transaction fees than conventional money transfer service providers like banks, digitization plays a critical role in increasing efficiency (reduced transaction costs) and effectiveness (reduced transaction time). Arab

countries need to invest more in technology and digitization and implement policies that encourage the ICT industry to continue to digitize the financial sector.

### **Financial leverage through securitization to attract private investment**

Securitization refers to a process of transforming an illiquid asset or group of assets into a tradable security via financial engineering. Securitization can promote sustainable assets and create investable opportunities by de-risking development projects to better fit the desired risk/return profiles of institutional investors. However, it requires multilateral development banks to play a stronger role as catalysts for private investment by securitizing their loans, which also supports further maturation of capital markets. It is also worth noting that there might be room for Islamic banks to engage in securitization with a less risky approach.

### **Foreign direct investment**

International development cooperation is considered to be one of the main sources of finance for implementing the SDGs and assisting countries recover and address macroeconomic shocks or similar crises, especially in situations like today where there has been a decrease in external private investment and remittances.

Official development assistance (ODA) rose to an all-time high of USD 178.9 billion in 2021, up 4.4 percent in real terms from 2020 as developed countries stepped up to help developing countries grappling with the COVID-19 crisis. Excluding ODA for donated COVID-19 vaccines, ODA was up 0.6 percent in real terms from 2020. The 2021 ODA total is equivalent to 0.33 percent of DAC donors' combined gross national income (GNI) and still at less than half the UN target of 0.7 percent ODA to GNI. Humanitarian aid amounted to USD 18.8 billion. Debt relief remained low at USD 545 million. ODA spent on refugees hosted in donor countries were USD 9.3 billion in 2021 (OECD, 2021b).

Notes: Aggregates are the total sum of country values (United Nations Statistics Division, 2019). The calculated Arab regional aggregate includes the data values of the following Arab countries for 2016: Algeria, Comoros,

Djibouti, Egypt, Iraq, Jordan, Lebanon, Libya, Mauritania, Morocco, Somalia, State of Palestine, Sudan, Syrian Arab Republic, Tunisia and Yemen; with 2010 data for Oman. This indicator only covers recipient countries and excludes 41 donor countries from different regions that are either listed by the OECD or included in the data set of the second subindicator of SDG 10.b.1 as donors. The indicator comprises both positive and negative (and economically significant) values across observations as it measures net ODA, which includes loan repayments that are “recorded as negative and deducted from ODA and loans”. “In some cases loan repayments are higher than new ODA and net ODA will show as a negative number” (OECD 2019).

These levels of finance are a drop in the ocean in terms of what is needed to tackle the current wave of crises, and they fall far below the amount countries have committed to. Most of the increase is also due to the immediate response to the COVID-19 crisis and does not meet mid- or long-term development needs and address climate change. According to the OECD, the SDG financing gap in developing

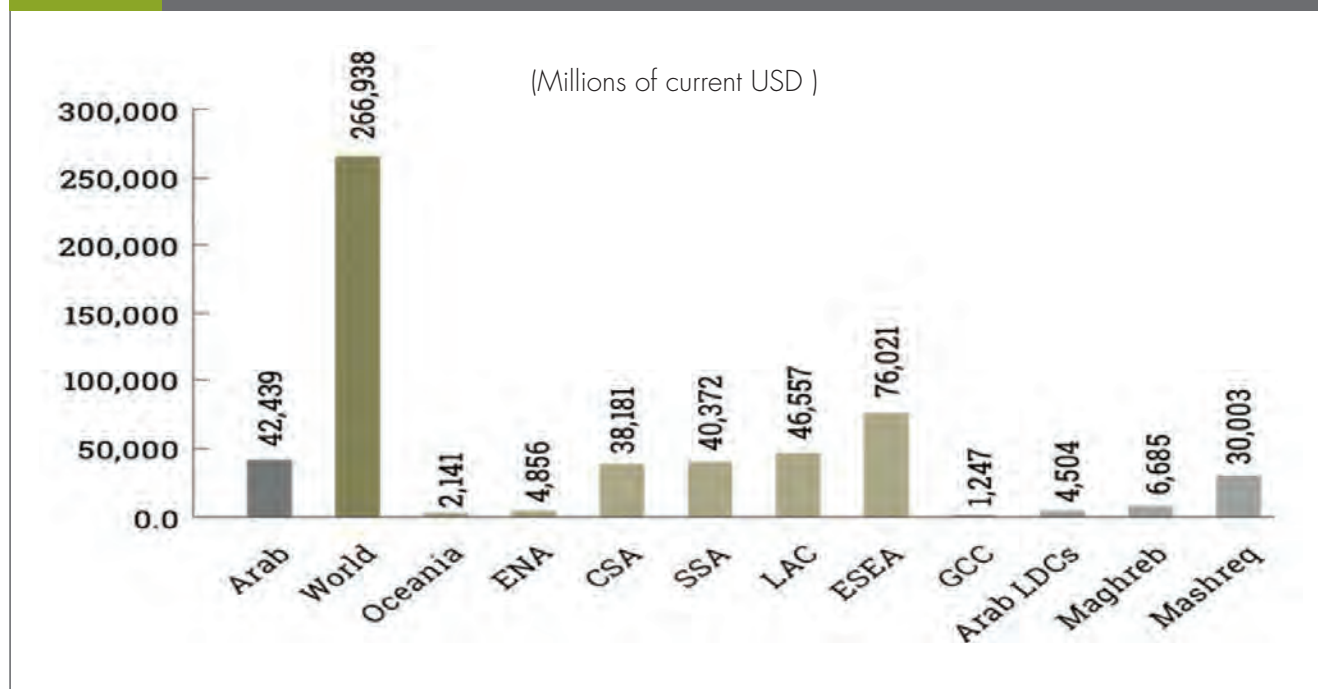
countries had widened by 70 percent, from a gap of USD 2.5 trillion pre-COVID-19 to a 4.2 trillion post-COVID-19 (OECD, 2020).

## V. CLIMATE FINANCE IN ARAB COUNTRIES

Arab countries need to mobilize finance and technology, and accelerate capacity development linked to climate action, drawing on public and private sources by undertaking necessary actions, starting with increasing the quality and quantity of international public climate finance flows to include higher shares of unconditional grants and adaptation finance.

The region needs to enhance its capacity in global negotiations and promote regional and sub-regional access to climate change finance, technology, and capacity-building. This includes scaling up access to climate change finance from multiple funds (e.g., from the Green Climate Fund, Adaptation Fund and Global Environment Facility), multilateral development banks, bilateral sources and the private sector as well as through innovative investment instruments (e.g., green bonds and sukuk).

FIGURE 2 TOTAL DEVELOPMENT ASSISTANCE BY RECIPIENT



## MAIN FUNDING INSTITUTIONS PROVIDING FUNDING FOR CLIMATE RELATED ACTIVITIES

**Global Environment Facility (GEF)** – Established in 1992 to provide financial support to countries to invest in nature and implement international environmental agreements dealing with biological diversity, climate change, desertification, and chemicals.

**Special Climate Change Fund (SCCF)** – The Special Climate Change Fund was established in November 2001 under the United Nations Framework Convention on Climate Change (UNFCCC) to finance activities, programs and measures relating to climate change that are complementary to those funded by the resources allocated to the climate change focal area of the Global Environment Facility Trust Fund.

**Adaptation Fund (AF)** – Established in 2001 to provide funding for severely affected developing countries to adapt to climate change.

**Climate Investment Funds (CIF)** – Established at the request of the G8 and G20 in 2008, CIF administers a collection of programs that help resource-strapped nations fight the impacts of climate change and accelerate the shift to a low-carbon economy. The CIF is a multilateral fund working to pilot and scale climate solutions in developing countries. Managed by the World Bank and in collaboration with EBRD, AfDB, Strategic Climate Fund (SCF), Clean Technology Fund (CTF), Forest Investment Program (FIP), Pilot Program for Climate Resilience (PPCR), the Supervisory Review and Evaluation Process (SREP).

**Green Climate Fund (GCF)** – Established in 2010 to provide funding for developing countries to address climate change in the form of financing low emission projects, the GCF is considered as one of the main sources of funding for addressing climate change concerns for developing countries.

Moreover, Arab countries must restructure energy pricing and subsidies to drive private investment in clean energy and more sustainable consumption. In addition, Arab countries must focus on technology transfer, especially to the least developed countries, and strengthen the position of the region in accessing and adapting new technologies and funding opportunities (ESCWA, 2020).

In its 2022 Adaptation Gap Report, UNEP estimates that the annual cost for developing countries of adapting to the climate crisis could cost between USD 160-340 billion by 2030, and this number could rise by as much as USD 315-565 billion by 2050 (UNEP, 2022b). The United Nations climate change conference (COP27) held in Sharm El Sheikh, Egypt in November 2022 reached an agreement to establish a loss and damage fund to assist in those developing nations most vulnerable to the adverse effects of climate change. The details of the agreed fund are yet to be negotiated: “While the negotiated text recognised the need for financial support from a variety of sources, no decisions have been made on who should pay into the fund, where this money will come from and which countries will benefit” (UNEP, 2022a).

## VI. NEW GREEN FINANCE INSTRUMENTS

The drive towards a green economy, although in its infancy in Arab countries, has prompted the introduction of new instruments, including green bonds, debt-for-climate swap, and blended finance.

### 1. Green bonds

The first green bond in the Middle East was issued by First Abu Dhabi Bank (FAB) in 2017. The region saw no new ESG issuance for the following two years, until 2019 which saw the launch of a number of green sukuk and bond issuances by key regional issuers such as Majid Al Futtaim (MAF) and The Islamic Development Bank (IsDB), as well as further green bond issuances by FAB. This momentum continued into 2020, with green sukuk and bond issuances by Saudi Electricity Company, Qatar National Bank (QNB) and the Arab Republic of Egypt, as well as the Etihad Airways (Etihad) transition sukuk (Clifford Chance, 2021).

Egypt has become among the first countries in the Arab region to issue green sovereign bonds in 2020. These were issued to finance national sustainable development needs, funding eco-friendly and green projects in clean transport,



renewable energy, energy efficiency, pollution control and reduction, sustainable water and sanitation, wastewater management and climate change adaptation. The size of the country's first issuance of green sovereign bonds reached USD 750 million for a five-year maturity. Annex 1 provides additional data on green bonds in the Arab world.

## **2. Debt and debt for climate change swaps**

One potential source for securing funds to support a green transition is swapping debt for green and climate change related projects. Arab countries witnessed an increased debt accumulation with debt stock increasing by 6 percent on average. Debt repayment and debt servicing is diverting much needed resources from development activities, thus representing a burden on government budgets. It should be noted that between 2016 and 2022 for every one-dollar inflow received, the region paid USD 1.5 on outstanding debt (ESCWA, 2020).

For the whole region, external debt has been growing steeply; by the end of 2018, total external debt reached about USD 1.3 trillion, which is almost double the figure for 2008. The recent increase in external debt has been partly driven by an increase in external borrowing through issuing international bonds. According to revised projections by the IMF as of October 2020, the average external debt to GDP ratio in the Arab region reached around 62.6 percent in 2020, before falling slightly to 61.6 percent in 2021 (UNDP, 2020).

## **3. Blended finance**

Blended finance is the strategic use of development finance for the mobilisation of additional (private) finance needed to realize sustainable development in developing countries. Blended finance attracts commercial capital towards projects that contribute to sustainable development, while providing financial returns to investors. (<https://www.oecd.org/dac/financing-sustainable-development/blended-finance-principles/>). It represents another innovative means for encouraging the private sector to invest in green, smart, and sustainable projects. It is argued that there is a positive correlation between blended finance and macroeconomic stability and higher national income.

## **VII. CONCLUSION AND RECOMMENDATIONS**

The global economy is currently dealing with high levels of inflation, increased food and oil prices, slowed economic growth and volumes of trade, posing challenges particularly for developing countries, including in the Arab region. The current global crises are widening the financial (supply-demand) gap, thus hampering efforts for a transformative change towards a green economy and towards achieving the SDGs.

It is clear that piece-meal and ad hoc solutions do not work. Long-term holistic approaches addressing the root causes of the problems should be adopted. An integrated approach to addressing environmental degradation including climate change is needed, with clear understanding of the interlinkages between the three dimensions of sustainability. International, regional, and South-South cooperation is needed to address the multiple crises the Arab world is facing.

Environmental degradation, including climate change, combined with economic challenges and reduced financial flows from bilateral and multilateral institutions and donor countries and institutions calls for an aggressive international response. At the national level, countries need to ensure the adoption of a holistic integrated approach for ensuring a just and fair transition to a green, resilient, and sustainable economy. Measures should be taken to mainstream sustainability and climate change considerations in macroeconomic and sectoral policies, including the finance sector.

Improved policy coherence should be a priority for countries, and besides ensuring efficiency in the use of resources, this also promotes the effective implementation and realization of the set objectives in a synergistic and complementary manner. Considerations should be given to launching a "Green New Deal" at the national, regional, and global levels in order to address the multiple crises countries across the globe are facing. Finally, it is becoming evidently clear that South-South cooperation, including cooperation among Arab countries, is vital to sustaining their economic, social and environmental health. This is especially true in times of uncertainty, like we are currently witnessing.

## ANNEX I

## PRINCIPAL ESG ISSUANCES IN SOME ARAB COUNTRIES

Issuer	Issuance	ESG Characteristics
First Abu Dhabi Bank (FAB) – the largest bank in UAE and the second largest bank in GCC by total assets	USD 587 million 3.00 percent Notes issued on 30 March 2017 (first ESG issuance in the region)	Green bonds issued pursuant to FAB's EMTN Programme. Proceeds to be used eligible project categories include renewable energy, energy efficiency, pollution prevention & control, sustainable management of living natural resources, terrestrial and aquatic bio-diversity conservation, clean transportation, sustainable water management, climate change adaptation, & eco-efficient products)
Majid Futtaim (MAF) – one of the largest developers & operators of malls & supermarkets in MENA region	USD 600 million Sukuk issued on 14 May 2019 (world's first benchmark corporate green sukuk and the first green sukuk by a regional corporate)	Green sukuk issued pursuant to MAF's Sukuk Programme. Eligible project categories include green buildings, renewable energy, sustainable water management, and energy efficiency)
FAB	USD 50 million Floating Rate Notes issued on 3 September 2019	Green bonds issued pursuant to FAB's EMTN Programme to be used as stated above
FAB	USD 20 million Floating Rate Notes issued on 26 September 2019	Green bonds issued pursuant to FAB's EMTN Programme. Proceeds to be used in accordance with FAB's Green Bond Framework (as set out above)
MAF	USD 600 million Sukuk issued on 30 October 2019	Green sukuk issued pursuant to MAF's Sukuk Programme. Proceeds to be used in accordance with MAF's Green Finance Framework (as set out above)
IsDB – a multilateral development bank founded for the purpose of fostering economic development & social progress in its member countries in accordance with Shari'a principles	EUR1 billion Sukuk issued on 4 December 2019 (first AAA-rated green sukuk in the global capital markets)	Green sukuk issued pursuant to IsDB's Sukuk Programme. Proceeds to be used for financing / refinancing green project, including renewable energy, clean transportation, energy efficiency, pollution prevention and control, environmentally sustainable management of natural living resources and land use, and sustainable water and wastewater management)
IsDB	USD 1.5 billion Sukuk issued on 25 June 2020 (first COVID-19 & the first AAA-rated sustainability sukuk in the global capital markets)	Sustainability sukuk issued pursuant to IsDB's Sukuk Programme. Proceeds to be used in financing/ refinancing social projects (with a focus on "access to essential services" & "SME financing & job creation" categories to assist member countries in tackling the aftermath of the COVID-19 pandemic)
Saudi Electricity – Saudi Arabia's electric energy company responsible for generation, transmission and distribution of power in the Kingdom	USD 1.3 billion Sukuk on 17 September 2020 (first green issuance out of Saudi)	Green standalone sukuk (dual-tranche). Proceeds used to finance or refinance eligible green projects including energy efficiency (including procurement and installation of "smart meters") and renewable energy (including capex for construction/operation of the transmission and/or distribution infrastructure for connecting renewable energy sources to the grid)

Source: Green Shoots: Sustainable Capital Markets in the Middle East, Clifford Chance, May 2021)

Issuer	Issuance	ESG Characteristics
Qatar National Bank – largest bank in Qatar by total assets and one of the fastest growing banks in GCC	USD 600 million 1.625percent Notes issued on 22 September 2020 (first green bond issuance out of Qatar and second green issuance by a commercial bank in GCC (first being FAB's issuance in 2017))	Green bonds issued under QNB's MTN Programme. Proceeds to be used in accordance with QNB's Green, to finance/refinance a green loan portfolio consisting of project as well as corporate loans to finance green buildings, renewable energy, clean transportation, energy efficiency, environmentally sustainable management of natural resources, land, sustainable water, wastewater management, and pollution prevention control
Arab Republic of Egypt	USD 750 million 5.250 percent Notes issued on 6 October 2020 (first sovereign green bond issuance in MENA region)	Green standalone bonds. Proceeds to be used to finance/refinance in accordance with Egypt's Green Financing Framework eligible green projects include clean transportation, renewable energy, pollution prevention and control, climate change adaptation, energy efficiency, and sustainable water and wastewater management)
Etihad – national airlines of the UAE	USD 600 million Sukuk issued on 3 November 2020 (world's first transition sukuk and the first sustainability-linked financing in global aviation)	Transition sukuk issued under Etihad's Sukuk Programme. Proceeds to be used in accordance with Etihad's Transition Finance Framework (linked to Etihad's carbon reduction targets – a commitment to net zero carbon emissions by 2050, a 50% reduction in net emissions by 2035, and a 20% reduction in emissions intensity in its passenger fleet by 2025)
IsDB	USD 2.5 billion Sukuk issued on 31 March 2021 2nd AAA-rated sustainability sukuk in the global capital markets & IsDB's largest USD issuance)	Sustainability sukuk issued pursuant to IsDB's Sukuk Programme. Proceeds to be used in accordance with IsDB's Sustainable Finance Framework for the purposes of financing or refinancing green and social development projects



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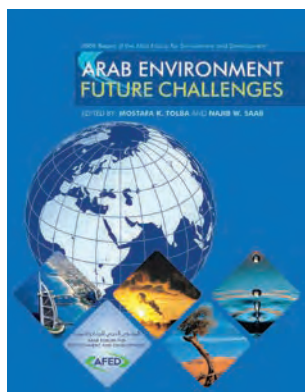
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Former Director General of ICARDA (2006 - 2016), with more than 40 years of contributions to international agricultural research and development to enhance food and nutritional security and human and institutional development. He was Director of the Crop Production and Protection Division (2002-2006) at FAO and Vice Chair and member of the High Level Experts Group for Food Security and Nutrition of the Committee of World Food Security (2017 - 2021). Contributor to various AFED reports.

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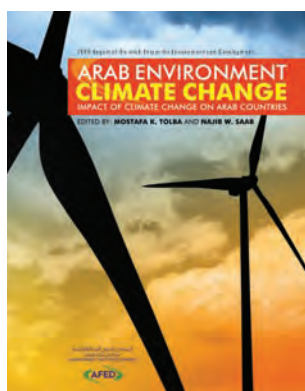


### Arab Environment: Future Challenges

2008 Report of the Arab Forum for Environment and Development

For the first time, a comprehensive independent expert report on Arab environment is released for public debate. Entitled *Arab Environment: Future Challenges*, this ground-breaking report has been commissioned by Arab Forum for Environment and Development (AFED), and written by some of the most prominent Arab experts, including authors, researchers and reviewers. Beyond appraising the state

of the environment, based on the most recent data, the policy-oriented report also evaluates the progress towards the realization of sustainable development targets, assesses current policies and examines Arab contribution to global environmental endeavors. Ultimately, the report proposes alternative policies and remedial action.

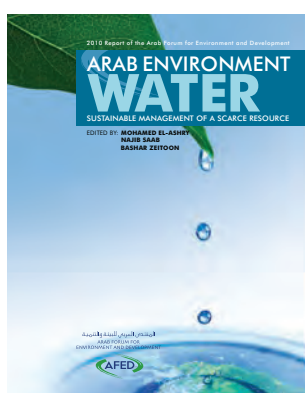


### Arab Environment: Climate Change

2009 Report of the Arab Forum for Environment and Development

*Impact of Climate Change on the Arab Countries* is the second of a series of annual reports produced by the Arab Forum for Environment and Development (AFED). The report has been designed to provide information to governments, business, academia and the public about the impact of climate change on the Arab countries, and encourage concrete action to face the challenge. The report analyzes the Arab

response to the urgent need for adaptation measures, and uses the latest research findings to describe the vulnerabilities of natural and human systems in the Arab world to climate change and the impacts on different sectors. In an attempt to help shape adequate policies, the report discusses options for a post-Kyoto regime and outlines the state of international negotiations in this regard.



### Arab Environment: Water

2010 Report of the Arab Forum for Environment and Development

*Water: Sustainable Management of a Scarce Resource* is the third of a series of annual reports produced by the Arab Forum for Environment and Development (AFED). It follows the publication of two reports, Arab Environment: Future Challenges in 2008 and Impact of Climate Change on Arab countries in 2009. The 2010 report is designed to contribute to the discourse on the sustainable management of water resources in the arab world and provides critical understanding of

water in the region without being overly technical or academic in nature. The unifying theme is presenting reforms in policies and management to develop a sustainable water sector in Arab countries. Case studies, with stories of successes and failures, are highlighted to disseminate learning. This report contributes to the ongoing dialogue on the future of water and catalyzes institutional reforms, leading to determined action for sustainable water policies in Arab countries.

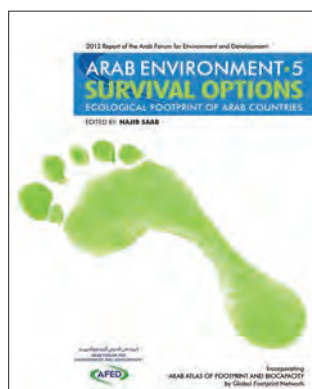


### Arab Environment: Green Economy

2011 Report of the Arab Forum for Environment and Development

*Green Economy: Sustainable Transition in a Changing Arab World* is the fourth of a series of annual reports on the state of Arab environment, produced by the Arab Forum for Environment and Development (AFED). This report on options of green economy in Arab countries represents the first phase of the AFED green economy initiative. Over one hundred experts have contributed to the report, and discussed its drafts in a

series of consultation meetings. The report is intended to motivate and assist governments and businesses in making a transition to the green economy. It articulates enabling public policies, business models, green investment opportunities, innovative approaches, and case studies, and addresses eight sectors: agriculture, water, energy, industry, cities and buildings, transportation, tourism, and waste management.

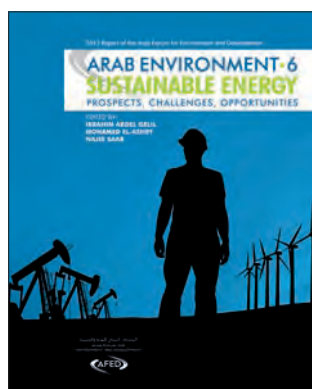


## Arab Environment: Survival Options

2012 Report of the Arab Forum for Environment and Development

*Survival Options - Ecological Footprint of Arab Countries* is the fifth in the series of annual reports produced by the Arab Forum for Environment and Development (AFED) on the state of the Arab environment. It examines sustainability choices in Arab countries, based on a survey of people's demand of natural capital and available supply. The report discusses potential paths to sustainability based on ecological constraints. As a basis for the analysis, AFED has commissioned the Global Footprint Network, the world leader in this field, to produce an Arab Ecological Footprint and Biocapacity

Atlas using the most recent data available. The Atlas covers the 22 members of the League of Arab States, as region, sub-regions and individual countries. The analysis focuses on the challenges posed by the state of food security, water and energy, while considering main drivers such as population and patterns of production and consumption. Ultimately, it prescribes regional cooperation and sound management of resources as the main options for survival in a region characterized by stark variations in ecological footprint, natural resources and income.



## Arab Environment: Sustainable Energy

2013 Report of the Arab Forum for Environment and Development

*Sustainable Energy* is the sixth in the series of annual reports produced by the Arab Forum for Environment and Development (AFED) on the state of Arab environment. The report highlights the need for more efficient management of the energy sector, in view of enhancing its contribution to sustainable development in the Arab region. The AFED 2013 report aims at: presenting a situational analysis of the current state of energy in the Arab region, shedding light on major challenges, discussing different

policy options and, ultimately, recommending alternative courses of action to help facilitate the transition to a sustainable energy future. To achieve its goals, the AFED 2013 report addresses the following issues: oil and beyond, natural gas as a transition fuel to cleaner energy, renewable energy prospects, the nuclear option, energy efficiency, the energy-water-food nexus, mitigation options of climate change, resilience of the energy sector to climate risk, and the role of the private sector in financing sustainable energy.

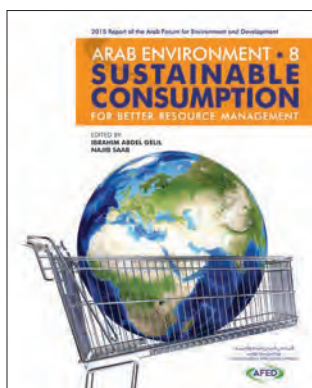


## Arab Environment: Food Security

2014 Report of the Arab Forum for Environment and Development

*Food Security* is the seventh in the series of annual reports on the state of Arab environment, produced by the Arab Forum for Environment and Development (AFED). The report highlights the need for more efficient management of the agriculture and water sectors, in view of enhancing the prospects of food security. *Food security* is of great concern to Arab countries. They have been pursuing a target of higher food self-sufficiency rate, but achieving this goal remained beyond reach. While they have limited cultivable land and

scarce water resources, they did not use their agricultural endowments in an effective and efficient manner. Lack of appropriate agricultural policies and practices led to diminishing the bio-capacity of the resources to regenerate their services and threatened agricultural sustainability. AFED hopes that its report on Food Security will help Arab countries adopt the right policies and commit to long-term investments, allowing them to secure a sustainable supply of food to meet ever-growing needs.



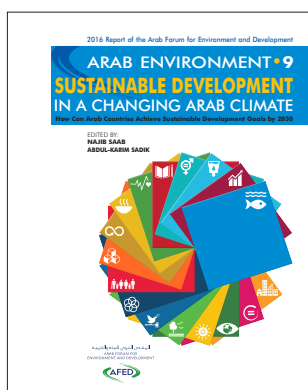
## Arab Environment: Sustainable Consumption

2015 Report of the Arab Forum for Environment and Development

Increasing production alone cannot solve the need of food for hungry people and water for thirsty people, nor will it provide power to dark villages. Equally, solely building more waste dumps and incinerators cannot solve the trash crisis. Inadequate consumption patterns are at the core of the problem, and any feasible solution requires a fundamental change in the way we consume resources and produce waste. Thus, the 2015 AFED Annual Report, *Sustainable Consumption for Better Resource Management*, discusses how changing

consumption patterns can help preserve resources and protect the environment, ultimately leading to sustainable development. While it is true that changing consumption patterns requires adequate policies based on expert studies, the support of consumers is a prerequisite for successful implementation. AFED carried out a wide-ranging public opinion survey, which found that the Arab public is ready to pay more for energy and water and to change their consumption patterns if this will help preserve resources and protect the environment.



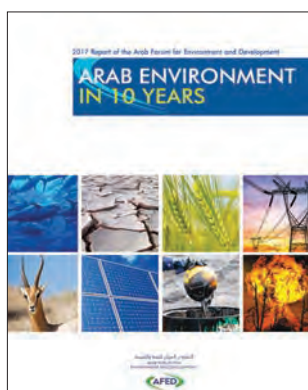


## Arab Environment: Sustainable Development in a Changing Arab Climate

2016 Report of the Arab Forum for Environment and Development

This AFED report on “*Sustainable Development in a Changing Arab Climate*” highlights the policy options available for the Arab countries to realize the Sustainable Development Goals by the 2030 target set by the United Nations, in light of the new political, economic, and social developments. The report recommends an alternative approach, based

on integrating sustainable development principles within the anticipated rebuilding efforts. It calls upon local, regional, and international aid organizations not to limit their efforts to providing safety and basic necessities to those affected, but rather to use the relief plans as a launch pad for promoting new approaches to development, rooted in a transition to green economy.



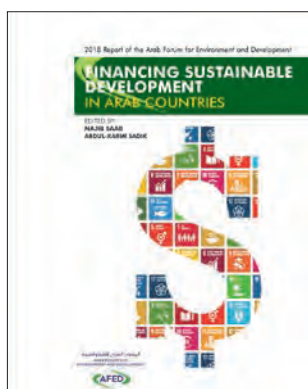
## Arab Environment In 10 Years

2017 Report of the Arab Forum for Environment and Development

*Arab Environment In 10 Years* crowns a decade of the series of annual reports produced by the Arab Forum for Environment and Development (AFED) on the state of Arab environment. It tracks and analyzes changes focusing on policies and governance, including level of response and engagement in international environmental treaties. It also highlights developments in six selected priority areas, namely water, energy, air, food, green

economy and environmental scientific research.

This report found that the state of environment in the Arab countries over the past ten years has been characterized by disparities. While progress was slow and the situation deteriorated in many aspects, there were advances in others, especially regarding matters related to governance and commitment to international treaties, particularly regarding climate change.



## Financing Sustainable Development in Arab Countries

2018 Report of the Arab Forum for Environment and Development

*Financing Sustainable Development in Arab Countries* identifies financing needs, gaps, options and mechanisms, while focusing on potential financing sources and addressing enhancement of their roles. The report found that Arab countries would need a minimum of USD 230 billion annually to support the achievement of the SDGs. The financing gap in Arab countries with deficit has

been estimated at over USD 100 billion, comprising a cumulative total of over USD 1.5 trillion through 2030. This does not only call for new funding requirements but also the greening of budgets and the redirecting of existing budgetary allocations from conventional investments to sustainable ones, including addressing climate change concerns.



## Environmental Education for Sustainable Development in Arab Countries

2019 Report of the Arab Forum for Environment and Development

*Environmental Education for Sustainable Development in Arab Countries* is the topic of the 2019 annual report of the Arab Forum for Environment and Development (AFED). It provides the first comprehensive survey of environmental contents in school and university curricula across the Arab countries, in view of identifying gaps and recommending pathways to enhance the role of education in advancing environmental protection and implementing the Sustainable Development Goals (SDGs). The report

found that during the last decade, Arab universities witnessed a rapid increase in programs related to the environment and sustainable development. Collectively, the 57 universities surveyed offer 221 degree programs on environmental topics. Postgraduate programs are typically research-An AFED survey of school textbooks and curricula found that environmental topics most popular in Arab schools are ecosystems, natural resources, pollution and sustainable development oriented.

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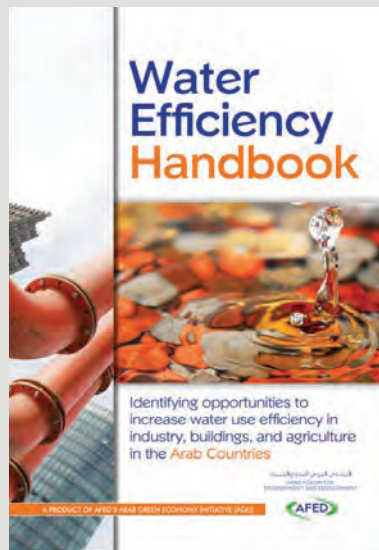
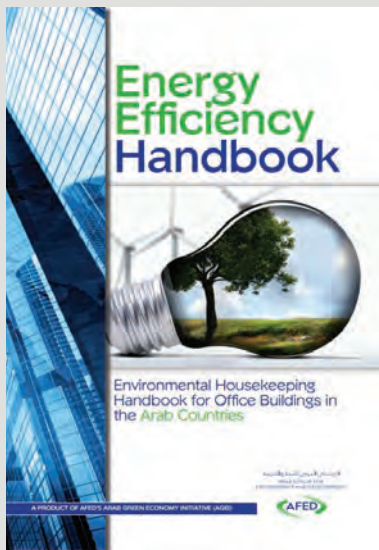


## Health and the Environment in Arab Countries

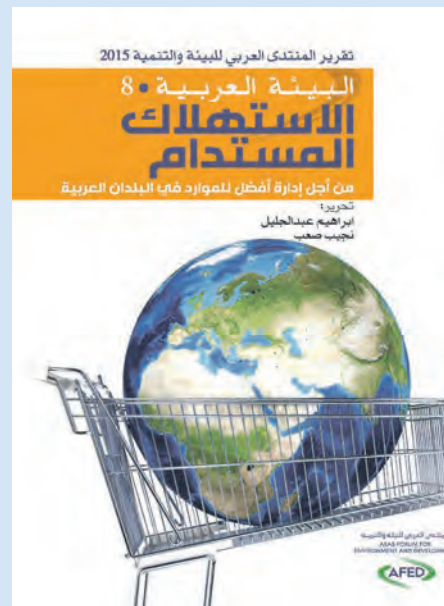
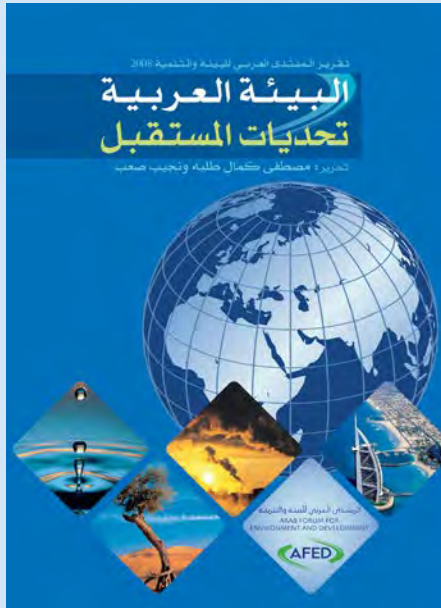
2020 Report of the Arab Forum for Environment and Development

The topic of the 2020 annual report of the Arab Forum for Environment and Development (AFED), *Health and Environment in Arab Countries*, has been particularly timely and relevant. Although the environment has always impacted human health, the interconnectedness between the two gained special importance at the outset of the coronavirus pandemic in 2020. The emergence, spread and impact of many diseases and illnesses can be mitigated by the management of environmental risks, which makes it necessary to tackle the underlying environmental causes. While

this is a global fact, it is more significant in the Arab region, where environmental risks are higher and rates of development, in most countries, are slower. The report discusses the main environmental drivers that impact various aspects of human health in the Arab countries, and proposes an action plan leading to the region meeting SDG Goal 3. Its seven chapters deal with the relationship between health, water, air, waste, ocean pollution and climate change, as well as progress and obstacles in achieving the environmental health content of the SDGs.







يمكن أن تبدأ البلدان التزام بالتدابير الكفيلة بتقريب المنطقة من الاقتصاد الأخضر، بما يمكنها من مواجهة الأزمات المستقبلية بطريقة أقوى.

مع وجود فجوة تمويلية تُقدَّر بنحو 230 مليار دولار سنوياً لتمويل أهداف التنمية المستدامة في الدول العربية، من الضروري ألا تقتصر الجهود على تعبئة الموارد اللازمة، بل ينبغي حشد كاستثمارات خضراء ذات أهمية بالغة لتحقيق تنمية مستدامة. ولا ينبغي اعتبار هذه الاستثمارات الخضراء مبادرات منعزلة، بل يجب أن تكون جزءاً من خطة وطنية شاملة ومتكاملة. والشرط الأساسي لذلك هو الحكم الرشيد والنهج التشاركي الذي يضمن أن تعكس السياسات والخطط المعتمدة أولويات المجتمعات المحلية، ومشاركة مختلف أصحاب المصلحة. مفتاح الحكم الرشيد هو أيضاً اعتماد أنظمة شفافة وخاضعة للمساءلة وتمنع الفساد. وهذا مهم لأن الاستثمار في البيئة وتخضير الاقتصاد لن يكون ممكناً في الأنظمة السياسية والاقتصادية التي يسودها الفساد، كما هو الوضع حالياً في العديد من البلدان العربية.

إن التدهور البيئي، بما في ذلك تغير المناخ، فضلاً عن التحديات الاقتصادية وانخفاض التدفقات المالية من المؤسسات الثنائية والمتعددة الأطراف والبلدان والمؤسسات المانحة، تتطلب استجابة دولية صارمة. ولكن هناك الكثير من العمل الذي يجب القيام به على المستوى الوطني كذلك، إذ يتعين على الدول العربية إعادة هيكلة تسعير الطاقة والدعم المالي لدفع الاستثمار الخاص نحو الطاقة النظيفة والاستهلاك الأكثر استدامة. إضافة إلى ذلك، لا بدّ من التركيز على نقل التكنولوجيا، خصوصاً إلى أقل البلدان نمواً، وتعزيز مكانة المنطقة في الوصول إلى التقنيات الجديدة وفرص التمويل وتكييفها. وبهذا المعنى، من الضروري تعزيز التعاون بين الدول العربية للحفاظ على صحتها الاقتصادية والاجتماعية والبيئية، ولا سيما في الأوقات التي تعاني خلالها عدم الاستقرار، إذ تحتاج إلى قدر أكبر من المانة.

## خاتمة

صحيح أن هذا التقرير يقدم صورة قاتمة إلى حد ما عن التأثير المدمر للأوبئة والحروب. لكنه يقترح أيضاً توصيات حول سبل دفع المنطقة العربية قدماً، لتكون أكثر اخضراراً وأكثر استعداداً بيئياً للأزمات المستقبلية. يجب التعجيل في تحويل الطاقة، مع التأكد من المشاركة في الفوائد. والاستثمار الآخر الضروري هو البحث والتطوير في مجال الزراعة والمياه، من أجل تحقيق قدر أكبر من الأمن الغذائي، ومزيد من الاكتفاء الذاتي، وزيادة الوصول إلى المياه النظيفة وخدمات الصرف الصحي. وعلى جميع الجبهات، من الطاقة إلى الغذاء إلى الماء، المطلوب مزيد من التعاون الإقليمي للحفاظ على الصحة الاقتصادية والاجتماعية والبيئية، ولا سيما في الأوقات التي تتميز بعدم الاستقرار. وفي المحصلة، يجب أن تكون الأزمات الأخيرة بمثابة جرس إنذار للحاجة الملحة إلى الاستعداد لحالات الطوارئ، ذلك أن عواقبها الحالية الواسعة النطاق ليست سوى جزء صغير من الآثار الحقيقية المتوقعة لتغير المناخ.



مستمرة، أو إمكان الوصول إلى مرفق لغسل اليدين أو صابون. علاوة على ذلك، كان ما يقدر بنحو 26 مليون لاجئ في دول المنطقة، خارجي وداخلي، أكثر عرضة للإصابة بكوفيد-19 نتيجة نقص خدمات المياه والصرف الصحي والنظافة في المخيمات المكتظة والمساكن غير الرسمية. وبصرف النظر عن الوباء، أثرت الأزمة الأوكرانية على إمدادات المياه في المنطقة العربية والوصول إليها، فكان لارتفاع أسعار الطاقة تأثير على توليد الكهرباء المستخدمة لتحلية المياه، وإعادة تدوير مياه الصرف الصحي، وإيصال المياه وضخها، إلى جانب الري.

هكذا، أدت الحرب في أوكرانيا والوباء إلى تعطيل أنظمة المياه في المنطقة. وبينما كان الوباء تذكيراً صارخاً بأهمية المياه العذبة وخدمات الصرف الصحي، كان العديد من البلدان العربية يعاني بالفعل تأثير النزاعات الإقليمية على موارده المائية على أساس يومي. فالفلسطينيون يعانون، على سبيل المثال، نقصاً شديداً في الوصول إلى موارد المياه الخاصة بهم، كما هو الحال في قطاع غزة، حيث تتمتع أسرة واحدة فقط من كل 10 أسر بإمكان الوصول المباشر إلى المياه الصالحة للشرب، ويواجه السكان تحدياً مزدوجاً يتمثل في الموارد المحدودة للمياه وجودتها. الماء، في هذه الحالة، ليس ضحية للنزاع فحسب، بل هو أيضاً سلاح يستخدم للتحريض عليه أو إدامته. ويمكن ملاحظة ذلك أيضاً في الصراع على مرتفعات الجولان الغنية بالمياه، والتي تحتلها إسرائيل، إذ تحرم سورية الوصول إلى مواردها المائية الخاصة.

وإن ينص الهدف 6 من أهداف التنمية المستدامة على ضرورة ضمان حصول الجميع على خدمات المياه والصرف الصحي، يتعين على الدول العربية إعطاء الأولوية للجهود لتحقيق ذلك من خلال الارتقاء بالبنية التحتية المتعلقة بالمياه، بما في ذلك خدمات المياه والصرف الصحي والنظافة الأساسية. كما ينبغي تحديث طرق الري وجعل المحاصيل الموفرة للمياه أكثر كفاءة وملاءمة. لقد كان الوباء والحرب الأخيران بمثابة تذكير مأساوي بأننا لم نكن مستعدين، مائياً، لمواجهة مثل هذه الكوارث، ولا يزال الكثير الذي يجب القيام به للارتقاء بجاهزية المياه في الدول العربية، بدءاً من تعزيز الكفاءة والتعاون الإقليمي.

## V. التمويل الأخضر

من أجل تحقيق التنمية البيئية على نحو ملموس في المنطقة العربية، يجب إعطاء الأولوية للتمويل والاستثمارات الخضراء. لقد تطور مفهوم الاقتصاد الأخضر سريعاً منذ قمة الأرض عام 1992، إلى ما نعرفه حالياً باقتصاد منخفض الكربون، وفعل من حيث استهلاك الموارد، وعادل اجتماعياً. فهو يهدف إلى الحد من المخاطر البيئية وتحسين رفاهية الإنسان. ولسوء الحظ أن الحروب الأخيرة ووباء كوفيد-19 انعكست سلباً على التقدم نحو الاقتصاد الأخضر، ولا سيما نتيجة عدم كفاية التمويل المستهدف ونقص السياسات البيئية السليمة. حتى قبل الأزمات الأخيرة، كان إنفاق الدول العربية على الحماية الاجتماعية والصحة من أدنى المعدلات في العالم، مما جعل السكان العرب أقل قدرة على الصمود أمام التحديات المناخية والبيئية الأخرى.

يتعامل الاقتصاد العالمي حالياً مع مستويات عالية من التضخم، وزيادة أسعار الغذاء والنفط، وتباطؤ النمو الاقتصادي وحجم التجارة، مما يفرض تحديات خاصة على البلدان النامية، بما في ذلك المنطقة العربية. لقد ساهمت الأزمات الأخيرة في ارتفاع معدلات التضخم، وتفاقم تقلب سلسلة التوريد وانقطاعها، وارتفاع معدلات البطالة. وأخرجت الأزمات المنطقة عموماً عن مسار التقدم في تحقيق أهداف التنمية المستدامة وتنفيذ الاستثمارات المخططة في الاقتصاد الأخضر. ومع ذلك، لا بد من إعادة التشديد على أن المنطقة العربية تعاني بالفعل فجوة كبيرة في تمويل أهداف التنمية المستدامة، والتي تفاقم بفعل الحروب ووباء كوفيد-19. لذلك، من الأهمية

الحبوب والزيوت النباتية والسكر، إذ تتجاوز الواردات 90 في المائة في معظم الحالات. فالمنطقة تعتمد إلى كبير على الواردات الغذائية لهذه المنتجات الحيوية، مما يجعل الدول العربية عرضة لحالات الطوارئ التي تؤثر على التجارة العالمية وسوق الغذاء، كما حدث خلال جائحة كوفيد-19 والحرب في أوكرانيا. فالتأثير الكبير على أسعار المواد الغذائية كان ملحوظاً في البلدان التي عانت انخفاضاً حاداً في قيمة عملتها، مثل لبنان وسورية واليمن ومصر، مما أدى إلى زيادة تكلفة سلة الغذاء الأساسية لديها بمعدل سنوي راوح بين 100 في المائة وأكثر من 400 في المائة.

ومع أن جميع الدول العربية تقريباً وضعت الزراعة والأمن الغذائي على رأس جدول أعمالها الوطني بعد أزمة الغذاء عام 2008، فإن معظمها استثمر أقل من 1 في المائة من الإنتاج الزراعي المحلي في البحوث الزراعية والتنمية. لذا على البلدان أن تذهب إلى أبعد من مجرد الاعتراف بوجود مشكلة بعد مواجهة آثار الأزمة، والعمل معاً لضمان قدر أكبر من المرونة عندما تؤثر الأزمات المستقبلية، التي لا مفر منها كما رأينا في السنوات الأخيرة، على السلسلة الغذائية العالمية.

لقد أظهر التاريخ الطويل من الأزمات الداخلية والخارجية التي تعانيها الدول العربية مدى تأثير الأمن الغذائي بمثل هذه الضربات. فقد أثرت الأزمات الأخيرة على توافر الغذاء وإنتاجه نتيجة اضطرابات سلسلة التوريد؛ والحصول على الغذاء بفعل فقدان الوظائف والدخل وارتفاع أسعار المواد الغذائية؛ والاستقرار بسبب قيود التصدير وتقلب الأسعار. تحتاج الدول العربية إلى الاستعداد على نحو أفضل لمواجهة مثل هذه الانتكاسات، نظراً إلى تقلبات المنطقة، إلى جانب العولة التي تعني أن للأزمات الخارجية آثاراً خطيرة غير مباشرة. ومع أن الدول العربية تتفاوت في قدراتها الاقتصادية ومواردها الزراعية وإمكانياتها للزراعة المستدامة، فعليها زيادة الاستثمار في الإنتاج المحلي للمحاصيل الغذائية، والاستفادة الكاملة من إمكانات التنمية الزراعية المستدامة لكل بلد، إلى جانب تعزيز التنسيق والتعاون الإقليميين. ومن التوصيات الرئيسية الأخرى زيادة الاستثمار في البحث والتطوير الزراعيين، لأن مجرد الاعتراف بمشكلة انعدام الأمن الغذائي في المنطقة لا يكفي.

#### IV. المياه

تعاني معظم الدول العربية عجزاً كبيراً في المياه، تعوّضه من طريق التنقيب عن موارد المياه الجوفية، والاعتماد على محطات تحلية باهظة الثمن، والتوسع في إعادة استخدام مياه الصرف الصحي المعالجة. لا يعتبر تحسين الكفاءة لإنتاج «محصول أكثر لكل قطرة» أولوية في كثير من الحالات، فالنمو السكاني والسياسات الزراعية الحالية تشكل التحديات الأساسية لتنمية الموارد المائية في المنطقة، حيث تتجاوز معدلات الطلب على المياه معدلات تنمية الموارد المائية المتوقعة. لقد ساهمت أنماط الاستهلاك والإنتاج غير المستدامة طوال السنوات الأخيرة، إلى جانب عواقب تغير المناخ، في زيادة ندرة المياه وزيادة استهلاك الطاقة وانبعاثات غازات الاحتباس الحراري المرتبطة بها، وتالياً تفاقم تدهور الأراضي والتصحر وتصادم فواتير استيراد المياه والغذاء والطاقة. وجاءت جائحة كوفيد-19 بمثابة جرس إنذار في ما يتعلق بأهمية الوصول إلى المياه النظيفة والصرف الصحي والنظافة للجميع لحماية الصحة والرفاهية. لكن تحقيق هذه الضروريات كان صعباً للبلدان العربية التي تعاني ندرة المياه.

لم ينجُ أي بلد من جائحة كوفيد-19، وفي المنطقة العربية، كان معنى هذا أن ملايين الأشخاص لم يتمكنوا من التزام توصيات النظافة الأساسية. ولم يكن لدى العديد من المنازل إمدادات مياه

طوال العقد الماضي، خطت الدول العربية بعض الخطوات نحو إنتاج الطاقة المتجددة. وتتمتع المنطقة ببعض المزايا المهمة مقارنة بأجزاء أخرى من العالم. ذلك أن البلدان العربية تتلقى ما بين 22 و26 في المائة من الإشعاع الشمسي الإجمالي على الأرض، كما أن العديد من الدول تتمتع بموقع جيد للغاية لطاقة الرياح. ومع آفاق واعدة من حيث إنتاج الطاقة من مصادر نظيفة متوافرة محلياً وتخزينها، يسعى عدد من الدول العربية، بما في ذلك المملكة العربية السعودية ومصر والمغرب والإمارات العربية المتحدة وسلطنة عُمان، بجهد أيضاً نحو مشاريع الهيدروجين الأخضر، لاستخدامه في وسائل النقل وتشغيل المولدات حيث لا شمس ولا رياح، كحل أنظف وأرخص من البطاريات.

لقد أتت الأزمات الأخيرة إلى ارتفاع عائدات الدول المنتجة للوقود الأحفوري في المنطقة العربية، وتالياً قد يكون من المغري الاستمرار على هذا المنوال لأطول فترة، بما يرتبه من مخاطر على التخلف عن التحولات في أسواق الطاقة العالمية. لكن العديد من المبادرات المعلنة والمنفذة المتعلقة بالطاقة المتجددة يشير إلى أن التحول نحو الطاقة المستدامة سيستمر. كما يمكن استخدام عائدات الوقود الأحفوري المرتفعة لدعم مبادرات الطاقة المتجددة، وهذا ما تفعله دول عربية نفطية عدة. وتدرّك بلدان المنطقة على نحو متزايد فائدة العمل معاً لإنشاء شبكات طاقة متجددة مترابطة تجعل هذا التحول أكثر جدوى. حتى أن هناك خططاً قائمة بين الدول العربية والدول المجاورة - المغرب والمملكة المتحدة ومصر واليونان - للتصدير المتوقع للطاقة المتجددة إلى أوروبا. كذلك بات تصدير الهيدروجين المسال جزءاً أساسياً من الخطط المستقبلية للعديد من الدول المنتجة للنفط.

إن التكنولوجيا المتعلقة بمصادر الطاقة المتجددة تتطور بسرعة، ولكن من أجل الاستفادة من التطورات على نحو فعال، على المنطقة العربية أن تتحرك نحو إزالة القيود التشغيلية. ومن هذا السماح للقطاع الخاص بالعمل ليس فقط في توليد للكهرباء ولكن أيضاً في كل مراحل التطوير والانشاء والتوزيع. وعلى رغم أن الهيدروجين الأخضر لا يزال في مراحله الأولى للإنتاج والتوزيع التجاريين، إلا أنه من المحتمل أن يوفر فرصة كبيرة للدول العربية لتبقى مصدراً رائداً وموثوقاً به للطاقة في العالم.

### III. الأمن الغذائي

لا يزال الطريق طويلاً أمام المنطقة العربية لتحقيق هدف القضاء على الجوع بحلول سنة 2030، كما ينص على ذلك الهدف رقم 2 من أهداف التنمية المستدامة. ويعود ذلك إلى عوامل مختلفة، منها النمو السكاني السريع وموارد المياه المحدودة وتدهور الأراضي والجفاف الناجم عن تغير المناخ وارتفاع درجات الحرارة. لذلك فإن المنطقة معرضة لانعدام الأمن الغذائي، ما لم تبذل جهود متضافرة لتعزيزه من طريق أفضل الممارسات واعتماد العلم والتكنولوجيا المتقدمة. إضافة إلى ذلك، جعلت الحروب والصراعات الأهلية في العديد من الدول العربية المنطقة من الأكثر عجزاً في الغذاء. وإلى القضايا الإقليمية، تعرّض الأمن الغذائي أيضاً للتهديد نتيجة للأزمات الخارجية، بما في ذلك جائحة كوفيد-19 والحرب في أوكرانيا. ولكن ينبغي التشديد على أن انعدام الأمن الغذائي ليس نتيجة للنزاعات فحسب، بل يمكن لفقر الامدادات الغذائية أيضاً أن يحض على الصراع، مما يؤدي إلى اضطرابات وثورات وأزمات اقتصادية.

من القضايا الرئيسية في المنطقة أن البلدان العربية بعيدة جداً عن الاكتفاء الذاتي من السلع الغذائية الرئيسية، على الأقل في المستقبل القريب. وفي حين أن معدلات الاكتفاء الذاتي في المنطقة من الأسماك ومنتجات الألبان تزيد عن 80 في المائة، فإن هذا ليس هو الحال بالنسبة إلى

النزاعات في مختلف البلدان العربية، من الواضح أن أي تطور يجب أن يُنظر إليه في ضوء هذه الحقائق الإقليمية. ونظراً إلى هذا الوضع الإقليمي غير المستقر، يجب عدم الاستهانة بتأثير الصدمات العالمية والخارجية على تنفيذ أهداف التنمية المستدامة في المنطقة، ذلك أن الأزمات مثل الوباء وحرب أوكرانيا تشكل صعوبة مضاعفة، إضافة إلى الصراعات الإقليمية الحالية.

كان لفيروس كورونا تأثير عميق على الدول العربية على مستويات مختلفة. في ذروة الوباء، كان الملايين من الناس أكثر عرضة للإصابة بالفيروس نتيجة نقص المرافق الأساسية لغسل اليدين، وخسارة الناس وظائفهم. وأصبح الأشخاص الضعفاء الذين يعتمدون على المساعدات الإنسانية غير قادرين على الحصول على الغذاء والمأوى والصرف الصحي. كما أدى الوباء إلى تفاقم وضع الاقتصادات العربية، مع انخفاض حاد في نصيب الفرد من الناتج المحلي الإجمالي في معظم الدول وانتكاسات هائلة لقطاع السياحة. كل هذه العوامل أدت إلى زيادة الفقر في معظم بلدان المنطقة، ماعدا النفطية منها. وفي بعض الدول العربية، مثل لبنان، ترافق الوباء مع أزمة مالية غير مسبوقة أدت إلى ارتفاع معدلات البطالة وتضخم متصاعد وانحيار حاد في الخدمات الأساسية.

علاوة على الصراعات الإقليمية الحالية ووباء كوفيد - 19، كانت للحرب في أوكرانيا عواقب وخيمة على الدول العربية. ذلك أن العديد منها يعتمد إلى حد كبير على الإمدادات الغذائية، كالقمح والحبوب الأخرى، من روسيا وأوكرانيا. كان لبنان ومصر مستوردين رئيسيين، وتالياً كانا عرضة لنقص الغذاء نتيجة للحرب في أوكرانيا. ومن ناحية أخرى، انعكست أزمة الطاقة التي نتجت من الحرب بالفائدة على العديد من الدول العربية المصدرة للنفط، إذ وفّرت لها الأسعار المرتفعة للنفط والغاز مزيداً من الإيرادات للحد من تأثير انخفاض الواردات الغذائية. وسوف يكون أمراً جيداً لهذه البلدان أن تستفيد من استخدام هذا الدخل الإضافي غير المتوقع لتعزيز الأمن الغذائي في المنطقة والمساهمة في تقديم أهداف التنمية المستدامة الأخرى، مثل القضاء على الجوع والفقر، فضلاً عن تعزيز الاستثمارات في الطاقة النظيفة والمتجددة، وهو ما فعله البعض بنجاح.

## II. التحوّل الطاقوي

على الصعيد العالمي، نحن متأخرون عن الخطوات المتخذة لتنفيذ اتفاق باريس، وهو المعاهدة الدولية لتغيير المناخ التي تبنتها الدورة الحادية والعشرون لمؤتمر الأطراف الذي انعقد في باريس عام 2015. ويهدف جزء من الاتفاق إلى الحدّ سريعاً من انبعاثات غازات الاحتباس الحراري. لهذا، يعدّ تحويل الطاقة من خلال مصادر نظيفة ومتجددة أمراً ضرورياً. لقد سلّطت جائحة كوفيد-19 والأزمة في أوكرانيا الضوء أكثر من أي وقت مضى على هشاشة الاعتماد الكبير على الوقود الأحفوري، خصوصاً من مصادر غير مستقرة، وأهمية أمن الطاقة. ويتعين على المنطقة العربية أن تأخذ هذه الأزمات على اعتبار أنها دافع إلى التغيير، لتكون عنصر استقرار في سوق الطاقة، خلال فترة التحوّل وما بعدها. ومن خلال تعزيز علاقات التعاون بين الدول المجاورة، والاستثمار في كل أشكال الطاقة النظيفة والمتجددة وتطبيقاتها، بما في ذلك الهيدروجين الأخضر، وتحلية المياه القائمة على الطاقة المتجددة والمركبات الكهربائية، يمكن المنطقة العربية أن تكون أقل تأثراً بالأزمات المستقبلية المشابهة. وقد أخذت دول عربية خطوات جديدة في مجال الطاقة النظيفة والمتجددة، آخرها إعلان المملكة العربية السعودية عن خطط لبدء تصنيع السيارات الكهربائية محلياً، هدفها الوصول إلى 500 ألف وحدة بحلول سنة 2030. كما زادت الإمارات استثماراتها في مبادرات متعددة لتسريع التحوّل الطاقوي.



# ملخص تنفيذي

## أثر الوباء والحرب على البيئة العربية

### التقرير السنوي الرابع عشر للمنتدى العربي للبيئة والتنمية (أفد) - 2023

طوال السنوات الأخيرة، أثرت جائحة كوفيد-19، وكذلك الأزمة المستمرة في أوكرانيا، على بلدان العالم أجمع، وعلى كل المستويات تقريباً، بما في ذلك البيئة. ولم يكن ممكناً للدول العربية، إضافة إلى التعامل مع تأثير النزاعات والحروب الإقليمية السابقة والحالية، تفادي تداعيات هذه الأزمات العالمية على الأوضاع البيئية، كما التزم الجدول الزمني لتحقيق أهداف التنمية المستدامة، ولا سيما في ما يتعلق بالأمن الغذائي وتغير المناخ. كما من المرجح أن يتحمل العالم والمنطقة العربية تبعات مزيد من الأوبئة والحروب ذات الأثر العالمي مستقبلاً.

لهذا السبب، خصص المنتدى العربي للبيئة والتنمية (أفد) تقريره السنوي الرابع عشر ضمن سلسلة «البيئة العربية» لدراسة «تأثير الأوبئة والحروب على البيئة في الدول العربية». ويركز هذا التقرير على النتائج المستفادة من الأزمات الأخيرة من حيث تأثيرها على أهداف التنمية المستدامة والتحول في قطاع الطاقة والأمن الغذائي والمياه والتمويل. ويكشف التقرير أن الكوارث العالمية الناشئة عرّضت بلدان المنطقة لتحديات غير مسبوقة، لم يكن معظمها مستعداً لمواجهةها على النحو المناسب، ويقترح مسارات بديلة لتعزيز المرونة والقدرة على المواجهة.

## I. أهداف التنمية المستدامة

قبل فترة طويلة من تفشي جائحة كوفيد-19 وأزمة أوكرانيا، كان التقدم في تحقيق أهداف التنمية المستدامة، على مستوى المنطقة العربية والعالم، متأخراً. فقد صيغت أهداف التنمية المستدامة، التي تغطي الأبعاد الاقتصادية والاجتماعية والبيئية، في عام 2015، لتحقيقها بحلول 2030. وكانت للوباء والحرب المستمرة في أوكرانيا عواقب مدمرة على مستوى العالم، جعلت تحقيق الأهداف تحدياً أكبر من ذي قبل. واستهدفت الأزمات الأشخاص الأفقر والأكثر ضعفاً، وأدت إلى زيادة الفقر المدقع والجوع المزمن، كما أثارت أزمة غذاء وطاقات عالمية. وتسبب تقارب هذه الكوارث في نشوء تحديات غير مسبوقة على طريق تحقيق أهداف التنمية المستدامة، لا سيما في البلدان العربية، التي كانت تواجه أصلاً نقصاً في هذا المجال، زادت الكوارث والأحداث تفاقمها. مع ملاحظة أن بعض الدول العربية كانت قد نجحت في تحقيق تقدم ملموس نحو تحقيق أهداف التنمية، ليس فقط بسبب دخلها الأعلى، بل أيضاً بتوجيهها للموارد إلى استثمارات مجدية وفق سلسلة أولويات مدروسة، وتعزيز الحوكمة.

شهد معظم الدول العربية تراجعاً في التقدم نحو تحقيق أهداف التنمية قبل سنوات من نشوب الأزمات الحالية. وسورية هي مثال على ذلك، بخسارة عقد كامل من التقدم في القضاء على الفقر بين 1997 و2007، نتيجة للنزاعات والحروب. كما أن استمرار الاحتلال الإسرائيلي لفلسطين يُلقي بظلاله السوداء على السعي إلى تحقيق أهداف التنمية المستدامة. وفي ظل الكثير من

الصحي. وعلى كل الجبهات، من الطاقة إلى الغذاء إلى الماء، ينبغي أن يكون هناك مزيد من التعاون الإقليمي للحفاظ على الصحة الاقتصادية والاجتماعية والبيئية، ولاسيما في أوقات الأزمات وعدم الاستقرار.

لقد كشفت الآثار المتعددة للحرب في أوكرانيا ووباء كورونا نقاط ضعف متأصلة في الدول العربية، كمجموعة، لا سيما في ما يتعلق بالقدرة على الاستجابة للصدمات الصحية والغذائية والطاوية. إن العواقب البيئية هائلة، خصوصا في منطقة غالبا ما تتأثر بالحرب والصراعات، وهي أيضا عرضة لتأثيرات تغير المناخ. فلتكن الأزمات الأخيرة جرس إنذار يسلط الضوء على الحاجة الملحة للاستعداد لحالات الطوارئ، لأن عواقبها الواسعة النطاق ليست سوى جزء صغير من الآثار المتوقعة لتغير المناخ حين يصل إلى نقطة اللارجوع. وفوائد التعاون الإقليمي، الذي يتيح لدول المنطقة النمو معا، لا تقتصر على تعزيز فرص تحقيق أهداف التنمية والمناخ، بل تساهم أيضا في تعزيز الاستقرار والأمن.

من المأمول أن يساعد هذا التقرير في إطلاق إجراءات جادة وسريعة، وتغييرات في السياسات، لا سيما في مجال الأمن الغذائي والتحول الطاقوي والتمويل، بحيث يمكن الدول العربية مواجهة الأزمات المستقبلية الحتمية، جماعيا وبقوة.

بيروت، حزيران (يونيو) 2023

**نجيب صعب**

الأمين العام

المنتدى العربي للبيئة والتنمية (أفد)

الأماكن، ومنها فلسطين، مما يؤدي إلى استمرار الصراع وصعوبة الوصول المباشر إلى المياه الصالحة للشرب. وفي بلدان مثل سورية، قضت الصراعات والحروب الداخلية على سنوات من التقدم الذي أمكن إحرازه نحو القضاء على الفقر. وعلى المستوى الإقليمي، كان الإنفاق على الحماية الاجتماعية والصحة وأهداف التنمية المستدامة عموماً من الأدنى في العالم، مما يجعل السكان العرب أقل استعداداً لمواجهة التحديات البيئية وتحقيق الأهداف المتفق عليها. غير أن معدلات الدخل الأعلى، بالتوازي مع تعزيز الحوكمة وتوجيه الاستثمارات نحو أولويات محددة، مكن بعض الدول العربية من تحقيق تقدّم ملموس في أهداف التنمية، بما فيها تسريع التحوّل الطاقوي.

يُظهر هذا الواقع الوضع غير المستقر الذي كانت المنطقة تعيشه بالفعل من حيث التأهب البيئي، قبل أن يتصدّر الوباء العالمي والحرب في أوكرانيا عناوين الصحف العالمية، والتي تجاوزت آثارها كل الحدود. ومن الضروري معالجة الآثار الإقليمية للأزمات الأخيرة على البلدان الهشة بالفعل، كشرط مسبق للتصدي الفاعل للتنمية البيئية في البلدان العربية. وقد تسببت جائحة كوفيد-19 والحرب في أوكرانيا بزيادة الفقر والجوع، وهي نتيجة مؤسفة للصراع، لكنها ليست جديدة في المنطقة. ذلك أن الجائحة والحرب أدتا إلى أزمة غذائية في منطقة كانت تتعامل بالفعل مع انعدام الأمن الغذائي. فقد كان من نتائج الاعتماد على الواردات الغذائية للمنتجات الحيوية، بما في ذلك الحبوب والزيوت النباتية، جعل البلدان هشة في مثل هذه الحالات الطارئة التي أثّرت على التجارة العالمية. وفي بعض الحالات، أدى الاندفاع إلى إنتاج المزيد من الغذاء محلياً إلى زيادة الضغط على أنظمة الري غير الفعالة وغير المتطورة. وكان الوباء أيضاً تذكيراً صارخاً بأهمية المياه العذبة وخدمات الصرف الصحي، لكن بالنسبة إلى بعض البلدان العربية التي تعاني ندرة في المياه، كان من الصعب تحقيق هذه الضروريات.

أدت الحرب في أوكرانيا إلى تعطيل سوق النفط والغاز العالمي بشدة، مما تسبب بارتفاع كبير في الأسعار. أما بالنسبة إلى البلدان العربية المصدرة للنفط، فقد كان هذا مفيداً من حيث زيادة عائداتها. وفي حين أنه قد يكون من المغري النظر إلى زيادة الإيرادات النفطية كنتيجة إيجابية لهذه الأزمات والترحيب بها، إلا أنه لا يمكن التخطيط للمستقبل بناء على وضع عارض. فآزمة الطاقة التي تسببت بها الحرب الأوكرانية قد تسرّع التحوّل العالمي إلى الطاقات المتجددة المنتجة محلياً أكثر مما كان متوقعاً، لتقليل الاعتماد على مصادر خارجية. لهذا يوصي التقرير باستثمار الإيرادات الإضافية للتعجيل في التحوّل الإقليمي للطاقة، من خلال تعزيز الكفاءة، إلى جانب اعتماد مصادر الطاقة النظيفة والمتجددة، والمساهمة في تقدّم أهداف التنمية المستدامة الأخرى، مثل القضاء على الجوع والفقر. لا ينبغي أن تؤخذ هذه التوصية باستخفاف، نظراً إلى أن الأزمات الأخيرة أبعدت المنطقة بشكل عام عن الاستثمارات في اتجاه الاقتصاد الأخضر. فالمنطقة العربية تعاني بالفعل فجوة كبيرة في تمويل أهداف التنمية المستدامة، والتي قُدّرت بأكثر من 230 مليار دولار سنوياً، وتفاقت بسبب الحروب ووباء كوفيد-19.

بصرف النظر عن وصف قاتم إلى حد ما للأثر المدمر للحرب والأوبئة على البيئة العربية، يقدّم التقرير توصيات عملية لدفع المنطقة قدماً، فتكون أكثر اخضراراً وأكثر استعداداً بيئياً للأزمات المستقبلية. كما يتعين على المنطقة أن تستثمر أكثر في الطاقة النظيفة والمتجددة، بما في ذلك الهيدروجين الأخضر. ومع التقدم السريع في التكنولوجيات المتعلقة بمصادر الطاقة المتجددة، على البلدان العربية أن تزيل القيود التشغيلية لتتمكن من استخدام هذه التقنيات على أوسع نطاق. وثمة استثمار ضروري آخر، هو البحث والتطوير الزراعي، من أجل تحقيق قدر أكبر من الأمن الغذائي، ومزيد من الاكتفاء الذاتي، وزيادة الوصول إلى المياه النظيفة وخدمات الصرف

## تمهيد

## أثر الوباء والحرب على البيئة العربية

التقرير السنوي الرابع عشر للمنتدى العربي للبيئة والتنمية (أفد) - 2023

## الأمن الغذائي والطاقة وتمويل التنمية

يركّز التقرير الأخير للمنتدى العربي للبيئة والتنمية (أفد) على تأثير الحروب والأوبئة على البيئة في الدول العربية، وهو الرابع عشر في سلسلة «البيئة العربية» التي أطلقها «أفد» عام 2008. غني عن القول إن العالم واجه أزمات هائلة في السنوات الأخيرة، بدءاً من جائحة كوفيد-19 وصولاً إلى الحرب المستمرة في أوكرانيا. وقد أدت الأزمات إلى اضطرابات هائلة في سلاسل التوريد ونقص الطاقة والغذاء وارتفاع الأسعار، مما أعاق أيضاً المبادرات والاستثمارات البيئية. ولم تسلم المنطقة العربية من آثار هذه الأزمات، إذ يتعامل الكثير منها في وقت واحد مع الصراعات الداخلية والانهيئات الاقتصادية غير المسبوقة.

ما هو تأثير حالات الطوارئ العالمية هذه على التحديات المتعلقة بالبيئة في البلدان العربية؟ وما الدروس التي يمكن تعلّمها لضمان مزيد من التأهب البيئي عند مواجهة الأزمات المستقبلية؟ تقرير «أفد» عن «تأثير الوباء والحرب على البيئة العربية» يحاول الإجابة عن هذين السؤالين.

يبحث التقرير العواقب البيئية الهائلة للأزمات الأخيرة على أهداف التنمية المستدامة وتحول الطاقة والأمن الغذائي والمياه والتمويل، بما في ذلك تمويل العمل المناخي. على مرّ السنين، تطرّق «أفد» في تقاريره إلى كل هذه المواضيع، بما في ذلك الصحة والبيئة في الدول العربية (2020)، تمويل التنمية المستدامة في الدول العربية (2018)، الأمن الغذائي (2014)، الطاقة المستدامة (2013)، الاقتصاد الأخضر (2011)، المياه (2010). ناقشت التقارير كيف كانت المنطقة متأخرة في جوانب معينة من حيث التقدم نحو التحول المستدام، لكنها سلّطت الضوء أيضاً على الإنجازات المهمة التي تم تحقيقها، على رغم مواجهة العديد من البلدان صعوبات الحرب والصراعات. الآن، وبعدما واجهت المنطقة الكوارث العالمية، مما عرّض بلدانها لتحديات غير مسبوقة، وجد «أفد» أنه من الضروري تقويم كيفية تأثر الدول العربية بها، واقتراح توصيات قائمة على الأدلة من أجل الاستعداد للمستقبل. لقد كشفت الأزمات نقاط ضعف متأصلة في البلدان العربية كمجموعة، وعلى مستويات متفاوتة بين الدول المختلفة، تسببت بعواقب بيئية هائلة، ينبغي أن تكون بمثابة دعوة للتنبيه وتحريك الإجراءات الجادة، ولاسيما في مجال الأمن الغذائي وتحول الطاقة والعمل المناخي.

تسببت التحديات السابقة في جعل الدول العربية في وضع غير مستقر للغاية عند مواجهة العواقب الإقليمية لوباء كوفيد-19 والحرب في أوكرانيا. فقد كانت المنطقة، على سبيل المثال، تعاني بالفعل انعدام الأمن الغذائي نتيجة النمو السكاني المتسارع والجفاف الناجم عن تغيير المناخ والصراعات الأهلية. وتفاقم ذلك بفعل افتقار المنطقة إلى الاكتفاء الذاتي الغذائي والاعتماد الكبير على الواردات. كذلك تعاني الدول العربية عجزاً تاريخياً كبيراً في المياه، مع معدلات طلب تتجاوز المعدلات الراهنة لتنمية الموارد المائية. حتى أن المياه تستخدم سلاحاً في بعض





التقرير السنوي للمنتدى العربي للبيئة والتنمية 2023

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# الوباء والحرب

أثر الوباء والحرب على البيئة العربية

المنتدى العربي للبيئة والتنمية

ARAB FORUM FOR  
ENVIRONMENT AND DEVELOPMENT



# IMPACT OF PANDEMIC AND WAR ON ARAB ENVIRONMENT

2023 Report of the Arab Forum for Environment and Development



This latest report by the Arab Forum for Environment and Development (AFED) focuses on the impact of wars and pandemics on the environment in Arab countries. It is the fourteenth in the Arab Environment series initiated by AFED in 2008. Needless to say, the world has been faced with immense crises the last few years, starting with the COVID-19 pandemic and continuing with the ongoing war in Ukraine. The crises led to immense disruptions in supply and demand chains, energy and food shortages and price hikes – all of which have also hampered environmental initiatives and investments. The Arab region has not been spared from the effects of these crises, with many countries simultaneously dealing with internal strife and historic economic meltdowns. What has the impact of these global emergencies been on environment-related challenges in Arab countries? And what lessons can be learned to ensure more environmental preparedness when facing future crises? Impact of Pandemic and War on Arab Environment attempts to dig deep into these questions.

The report, the 14th in AFED series of studies on Arab Environment which started in 2008, concentrates on the enormous environmental consequences of the recent crises on the SDGs, energy transformation, food security, water and financing, including climate action. Over the years AFED has investigated each of these topics in reports including Health and the Environment in Arab Countries (2020), Financing Sustainable Development in Arab Countries (2018), Food Security (2014), Sustainable Energy (2013), Green Economy (2011), and Water (2010). The reports discussed how the region was in certain aspects lagging in terms of progress towards sustainable transformation, but also highlighted important achievements made despite many countries being faced with the hardship of war and conflict. Now that the region has been hit by global calamities, exposing countries to unprecedented challenges, AFED found it imperative to evaluate how Arab countries have been affected and to propose evidence-based recommendations for the future. The crises exposed inherent weaknesses in Arab countries and led to enormous environmental consequences that should be a wakeup call to trigger serious action, mainly in food security, energy transition and climate action.

*Arab Forum for Environment and Development (AFED) is an international not-for-profit, non-governmental, membership-based organization headquartered in Beirut, Lebanon. Members include corporations, universities, research centers, media networks, and civil society alongside government entities as observers. Since 2007, AFED has been a public forum for influential eco-advocates. Over the last fifteen years, it has become a major dynamic player in the global environmental arena.*

*The flagship contribution of AFED is an annual report written and edited by experts on the state of Arab environment, tracking developments and proposing policy measures. Other initiatives include a regional Corporate Environmental Responsibility (CER) program, capacity building, public awareness, and environmental education.*

*AFED enjoys Consultative Status with the United Nations Economic and Social Commission (ECOSOC), and has an observer member status with the United Nations Environment Program (UNEP), the League of Arab States (LAS), and many other regional and international organizations and conventions. As an Arab think tank, it has played a major role in international negotiations on environment and development, including advising governments and regional organizations on matters such as climate change, green economy and sustainable development.*

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