Arab Food Security
Vulnerabilities and Pathways

Food and Agriculture Organization of the United Nations

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Foreword

This report is a culmination of efforts by ESCWA and FAO regional office and departments at headquarters. The partners collaborated with other experts to assess and provide sound analyses, and to outline an appropriate course of action through an assessment of challenges and a simulation of the short- to medium-term food outlook towards 2030.

2020 was a challenging year, bringing human suffering to an unprecedented level socioeconomically but also health-wise. COVID-19, a novel infectious disease, spread fast and wide, distressing healthcare systems and unleashing one of the fastest and strongest recessions the world has witnessed in recent memory. In the Arab region, the pandemic added to many challenges that have prevailed for decades, including, among others, high population growth, conflicts and population displacements, poverty and unemployment, food insecurity and malnutrition, and high dependence on external food markets in an environment of growing scarcity of water and arable lands. How prepared was the region to address and adapt to these shocks, and what lessons have been learned?

Many Arab countries have recently been substantially tested by a range of crises, including sociopolitical unrest and armed conflicts, and devastating economic downturns, driven by falling oil prices and currency devaluations. These added to and worsened the impacts of earlier crises. The COVID-19 pandemic thus found fertile ground and exacerbated the many vulnerabilities of the region, notably those of its food system. People's livelihoods and health were harmed, and State budgets were further weakened, challenging the capacity of many middle- and low-income countries to respond accordingly.

The food system of the Arab region is underpinned by regional and global trade in food and agricultural commodities, and thereby requires a sustainable, well-functioning food supply chain that generates incomes and builds livelihoods while preserving natural resources. The COVID-19 pandemic and the measures adopted to stem its spread upended the functioning of food markets. Constrained movements and food hoarding led to a temporary emptying of store shelves, while fresh foods were discarded as demand from restaurants and other institutional buyers decreased. This severely impacted food-related businesses, and led to a rise in unemployment, income losses and increased poverty.

This report sheds light on how COVID-19 has impacted food security in the region while highlighting the weaknesses and vulnerabilities underlying food systems and their high susceptibility to shocks. Simulations on the impact of COVID-19, along with projections of the outcome of market shocks, such as food price hikes, and the outcome of a significant cereal yield improvement were performed to outline key recommendations to enhance the resilience of food markets. The report also presents case studies on food security in Lebanon and Yemen. Throughout, the report provides options to respond to rising food insecurity, address the current status of food and nutrition, reduce vulnerabilities and respond to COVID-19, with a view to highlighting alternative ways to enhance resiliency to future shocks.

As such, the report is a useful reference as the region aims to build back better. It is the hope of our two organizations that its content and findings will help inform policymaking and programme planning, and assist countries to move more confidently towards the achievement of the Sustainable Development Goals (SDGs), particularly SDG 2, along with others supporting the achievement of food security.

Rola Dashti
Under-Secretary-General,
Executive Secretary of ESCWA

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Assistant Director General
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Executive summary

Ensuring food security for all is an ambitious and complex endeavour that requires considering its four dimensions: food availability, access, utilization and stability. These were agreed upon during the World Food Summit in 1996 and reaffirmed in the World Summit on Food Security in 2009; "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996 and 2009).

Food security is a challenge in the Arab region that was further underscored during the COVID-19 pandemic. The crisis deepened food security concerns and increased uncertainty faced by policymakers. The persistent regional dilemma can be summarized as follows: ***To what extent should Arab countries produce more food versus allowing heavier dependency on imports, and to what extent should the region integrate medium- to long-term risks, as opposed to only short-term ones?*** In other words, how can countries strike the right balance between preserving the sustainability of scarce natural resources, on the one hand, and remaining exposed to global price volatilities, on the other.

Given the structural deficits in food production in the region, an additional question relates to the mechanisms that should be put in place to mitigate risks associated with food import dependency. The disruptions created by the pandemic point to the necessity of actions beyond those of governments. These include measures that need to be taken by other stakeholders, notably businesses and civil society, which could be pushed to be more flexible and agile in their responses, and assume further social and health responsibilities.

In addressing this challenge, the key findings and recommendations include:

Pre COVID-19, the region was plagued by high levels of food insecurity, and the prevalence of both undernourishment and obesity: 116 million people felt food insecure, 43 million were undernourished and 115 million were obese. There have been major differences among subregions and country categories. Obesity is more prevalent in Gulf Cooperation Council (GCC) and middle-income countries, while undernourishment and food insecurity are more of an issue in the least developed countries (LDCs) and Countries in Conflict (CiCs). As a whole, the region is underperforming in all key food security dimensions:

- In food availability, wheat yields are insufficient (less than 50 per cent of potential), and expenditure in agriculture is low (less than 0.5 per cent), among other key dimensions;
- In food access, the region is challenged by high and increasing poverty (29 per cent); high unemployment, particularly among women and youth at 20 per cent and 26.5 per cent, respectively; inflation reaching over 45 per cent in the LDCs; and high household expenditure on food of 31 per cent;
- Food utilization and access to basic drinking water and sanitation services are low in the LDCs at 40 per cent and 60 per cent, respectively, and there are high rates of child stunting

(22 per cent) and wasting (8.2 per cent) as well as anaemia among women of reproductive age (35.5 per cent);

- Political instability has increased and challenges food stability, while climate change and poor infrastructure in general hinder food production and supply.

There is an urgent need to address food security gaps and challenges. The region will need to act on key issues at the regional and national levels. These will include enhancing trade of agriculture products to secure imports, facilitating exports and fostering inter-regional trade; re-examining the use of food subsidies, particularly for wheat and sugar in view of their effectiveness in delivering on food security and nutrition, and promoting value addition in agricultural products; making value chains more efficient and resilient; and ensuring greater cross-sectoral cooperation and coordination to address the challenges of the region's food systems, from production to consumption. Governments will need to assess the effectiveness of their social safety net programmes in the light of the COVID-19 pandemic to better cover the most vulnerable people, and draw lessons from the pandemic in terms of critical bottlenecks in the food value chain and access to inputs and to markets. There is a critical need to improve data collection, availability and dissemination to ensure evidence-based policymaking.

The occurrence and rapid spread of COVID-19 worldwide forced countries to enact restrictive measures that reduced productive activities. This negatively affected food security and the food sector in general. Certain measures directly affected food availability, such as restrictions on exports of certain food items. The impacts of other measures were indirect, such as border closures, early movement restrictions including on farm labour, and the closure or remote working of key components of the economy such as restaurants, schools, offices and others. While workers from various sectors worked from home, the vital food sector needed to continue working on the ground. Urgent protective measures were required on farms, in food-processing industries, and for wholesalers and retailers. The hoarding of food by households in the early days of the pandemic put a strain on supermarkets and other retailers of food and essential items.

The pandemic hit the Arab region at a time of already critical and challenging socio-political, economic and food security constraints, thereby revealing weaknesses in regional food value chains. The greatest impact on food accessibility, however, arose from increased unemployment and poverty. Regional unemployment is projected to reach 15 per cent by 2022 while poverty rates are also expected to increase, notably in conflict-affect countries to more than 50 per cent of the population.

With the impacts still unfolding, uncertainty continues to be high. Countries need to assess food security and the food sector at the national and local levels to identify needed actions. They also need to strengthen the resilience of the sector while considering the critical role of coordination and cooperation in national actions.

There are several avenues to enhance the resilience of supply chains to pandemics and other crises, including through the diversification of procurement channels for key food commodities and the adoption of trade facilitation mechanisms. Actions also include increasing food storage capacity at the national and subnational levels. Regional collaboration is critical for enhancing the movement of food across borders, along with the movement of agricultural workers, and for food stocks (notably for wheat and cereals) to better manage risks.

Existing regional vulnerabilities that already hinder the ability to respond to systemic shocks have been further exacerbated by the pandemic.

- Scarce water and land resources suffer from degradation, overconsumption, biodiversity loss, pollution and harsh climatic conditions. Agricultural production is limited. Fifty-six per cent of farmland depends on erratic rainfall, pressuring farms to overexploit groundwater resources for irrigation;

- Socioeconomic challenges include an expected increase in population by 53 per cent, which will require feeding 670 million people by 2050. The agricultural sector remains an important source of revenue in the region although agricultural gross domestic product (GDP) at the regional level decreased by about 16 per cent;

- Food import dependency is high since Arab countries import 50 per cent of calories consumed. Regional dependency on food imports is only expected to rise. Of the total wheat consumed in the region, 63 per cent is imported, with GCC countries importing more than 90 per cent of their needs. The region spends around $110 billion on food imports annually, about 4 per cent of GDP;

- Protracted conflicts are leading to higher levels of undernourishment. Containment measures to combat COVID-19 affect livelihoods particularly among the poor, refugees and internally displaced people (IDPs) who have to rely on humanitarian aid for survival.

To build back better, the region will need to focus on the sustainable use of resources, inclusive societies and sustainable economies along with dedicated efforts around peacebuilding and increased humanitarian aid to ease the suffering of refugees and IDPs. This is perhaps the most important lesson emerging from the pandemic and its multiple crises. Inclusive, gender-responsive economic and social policies need to put human lives at the heart of response and recovery plans. Facilitating access to financing will be essential in addition to investment in the food sector, including, among other priorities, to reduce food losses and waste, and transform patterns of consumption. Promoting green and digital technologies that require limited investments and can be easily adopted in rural communities and by smallholder farmers will be important. For a comprehensive response, governments need to lead the coordination of and support diverse stakeholders, including the private sector, academia and research institutions, non-governmental organizations (NGOs) and rural communities. At the regional level, operationalizing the Arab food security fund will be critical to providing relief during food shortages or emergencies, and ensuring a regional rapid response. Support from different Arab and global development funds is needed in that regard.

Lebanon and Yemen demonstrate the complex challenges of food security that have deepened during the pandemic. Lebanon has struggled with sharp foreign currency shortfalls followed by a strong devaluation, destroyed port infrastructure and the impact of COVID-19 restrictive

measures. Compared to the 2019 inflation rate of 2.9 per cent, inflation in Lebanon is expected to reach an annual average of over 50 per cent in 2020. The loss of purchasing power has rendered 40 per cent of Lebanese households unable to satisfy their food requirements and other basic necessities, consequently jeopardizing their food security. This report examines the change in caloric availability for certain commodities, the agricultural trade balance and self-sufficiency ratios under two different exchange rates, 1,508 Lebanese pounds (LBP) as the official rate in banks, and LBP 3,900 as the official rate for withdrawing local dollars.

In Yemen, the high level of food insecurity is a result of the deteriorating sociopolitical situation since 2004, exacerbated by armed conflicts that started in 2015. Yemen imports more than 90 per cent of its food, yet conflicts and lately the pandemic have slowed port operations. As a result, 80 per cent of the population is in a precarious food security situation. Inflation has worsened especially for cereals as prices have increased between 11 per cent for rice and 20 per cent for wheat. Fuel product prices have escalated by more than 20 per cent, hampering water-pumping operations for irrigating crops. With the pandemic affecting Gulf countries' economies, remittances to Yemen have declined by more than 70 per cent. In tandem with the rise in unemployment and unpaid or diminished salaries, this has put a further 17 million to 19 million people at risk of famine and diseases, including cholera and COVID-19.

Projections on food supply and demand by 2030 show that food supply will be slightly lower in an environment of already high food insecurity. Key areas to address include moving beyond a focus on food availability and supporting sustainable economic development as key to enhancing both food access and food security. A stable regional and global socio-political and economic environment could help avert trade restrictions regardless of their causes, including as a result of the pandemic, and ensure that regional and global supply chains are resilient. The region will have to re-emphasize the necessity of regional joint investments and partnerships in countries with relatively high production potential through the adoption and implementation of comprehensive agricultural and trade policies. The region could also benefit from the integration of agriculture in preferential trading agreements to increase food security, employment and exports.

Building resilience to rising food insecurity to allow countries and communities to withstand and recover from shocks that affect food security, be they natural (floods, droughts, climate change), human-made (conflicts, social unrest, trade restriction), market-based (market volatility, price hikes) or health-related (COVID-19) has to become an urgent policy objective to allow countries to meet their commitments to the Sustainable Development Goals (SDGs) by 2030. This will entail preparing for, protecting against, enhancing the response to, and recovering from short-, medium- and long-term shocks.

Addressing food security in the region requires vision, and governance mechanisms that enhance the agility, robustness and functioning of food systems for all. This objective should be embraced by countries and all actors at the regional, subregional, national and community levels. They should aim to ensure that resilience to shocks starts with mitigating regional vulnerabilities through careful assessments followed by prevention programmes to identify early signs of shocks and guide quick action to minimize impacts on food security.

In the short to medium terms, governments are expected to prioritize addressing macroeconomic difficulties such as currency devaluation, poverty and unemployment, insufficient social safety nets for the poor and food subsidies, while also acting on natural resource constraints by investing heavily in technological innovations.

In the medium to long term, the private sector needs to focus on food processing to aid the development of a profitable, sustainable and inclusive regional food industry, and advocate for further trade liberalization. Developing a monitoring system for food prices, food production, export potentials and market access will further assist the region in enhancing food security.

Among the key issues to address urgently are to:

- Ensure that food is available and accessible by populations, which implies that food supply chains are working as intended, and that the necessary infrastructure is in place together with appropriate incentives to ensure food reaches everywhere;

- Promote nutrition programmes to avoid under- and overnutrition through well-balanced diets while also avoiding excessive food loss and waste, which could further worsen food insecurity;

- Leverage existing resources at the country and community levels to address rising problems, and distribute and reallocate limited resources.

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Acronyms

CiCs	countries in conflict
ESCWA	Economic and Social Commission for Western Asia
FAO	Food and Agriculture Organization
FIES	Food Insecurity Experience Scale
GCC	Gulf Cooperation Council
GDP	gross domestic product
IDP	internally displaced person
IFPRI	International Food Policy Research Institute
IFAD	International Fund for Agricultural Development
LDCs	least developed countries
MICs	middle-income countries
NGO	non-governmental organization
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OECD	Organization for Economic Co-operation and Development
PPP	purchasing power parity
RCP	representative concentration pathways
SDGs	Sustainable Development Goals
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
WFP	World Food Programme
WHO	World Health Organization


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Introduction

Food security is high on the agenda of Arab countries. The stability of food availability and access along with food quality and nutritional impact are of paramount importance. The four dimensions of food security – availability, access, utilization and stability[1] – were agreed during the World Food Summit in 1996 and reaffirmed in the World Summit on Food Security in 2009. They are intrinsic to the definition of food security, which exists when "all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 1996 and 2009).

The most recent challenge to food security worldwide and in the Arab region, has been the COVID-19 pandemic. The World Health Organization (WHO) declared COVID-19 a pandemic on 11 March 2020, suggesting that the virus is present in a wide geographic area and affects a high proportion of the population. Given its ease of transmission and its potential to severely affect vulnerable people, countries have had to take drastic measures to save lives and curb its spread. Measures have included total or partial lockdowns, the closure of borders and the reduction of occupancy inside businesses, including food establishments. The tourism industry and related services, including hotels and airlines, have suffered substantial losses in income and employment.

Restrictive measures have undercut food security, aggravated existing weaknesses, and challenged economies around the world and in the Arab region. Dysfunctions in food supply chains were brought to the forefront, exposing the region's vulnerability to food supply risks. At the consumer level, panic buying led to shortages in essential products, which increased prices of selected food commodities. Simultaneously, access to food was hindered by loss of income as unemployment and poverty rates soared across the region. The informal sector, a source of livelihood for many, notably in rural areas and in the food sector, bore the brunt of the pain.

To inform debate and policy development on food security in the Arab region against the challenges stemming from the pandemic, ESCWA and FAO have produced this report. It aims to describe the status of regional and subregional food security, map regional vulnerabilities to shocks, and assess the impacts of COVID-19 on Arab countries as well as its potential to disrupt food security within the timeframe of the SDGs. The disturbances of the pandemic are expected to usher in an economic recession throughout the world and region, which will lead to additional economic pain and potential concerns around food access, availability and utilization. The region is likely to experience spikes in national commodity prices, declines in demand for nutritious food, shortages in selected commodities, higher food loss and waste, and income loss due to restrictions on movement, occupancy, the operations of food businesses and so on. It is essential to analyse this unfolding situation to present policymakers with a range of recommendations and options to address current and upcoming challenges, building on available experiences.

1 The two newly added dimensions during the Committee on World Food Security in 2020. "Agency" and "sustainability" are not yet available.

Enhancing food security is associated with progress on the SDGs. Food security has a dedicated goal, SDG 2 to end hunger, achieve food security and improve nutrition, and promote sustainable agriculture. Achievement of SDG 2 depends on achieving many other of the goals, namely SDG 1 (no poverty), SDG 3 (good health and well-being), SDG 4 (quality education), SDG 5 (gender equality), SDG 6 (water), SDG 7 (energy), SDG 8 (decent work and economic growth), SDG 11 (sustainable cities), SDG 12 (responsible consumption and production), SDG 14 (life below water), SDG 15 (life on land) and SDG 17 (partnerships for the goals), among others. This report reflects on these linkages in demonstrating the need for multidimensional approaches to achieving food security.

The report is a continuation of research on food security undertaken by ESCWA, FAO and regional partners to further support member countries in developing evidence-based policies. In 2017, ESCWA and FAO produced Arab Horizon 2030: Prospects for Enhancing Food Security in the Arab Region, which highlighted food security challenges across the region. These included scarce natural resources and increased demand from a growing population, intensifying climate change, the volatility of the global food trade, and long-lasting sociopolitical unrest, including wars and armed conflicts. In 2019, ESCWA in cooperation with the Arab Organization for Agricultural Development published Tracking Food Security in the Arab Region to introduce a recently developed Arab Food Security Monitoring Framework that can be implemented at the regional and subregional levels. The report outlined 24 variables to support a deeper understanding of the multidimensional nature of food security. Trends and divergences with the world were presented in user-friendly charts and diagrams.

The 2020 edition of the State of Food Security and Nutrition in the world, produced jointly by FAO, the International Fund for Agricultural Development (IFAD), the United Nations Children's Fund (UNICEF), the World Food Programme (WFP) and WHO, has issued a series of projections indicating that COVID-19 may add up to 5 million to 7 million hungry people in Western Asia and North Africa in 2020, and that recovery may be slow and less complete than in other regions.

While ESCWA and FAO fully recognize that it is still early to assess the full impact of the pandemic on food security in the region, it is clear that the crisis has deepened food security concerns and increased the level of uncertainty faced by agriculture and food policymakers. One dilemma that has resurfaced is around the extent to which countries should produce more food versus relying more heavily on imports, and how they should balance medium- to long-term risks in terms of the sustainability of scarce natural resources versus the exposure to global price volatilities. Given the structural deficit in food production in the region, the question is also what mechanisms should be put in place to mitigate risks associated with food import dependency. The pandemic disruptions necessitate actions beyond governments to include other stakeholders, notably businesses and civil society, which all have a role to play in the response to COVID-19.

This report examines the fragility of the region's food security prior to COVID-19 along its four dimensions, availability, utilization, access and stability. It uses the Arab Food Security Monitoring Framework as its basis for analysis. With COVID-19 anticipated to worsen food security, impacts will be considered in terms of effects on food trade and production processes as well as the ability of people to access sufficient and nutritious food. This analysis is needed given rising concerns around the capacity of the region to absorb COVID-19 fallout

and similar shocks that may arise in the future, especially within a challenging fiscal situation. Vulnerabilities limiting the resilience of food security in the region are many, and COVID-19 disruptions are anticipated to add to their pressures, notably those related to rising natural resources scarcity, socioeconomic challenges, import dependency and protracted conflicts. Accordingly, short- to medium-term effects on food supply and demand in situations with and without the COVID-19 pandemic are analysed as well as plausible market shock scenarios on price hikes and cereal yields to assess impacts on food supply and the agricultural trade deficit.

The report highlights case studies on Lebanon and Yemen. An examination of Lebanon assesses its food security status within the triple burden of COVID-19, currency devaluation and economic downturn. A look at Yemen considers how the combined effects of multiple crises, including COVID-19, are worsening food insecurity in an LDC caught in conflict. The report benefits from simulations using the Aglink-Cosimo model managed by the Organisation for Economic Co-operation and Development (OECD) and FAO to analyse the supply and demand of agricultural commodities in the Arab region.

The analysis covers the Arab regional, subregional and country levels. The report refers to four subregions or country categories:

- GCC countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates
- LDCs: Comoros, Djibouti, Mauritania, Somalia and Sudan
- MICs: Algeria, Egypt, Jordan, Lebanon, Morocco and Tunisia
- CiCs: Iraq, Libya, State of Palestine, Syria and Yemen

Section I of the report examines the fragile food security status pre-COVID-19 at the regional and subregional levels. It defines and elaborates food security trends across the region, focusing on each of the four pillars (availability, access, sustainability and stability), and closely exploring the variables within each. The section ends with suggested interventions to address food security gaps and challenges, and to enhance food security.

Section II describes the pandemic and examines its overall impact on the food sector globally and in the region. It examines the disruption of food availability, supply and nutrition. Key policy responses and options are provided to support interventions to address COVID-19 fallout on food systems.

Section III explores vulnerabilities that limit food security. These encompass the rising scarcity of natural resources, primarily water and arable land, due to overexploitation and degradation as well as harsh climatic conditions. Socioeconomic pressures such as population growth, urbanization, high unemployment and poverty as well as low investment in agriculture are also highlighted. Given limited resources, the region depends on trade to ensure its food supply, which puts countries at the mercy of volatility within global food markets. The challenge of climate change, which amplifies the rising scarcity of natural resources, and the impact of protracted conflicts in the region further affect food security. The section ends by proposing actions to enhance food security and resilience.

Section IV examines the impacts of the COVID-19 pandemic on the economy and food sector at the regional and subregional levels. Building on a simulation model, the section reviews the prevailing situation pre- and post-pandemic to describe agricultural demand and supply. Demand is evaluated through per capita food consumption while supply is assessed through caloric availability, agricultural net trade and the food supply gap for major commodities. The section presents estimated impacts on agriculture and food systems in 2020, together with projections for 2030, using two market shock scenarios on food prices and yields. The section concludes with two case studies, one on Lebanon and its experience of economic recession and currency devaluation, and another on Yemen, an LDC confronting currency devaluation and severe food insecurity as well as conflict. The last section reviews responses already adopted by the region and makes recommendations to help countries enhance resilience in the food chain to ensure greater stability and sustainability.

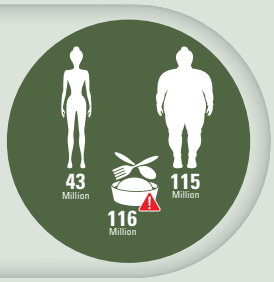
Section V summarizes lessons from the COVID-19 pandemic in the region, and provides ways forward for countries to enhance resilience to shocks and strengthen all dimensions of food security.

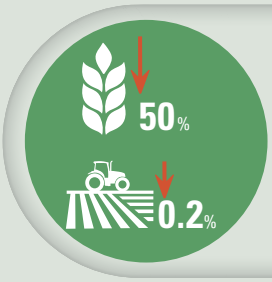
In sum, the report provides readers with a clear understanding of factors affecting food security in the region before and during the COVID-19 pandemic, recognizing that the impacts are still unfolding. It outlines responses to mitigate challenges associated with food security, support integrated policymaking at the national level, and enhance regional cooperation on food security, a central challenge for all Arab countries.

REGIONAL FOOD SECURITY:
Fragile before the Pandemic

KEY MESSAGES

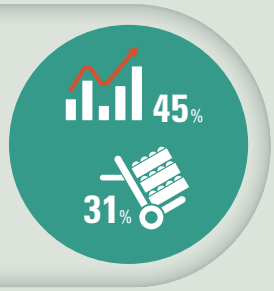
The prevalence of food insecurity, undernourishment and obesity is high in the region, with 116 million people being food insecure and 43 million undernourished. Rates are much higher in countries in conflict. There are 115 million obese people, with obesity rates higher in GCC and middle-income countries;

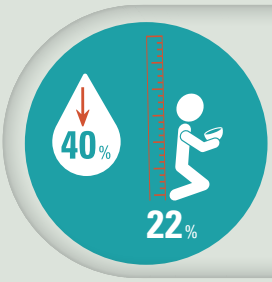




Agricultural production and productivity are poor in several countries. Wheat yield performance is low at only 50 per cent of potential in LDCs and conflict-affected countries. Agricultural expenditure in middle-income countries is low at 0.2 per cent, demonstrating the lack of investment in the sector;

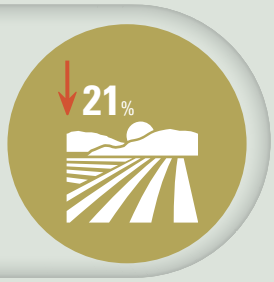
The region faces challenges in obtaining food. High and increasing poverty rates affect 29 per cent of the regional population, and almost half of people in conflict-affected countries and LDCs. Unemployment is high at 20 per cent for women, compared to 8 per cent for men, and 26.5 per cent for youth. Access to food is further constrained by high inflation reaching over 45 per cent in the LDCs. Food consumption expenditure is high at 31 per cent of income in the region compared to 22 per cent in the world on average. Expenditure is particularly onerous in conflict-affected and middle-income countries;





Food utilization for a healthy life is jeopardized, with 40 per cent of people in LDCs lacking access to basic drinking water services and 60 per cent to sanitation services. The region suffers from a high prevalence of child stunting (22 per cent), wasting (8.2 per cent) and anaemia among women of reproductive age (35.5 per cent);

Regional political stability regressed from a ranking of 20 in 2010 to 16 in 2018, indicating that conflicts plague the region, with direct impacts on food security. Climate change hinders food production, reducing agricultural productivity by up to 21 per cent by 2080.



I. Regional Food Security: Fragile before the Pandemic

A. Food security: a global concern

The 2020 State of Food Security and Nutrition in the World estimates that about 1.95 billion people are facing moderate or severe food insecurity globally. More than a third, or 703 million, are experiencing severe food insecurity. People suffering from moderate to severe food insecurity lack access to both sufficient and nutritious food. Food insecurity affects more people in Africa and Asia, as the regions are home to around 84 per cent of all people facing food insecurity. Nonetheless, 89 million people in Europe and Northern America also experience food insecurity. Conflicts, climate change and worsening economic conditions further aggravate food insecurity (FAO and others, 2020a).

The food price crises of 2007-2008 and 2010-2011 highlighted dysfunctions in the food system and its susceptibility to a range of challenges, including, among others, ethanol production along with low food stocks, and the resulting speculation in commodity markets (Piesse and Thirtle, 2009). In 2008, traded food commodity prices increased by 56 per cent compared to the previous year, which left many countries relying on food imports in a difficult situation for food access and affordability (Mitchell, 2008; Martin and Anderson, 2011; Wright and Cafiero, 2011). The crisis showed that producing more food is not a magic bullet against hunger and food insecurity if equitable distribution is missing. Food production worldwide has grown exponentially since the early 1960s, and rose by more than 10 per cent during the food price crisis between 2007 and 2011, yet food insecurity has yet to be eliminated. This is a result of paradoxes such as overconsumption and food wasting for some while millions of people are malnourished (FAO and others, 2020a). In 2011, global food production was estimated at around 3.9 billion tons per year although about a third of it was lost or wasted (Gustavsson and others, 2011).

B. Monitoring food security

"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 2003). Ensuring food security for all is an ambitious endeavour and a multidimensional process, where food production and access are not the only considerations. Achieving food security is complex and requires the consideration of multiple issues, including infrastructure, health and the economy. Accounting for this complexity, a food security monitoring framework was developed for the Arab region building on available global knowledge and practices as well as regional specificities.

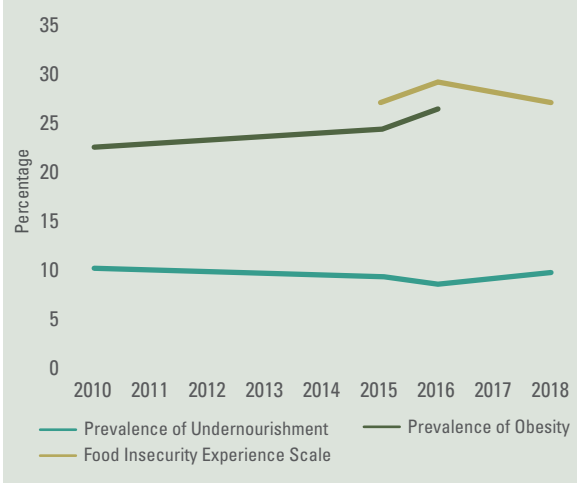
The latter include, among others, food preferences, natural resource limitations, climate change, and economic and sociopolitical factors. The framework comprises 24 indicators, which help describe food security in its four original dimensions (ESCWA, 2019a).[1] Two dimensions – "agency" and "sustainability" – were recently suggested for addition by the High Level Panel of Experts on Food Security and Nutrition (FAO-CFS, 2020).

The Arab Food Security Monitoring Framework presents food security through its core outcome along with the four food security dimensions. Assessing "availability of food" explores the supply-side of food while "access to food" accounts for socioeconomic aspects in relation to the ability to afford food. Assessing the "utilization of food" helps in describing the nutritional impact while the "stability of food security" covers the resilience of the food sector over time and across the three other dimensions. The framework is used in this section to assess food security in the region based on the current status of the 24 indicators together with their trends since 2010. Table 1 presents the region's food security status, noting that the values represent pre-COVID-19 standing. More recent data are not yet available. COVID-19 is expected to add pressure to an already fragile food security situation, however.

Prevalence of food insecurity

Based on the Arab Food Security Monitoring Framework (ESCWA, 2019a), food security in the region can be described based on three core indicators: the prevalence of undernourishment,[2] the Food Insecurity Experience Scale (FIES)[3] and the prevalence of obesity[4] (Figure 1).

Figure 1. Shares of different indicators of food insecurity in the Arab region



Source: FAOSTAT.

Values differ substantially among subregions. Undernourishment, at the regional level, has remained at around 10 per cent. It is dampened, however, by the experienced level of food insecurity, which is reported by close to a third of the population, pointing to potentially higher undernourishment levels down the road. At the same time, more than a quarter of the adult population, around 113 million people, is affected by obesity. With relatively poor performance on these three food security outcomes, the region confronts the triple burden of malnutrition, or undernutrition, micronutrient deficiency and overnutrition (overweight and obesity).

Undernourishment affects about 43 million people in the region. At current trends, the region will not achieve the SDG target of ending hunger and ensuring access by all to safe, nutritious and sufficient food all year round by 2030.

1 The framework was developed through a partnership led by ESCWA and involving the Arab Organization for Agricultural Development, FAO, academia and other experts with support from the Swedish International Development Cooperation Agency.

2 The prevalence of undernourishment is an estimate of the adequacy of dietary energy intake in a population, based on national estimates of food availability, food consumption and energy needs.

3 FIES is used as a common metric for measuring food insecurity at several levels of severity, across different geographic areas and cultures.

4 Obesity refers to excessive intake of food leading to overweight. Although obesity is a nutritional outcome, in the framework, countries decided that three core elements are important outputs of food security specific to the region; obesity was one of them.

Table 1. Summary of food security indicators in the Arab region

Indicators		World		Arab			
		Latest		2010	Latest		Trend
Code	Description	Value	Year	Value	Value	Year	
CORE INDICATORS							
CO1	Undernourishment (R) -%	10.8	2016	11.5	10.0	2018	●
CO2	Food insecurity (R) - %	9.2	2018	n.a.	27.2	2018	
CO3	Obesity (R) - %	13.0	2016	24.6	26.4	2016	●
AVAILABILITY INDICATORS							
AV1	Wheat yield - %	n.a.		76.5	84.5	2018	●
AV2	Agriculture expenditure - index	n.a.		n.a.	n.a.		
AV3	Food loss (R) - %	n.a.		7.3	4.4	2017	●
AV4	Dietary energy supply - %	n.a.		131.0	127.4	2018	●
AV5	Wheat Import dependency (R) - %	n.a.		62.5	63.3	2016	●
AV6	Agriculture water (R) - %	n.a.		n.a.	56.6	2017	
ACCESS INDICATORS							
AC1	Poverty (R) - %	n.a.	n.a.	n.a.	29.2	2019	
AC2	Food consumption (R) - %	n.a.	n.a.	n.a.	31.0	2018	
AC3	Unemployment (R) - %	5.0	2020	9.6	11.0	2020	●
AC4	Logistics - index	2.8	2018	2.6	2.6	2018	●
AC5	Inflation (R) - %	2.3	2019	5.7	10.5	2019	●
UTILIZATION INDICATORS							
UT1	Drinking water access - %	88.5	2017	84.3	88.6	2017	●
UT2	Sanitation access - %	68.0	2017	78.9	83.0	2017	●
UT3	Child stunting (R) - %	22.2	2017	n.a.	22.0	mult.	
UT4	Child wasting (R) - %	7.5	2017	n.a.	8.2	mult.	
UT5	Women anaemia (R) - %	32.8	2016	34.2	35.5	2016	●
STABILITY INDICATORS							
ST1	Climate change (R) - index	n.a.		n.a.	n.a.		
ST2	Price Anomalies (R) - index	n.a.		n.a.	-0.2	2018	
ST3	Political stability - ranking	n.a.		20.0	16.1	2018	●
ST4	Production variability (R) - 1000$/capita	n.a.		10.3	8.8	2015	●
ST5	Supply variability (R) - kcal/cap/day	n.a.		32.8	42.2	2017	●

(R) : Reversed n.a.= Not Available mult.= Multiple years

● Red: Negative Trend ● Yellow: Neutral Trend ● Green: Positive Trend.

Source: ESCWA, computed from multiple sources (methodology detailed in ESCWA, 2019a).

Note: Calculations are based on 2019 population data and on FAOSTAT (CO1, CO2, AV1, AV2, AV3, AV4, AV5, AV6,AC2, UT1, UT2, UT3, UT4, UT5, ST4, ST5); ESCWA (AC1, AC3); World Bank (AC4, AC5, ST3), WHO (CO3), and UNSTAT (ST1, ST2). The national poverty line represents the cost of basic needs (of $8.50 per day in 2011 dollars purchasing power parity [PPP]).

There are large differences among countries, however. For example, GCC and middle-income countries are usually below 5 per cent on undernourishment whereas in the LDCs, rates go up to 12.5 per cent. They reach more than 27.9 per cent (27 million people) in conflict-affected countries. Undernourishment levels go as high as 38.9 per cent in Yemen, 23.7 per cent in Iraq and 12.4 per cent in Sudan, an indication that undernourishment will continue to be a public health issue, and will burden people and countries notably through child development challenges and productivity losses.

Measured by the FIES, more than 116 million people (27.2 per cent) feel or experience food insecurity. The GCC population experiences less food insecurity (8 per cent) while populations in middle-income and conflict-affected countries are more likely to experience it (above 25 per cent). The LDCs as a group lack data, although in both Mauritania and Sudan, more than 40 per cent of people are food insecure.

The recent devastating floods and outbreak of locusts in the LDCs have decimated crops and economic infrastructure, which, in an environment of limited means and social safety nets, has caused close to half of the population to experience food insecurity.

In 2016, about 115 million people or 26.4 per cent of the adult Arab population were considered obese, a rate that has steadily risen since 2010. Obesity affects well beyond a quarter of the population in GCC, middle-income and conflict-affected countries, while LDCs have lower levels at about 9 per cent. Rising obesity can be traced to a shift towards unbalanced diets, resulting in an overconsumption of energy-dense but nutrient-poor foods, i.e., carbohydrates, fats and sugars. This in combination with decreased physical activity leads to an accumulation of body fats.

C. Is food availability an alarming concern?

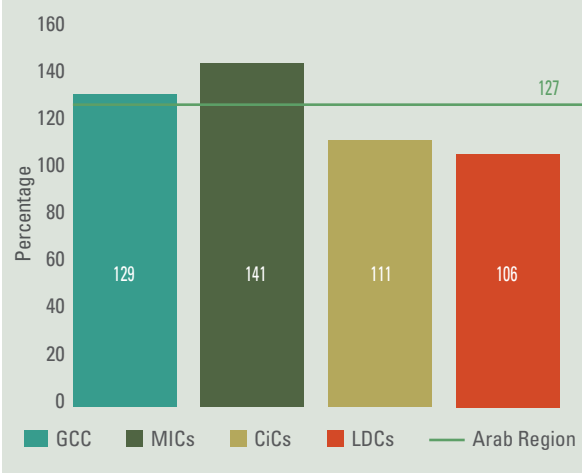
Food supply is determined by local production and food imports. While food production in the region is limited by the scarcity of water and arable land, additional constraints include poor yields, inefficient resource use and limited investments. Wheat yields[5] are slightly under 85 per cent of potential achievable yields at the regional level, but with unequal distribution across countries (FAOSTAT, 2018). In the LDCs and conflict-affected countries, wheat yield performance is at about 50 per cent of potential and below, while Egypt has the highest yield performance at close to 100 per cent. Yields are improving but they remain low for most staple crops. Staples are largely produced in rainfed cropping systems, the dominant system in the region, which results in low productivity due to the use of less than ideal crop varieties, low input and technology use, and erratic rainfall. The low productivity in agriculture is happening despite rising water constraints and as the region continues to devote more than half of its available water resources to the sector. Usage rates reach up to 80 per cent in most countries and more than 100 per cent in some GCC countries as they also use non-renewable aquifers for agricultural production.

Performance in agriculture could be improved if adequate resources were allocated to the sector and used efficiently. The Agricultural Orientation Index[6] points to a low share of government

5 Wheat yield as a percentage of potential achievable yield accounts for the yield gap as a limiting factor of local food production and thus food availability from local sources (ESCWA, 2019a).

6 The Agriculture Orientation Index is a ratio of the share of agriculture in government expenditure to the share of agriculture in

Figure 2. Average Dietary Energy Supply Adequacy values, region and subregions, 2018

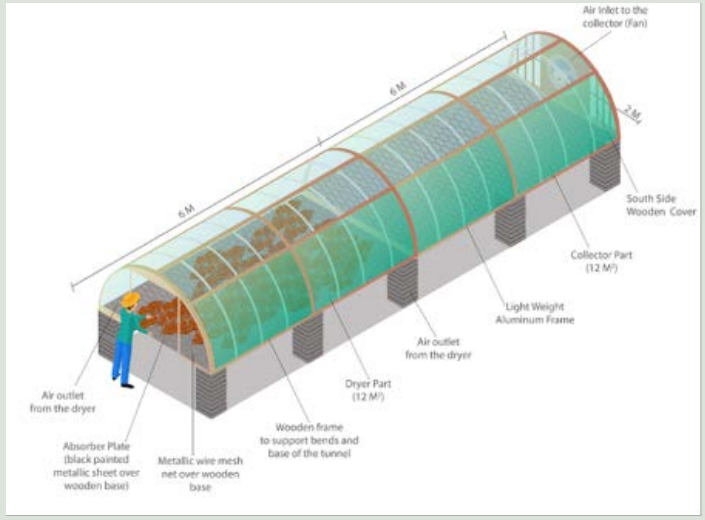


Source: FAOSTAT.

investment in agriculture at 0.28, compared to a world average of 0.56 (ESCWA, 2019a). This indicates a low preference for the sector in public budgets compared to other economic sectors, and to the contribution of agriculture to national GDP. Additional investments are needed, for example, to build new irrigation systems and improve the efficiency of existing ones, expand the use of unconventional water sources, conduct research and development to enhance productivity, bolster the efficiency of rural infrastructure and the food supply chain, and provide more extension services, among other priorities.

Food is relatively available in local markets based on the Average Dietary Energy Supply Adequacy measure,[7] which stands at 127 per cent for the region (Figure 2). LDCs have a score of about 100 per cent, however, while middle-income countries are at more than 140 per cent. A high score is usually recommended to account for inequities in accessing and utilizing available food (ESCWA, 2017a).

Box 1. Value-addition, reduced losses and higher income through food preservation



Food preservation practices date back thousands of years. Food processing helps reduce food losses and waste by extending shelf life and providing solutions for excess agricultural production. It also provides additional income, especially for rural residents. Forms of processing include drying food, making sauces and jams, juicing fruits and vegetables, and processing dairy products such as cheese, kishk, yogurt, etc. Solar drying fits Arab climatic conditions and is a green technology that farmers can rely on when electricity is in short supply or to reduce the energy bill. A variety of crops can be used in solar dryers, ranging from grains to herbs, vegetables and fruits, dairy products and fish. In Egypt, solar dryers used on mint showed higher efficiency. In Oman, using a solar tunnel dryer on dates (see figure) shortened drying time by five days and improved quality. In the State of Palestine, drying medicinal plants helped 50 women gain additional income.

GDP. A value of 100 per cent would indicate that the share of public expenditure corresponds to the contribution of the sector to the country's economy (ESCWA, 2019a). Figures were taken from the 2020 Arab Sustainable Development Report (ESCWA, 2020b).

7 Average Dietary Energy Supply Adequacy expresses the dietary energy supply as a percentage of the average dietary energy requirement. It reflects the adequacy of supplied dietary energy at the national level and therefore food availability in terms of quantity.

Food supply in local markets is also often affected by food losses, although these seem to be relatively low for the proxy used of cereal losses as a percentage of cereal supplied. This is under 5 per cent for the region. The low rate could be a result of insufficient data to account for food losses across the entire sector, however.

Some studies estimate food losses at up to 50 per cent for the most perishable commodities in the LDCs (Gustavsson and others, 2011). Global estimates indicate food loss during the post-harvest production stage total around 14 per cent (FAO and others, 2020a). Addressing food loss through food processing can be one option, as shown in box 1.

D. Access to food: inequalities in the region

Access to food depends strongly on prevailing socioeconomic conditions. Food access is mostly affected by poverty and unemployment, and the functioning of supply chains, among other issues. With the region characterized by high inequalities both among and within countries, these three factors are likely to determine access to food for many. A number of the social safety nets and targeting tools that help in addressing food access require rethinking (ESCWA, 2014).

Poverty rates are high at the regional level, hovering around 29 per cent and affecting 124 million people. Forty per cent of the population in Djibouti was poor in 2017. The share was estimated at more than 50 per cent in Yemen in 2014. Recent projections indicate that a third of the Arab population will be living in poverty by 2021 (ESCWA, 2020a). The rise in poverty is largely attributed to protracted conflicts, including in Iraq, Libya, Somalia and Syria, and to a high influx of refugees and displaced people in many other countries. Persistently high inequality further worsens the problem. Egypt and Lebanon have rates up to 54 per cent and 66 per cent, respectively, which greatly handicaps food access for the poorest (UNDP, 2020). Studies have also shown the limited impact of social safety nets on poverty and inequality, mainly due to inefficient targeting and institutional constraints (Sdralevich and others, 2014).

The regional unemployment rate was estimated at around 11 per cent in 2020, similar to the unemployment rate in middle-income countries, while it is 13 per cent in conflict-affected countries and close to 15 per cent in the LDCs. It is only 4 per cent in GCC countries. Women's unemployment is as high as 20 per cent compared to 8 per cent for men. Youth also face a high unemployment rate of 26.5 per cent compared to 14.6 per cent as the world average (ESCWA, 2020a). High unemployment is a result of a lack of economic growth, a heavy reliance on primary (agriculture) and tertiary (service) sectors rather than secondary (industry) sector employment, and rapid population growth.

The functioning of supply chains points to potential physical hindrances in the distribution of food, which could hamper food availability and access, particularly in remote and conflict-affected areas. The region does poorly on the Logistics Performance Index,[8] which stands at 2.6 on a scale of 1 to 5, with GCC countries being the only group with an index above 3 (ESCWA, 2019a). Poor performance on logistics points to impediments throughout supply chains. Savings could be gained in importing wheat if port operations were more efficient, which for some countries could allow a doubling in wheat imports (World Bank and FAO, 2012).

Other factors affecting access to food include inflation, where values are high and increasing, reaching 10.5 per cent for the

8 The Logistics Performance Index provides an indication of the quality of trade and transport-related infrastructure.

Arab region compared to a world low of 2.5 per cent. LDCs have the highest inflation values, reaching 45.5 per cent. Regarding food consumption expenditure,[9] values reached 31 per cent in 2018, still greater than the world average of 22 per cent (ESCWA, 2019a). Subregional values are also high, at around 36 per cent in the LDCs and around 33 per cent in middle-income countries (ESCWA, 2019a; USDA, 2016).

E. Deficiencies in food utilization

Despite a lack of comprehensive data, stunting and wasting are of high concern in the LDCs and conflict-affected countries as well as among specific vulnerable populations, including displaced people. Unaddressed child stunting and wasting leads to serious developmental problems among children as well as a reduction in per capita GDP. Some estimates put the loss at 0.4 per cent for each percentage point increase in stunting due to the associated health, social and economic costs (Sebastien, 2018). Egypt is the most affected country in the region, with an estimated 2.1 million children under 5 years suffering from stunting and/or wasting. High and increasing anaemia among women of reproductive age is a growing problem, with regional rates higher than 35 per cent and nearly 40 per cent in countries in conflict (Arab and others, 2019; ESCWA, 2019a). See box 2.

Deficiencies in clean water and sanitation as well as overuse of fertilizers and pesticides could impact food utilization in terms of food safety and quality. Basic drinking and sanitation services have good penetration in the region; close to 90 per cent of the population had access to basic drinking water services and around 83 per cent had access to sanitation in 2017. This does not imply wide access for all country subgroupings, however, or consistency and quality in service delivery. In LDCs, 40 per cent of people lacked access to basic drinking services and 60 per cent to sanitation services in 2017. Comparison between rural and urban areas indicates wide gaps in access to improved sanitation across all subregions (ESCWA, 2015).

The prevalence of high levels of child stunting and anaemia among women point to pockets of food insecurity across the region. While most Arab countries have seen a reduction in the prevalence of child stunting compared to the last decade, Egypt has had a high prevalence of around 22 per cent, while Libya has shown a sharp increase to around 38 per cent in 2014 compared to 21 per cent at the end of the last decade (ESCWA, 2019b).

F. Heightened uncertainty

Food security is underpinned by short-, medium- and long-term stability determined by prevailing sociopolitical conditions, weather patterns, and the variability of food prices, production and supply. Political stability has been a concern particularly since the onset of the sociopolitical upheavals of the early 2010s. The food security situation remains dire in some countries, such as in Somalia and Yemen, and among the millions of refugees and IDPs across the region. The political stability ranking for the region regressed from 20 in 2010 to 16 in 2018 (100 being the maximum), though with differences among country groupings as the GCC ranking was about 40 while it was about 20 for the middle-income countries, 8 for the LDCs and only 1 for countries in conflict (ESCWA, 2019a).

9 Food consumption expenditure is the percentage of income spent acquiring food, and thus is an estimation of how affordable it is (ESCWA, 2019a).

Box 2. The malnutrition burden in the Arab States

Malnutrition results from the inadequate and/or imbalanced intake of energy and/or nutrients. While frequent common childhood illnesses are the immediate drivers of undernutrition, a low-quality diet represents an important cause of all forms of malnutrition, whether undernutrition, micronutrient deficiencies, overweight or obesity.

The triple burden of malnutrition, in all its forms, including undernutrition (stunting, wasting and underweight), micronutrient deficiencies (anaemia) and overnutrition (overweight and obesity), is a challenge for the Arab countries. Different population groups in all countries of the region suffer from one or another form of malnutrition with many experiencing a double or triple burden, which means that at least two or more forms of malnutrition occur simultaneously. Based on the WHO classification of the severity of child malnutrition as a public health problem, the region has a high prevalence of stunting, moderate levels of wasting and moderate levels of overweight in children under age 5.

According to the latest estimates, more than one in five children under 5 is stunted (low height for age) with nearly half of Arab countries having a high or very high prevalence of stunting. Stunting adversely affects the cognitive and physical growth of children, contributing to lower performance in school and thereby diminishing lifetime productivity. Wasting (low weight for height), which is a strong predictor of mortality in children under 5, has an average regional prevalence of 8.2 per cent, reaching 8.4 per cent in countries in conflict.

Close to 1 in 10 children under 5 is overweight across the region, while rates of adult obesity (26.4 per cent) are among the highest in the world and growing rapidly. Overweight and obesity are leading causes of diet-related non-communicable diseases such as cardiovascular disease, chronic respiratory diseases, diabetes type II and certain forms of cancer, which today cause three times more premature deaths and disabilities than communicable, maternal, neonatal and nutritional diseases.

Every country in the region suffers from either moderate or severe rates of anaemia in women of reproductive age. Severe anaemia during pregnancy is a known risk factor for maternal and fetal complications, leading to morbidity and mortality. In addition, it affects women's health-related quality of life

Another major challenge for the region is climate change. The Intergovernmental Panel on Climate Change's 2018 Special Report on Global Warming states that food security is expected to switch from medium to high risk under a 2°C increase in the average global temperature compared to a 1.5°C rise. The Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region shows that the Arab region is already facing very hot temperatures and a consequent increase in extreme weather events. Compared to the reference period (1985-2005), representative concentration pathway[10] (RCP) 4.5 shows an increase by 1.2° C to 1.9°C by mid-century, and by 1.5°C to 2.3°C towards the end of the century. RCP 8.5 shows an increase of 1.7°C to 2.6°C by mid-century and of 3.2°C to 4.8°C towards the end of the century (ESCWA, 2017b).

Climate change might impact food security through the increased vulnerability of countries in three areas, including the reduction in agricultural productivity, floods and droughts among other weather-related disasters, and sea-level rise (ESCWA, 2019a).

10 RCP 4.5 generally describes a moderate emissions scenario and RCP 8.5 a high emissions scenario.

To address climate change policies in the Arab region, ESCWA established the Arab Centre for Climate Change Policies (see box 3).

Climate change is expected to decrease agricultural productivity by up to 21 per cent by 2080 (ESCWA, 2017c). Unless adaptation and mitigation measures are implemented, some crop yields may decline by up to 30 per cent under a scenario of a 1.5°C to 2.5°C increase in temperature in Egypt, Jordan and Libya, and by 60 per cent under a 3°C to 4°C increase in the Syrian Arab Republic (World Bank, 2014). The increasingly uneven distribution of rainfall, long dry spells and stronger rainstorms might further degrade soils and threaten the productivity of the 83 per cent of cropped areas that are rainfed (FAO and ITPS, 2015; Shideed and others, 2014). AquaCrop simulations under climate change scenarios point to a potential decrease in rainfed wheat yields by a quarter in Marchouch, Morocco. Feed availability and pasture conditions are also highly seasonal and unpredictable depending on climatic variation. Most farmers in rainfed areas are smallholder farmers, and agriculture and/or herding are their main sources of livelihood. A decrease in productivity means a loss of their livelihood base (FAO, 2011).

About 56.6 per cent of total water consumption in the region goes towards agriculture (ESCWA, 2019a). Groundwater tables have decreased by 1 to 2 meters annually over the past 10 years due to higher temperatures and evaporation rates, reduced rainfall and overexploitation to cater to the agricultural sector (UNDP, 2018). In Algeria, the amount of rainfall significantly decreased over the last four decades, which has reduced water collected in dams and resulted in groundwater overexploitation (Meddi and Boucefiane, 2013). In Saudi Arabia, significant reductions in water resources are predicted between 2011 and 2050, which will further stress agriculture production (Chowdhury and Al-Zahrani, 2013).

Climate change adds substantial costs to existing challenges related to food security. Floods hinder food production and the agricultural supply chain, such as in Sudan, where 2020 floods severely damaged croplands and reduced agricultural activities. Droughts decrease agricultural productivity and depress agricultural supplies leading to increased food prices. In Somalia, 43 per cent of land is prone to extreme weather events with serious consequences such as the 2017 drought, which resulted in a 70 per cent reduction in harvest (FSNAU-FEWSNET, 2017). Vulnerable rural populations that depend on crop and animal production are highly prone to these extreme events, pushing some to migrate to urban areas. Therefore, higher demand for food and water paired with declining food availability have led to spikes in food prices.

Box 3. The Arab Centre for Climate Change Policies

The Arab Centre for Climate Change Policies was established to strengthen the capacity of Arab countries to better understand and address the implications of climate change for sustainable development. The Centre represents a culmination of the efforts of ESCWA and partner organizations to deliver services to Arab countries in the areas of climate change assessment, adaptation, mitigation and negotiations for over a decade.

ESCWA and the League of Arab States, in partnership with the United Nations Environment Programme and the United Nations Educational, Scientific and Cultural Organization, have, to date, co-organized 13 technical workshops tackling issues of concern to the region in negotiations under the United Nations Framework Convention on Climate Change and Paris Agreement processes, including on finance, technology and scientific knowledge.

Low-wage, rural, non-farm households can also be severely threatened as they are net food buyers with a high ratio of food expenditure to total consumption expenditure.

Anticipated sea-level rise due to climate change is likely to be detrimental to agricultural production in low-lying coastal areas. A one-meter sea-level rise could put 12 per cent of Egypt's agricultural land at risk (IPCC, 2014). Low-income countries have a much larger share of GDP embedded in the agricultural sector while having lower adaptive capacity, which explains their high susceptibility to climate change and its detrimental impacts (Letta and Tol, 2019).

Reduced income due to climate change has affected expenditures on health, sanitation and food safety, potentially increasing susceptibility to chronic nutrition-related illness (IPCC, 2019). Elevated carbon dioxide has significant implications in terms of changes in the nutritional quality of foods, particularly flour from cereals and cassava (Porter and others, 2014). In some countries, the population receives 70 per cent of its iron or zinc from grains or legumes. In areas where proteins are mainly of plant origin, a decrease in protein content could have serious health consequences. Climate change is also expected to reduce water quality by increasing soil salinization in coastal areas, for example, which might exacerbate risks of water-related diseases and reduce food absorption. And unless food is properly stored, higher temperatures increase the risk of spoilage and contamination, and result in more food-borne illnesses (FAO, 2016; Cho, 2018).

The frequency, duration and intensity of climatic and/or conflict-related shocks has been projected to increase in the coming decades (IPCC, 2019). Conflict-affected countries, already limited in their ability to respond effectively, have seen their capacity reduced to almost negligible levels and are in dire need of humanitarian support. Climate change could exacerbate conflicts through population displacements. Already, conflicts in Darfur in Sudan and Yemen are heavily influenced by climate change as it increases pressure on natural resources, leading to more competition over agricultural and water resources (FAO and others, 2018).

Food price anomalies[11] decreased slightly in 2018 as food production was adequate following good weather in most middle-income countries and low prices in global markets. Food production variability[12] amounted to only $8.90 per capita, a further indication of the relative stability prevailing in the food sector, although variability in the food supply was slightly higher in 2017 (42.1 kilocalories per capita per day) compared to 2010 (34.51 kilocalories per capita per day). The region's dependence on food imports has been increasing over the years and now stands above 50 per cent, which could impact the food sector through a sudden shock or price hike (ESCWA, 2019a).

G. A fragile food security status exacerbated by COVID-19

The region's fragility in food security is expected to worsen due to COVID-19. The socioeconomic fallout will likely deepen undernourishment and increase the number of people experiencing food insecurity. COVID-19 is expected to push 14.3 million people below the poverty line as 17 million full-time jobs were lost in 2020 (United Nations, 2020a).

11 Food price anomalies are where food market prices are abnormally high for a given time period. The growth in prices over a month or several years is measured as the difference in the growth rate of prices from their historical mean for the selected period.

12 Food production variability measures the volatility occurring in the food production system over time.

The pandemic has also reignited concerns over food supply and access due to measures to stem community spread as well as the potential impact on global food production, prices and trade.

Women's food security and nutrition is a particular concern, as they are most likely to reduce the quantity and quality of food intake to cope with limited resources. In Iraq, 3 out of 5 women have reported a decrease in access to nutritious food due to the pandemic (Oxfam, 2020). The change in consumption behaviour is also expected to intensify obesity in the region (box 4). While clean water consumption may increase by 9 to 12 litres per person per day as handwashing is stressed to prevent the virus, a lack of basic sanitation services puts over 74 million people at a higher risk of contracting COVID-19 (ESCWA, 2020c). Section III further discusses the impacts of COVID-19 on food security.

Box 4. The relationship between obesity and COVID-19 lockdowns

A mutual relationship exists between COVID-19 and obesity. Obesity is a key risk factor for severe disease from the virus. Compared to patients with a healthy weight, those with obesity were 113 per cent more likely to be hospitalized, 74 per cent more likely to require intensive care and 48 per cent more likely to die (Popkin and others, 2020). This is also due to other comorbidities associated with obesity such as diabetes, coronary heart disease and cancer.

In the Arab region, 113 million people are obese; around 20 million live in the GCC countries, which may be a cause of the severity of COVID-19 there. At the same time, COVID-19 lockdowns have led to unhealthy eating habits and reduced physical activity in some countries, increasing the risk of overweight and obesity.

A study in Kuwait of 522 participants during the lockdown reported that the chance that people would gain weight due to unhealthy diets increased 4.5 times (Almughamis, Alasfour and Mehmood, 2020). In the United Arab Emirates, a study of 1,012 participants showed that 38.5 per cent did not engage in physical activity and almost one-third gained weight during the lockdown (Cheikh Ismail and others, 2020).

COVID-19 has also increased the consumption of potentially healthier home-cooked meals as people become more hesitant to order food. In Riyadh, Saudi Arabia, while the majority (85.6 per cent) of surveyed respondents (2,706) indicated a shift towards eating homecooked meals during the lockdown, compared to 35.6 per cent beforehand, the quantity of food consumed increased, which may contribute to obesity (Alhusseini and Alqahtani, 2020).

H. Recommendations for action

This regional review of food security before COVID-19 shows poor performance on undernourishment, FIES and obesity. Food security is likely to remain high on the policy agenda, given an urgent need to address identified food security gaps and challenges. Some key regional and national actions are offered here.

1. Regional actions

- Lower barriers on imports and exports, particularly within the region, to boost intraregional trade in food, and inputs for agriculture and food industries producing essential goods;
- Promote and engage in regional cross-sectoral cooperation and coordination around sustainable agricultural practices with the understanding that this will also lead to national coordination. There is a need to better coordinate agriculture, food security and water management strategies.

2. National actions

- Improve data collection, availability and dissemination to ensure evidence-based policymaking. National statistics offices need to be involved in data collection from the diverse public institutions involved in the food security system, including ministries, departments or institutions of finance, health, water, agriculture, trade and investment, along with other stakeholders including the private sector;
- Review the use of subsidies on food, in particular wheat and sugar. Ministries, departments or institutions of finance, health, agriculture and social development, among others, need to examine the best scenarios to ensure that subsidies target the most vulnerable and extend beyond wheat and sugar to other more nutritious foods, while reducing food waste and promoting healthier diets. Examples of potential measures include cash transfers, cash for food, food baskets or school meal programmes, among others;
- Refocus social safety net programmes to better cover the most vulnerable. Governments and the international community should work together to review eligibility criteria and enroll the most vulnerable to avoid extreme food insecurity situations. Social registries can play an important role in enhancing the effectiveness of safety net programmes;
- Implement initiatives and strategies to eliminate trans-fatty acids and reduce sugar, salt and saturated fat by taxing food and beverages such as sugar-sweetened drinks and highly processed food, among others. Provide incentives for increased consumption of fruits and vegetables for healthier diets. Ministries, departments or institutions of finance along with those involved in health and social development need to agree on steps to address obesity and its implications, coupled with measures to raise public awareness;
- Expand school feeding programmes by encouraging NGOs, the private sector and donors to support these in less privileged communities, including those with refugees and displaced people;

- Increase a focus on the links between food and health by:
  - Developing public campaigns to communicate nutritional information along with the importance of physical activity;
  - Including nutrition education in schools and media;
  - Promoting local markets and better linking producers with consumers.
- Take climate change-related actions as follows:
  - Establish disaster risk management units with clear strategies and operational guidelines to improve the resilience of food systems to climate-related shocks. Cooperation and coordination among different public institutions are crucial;
  - Provide access to finance and insurance opportunities along with social protection opportunities for smallholder farmers in case of weather-related threats;
  - Assess the impact of climate change on the agricultural supply chain by identifying vulnerable areas through various tools, including the FAO AquaCrop model, and take appropriate actions to build the resilience of rural communities;
  - Integrate climate risk and priority adaptation actions for the agricultural sector in national adaptation plans so that climate change investments and financing can be directed towards resilient solutions for agriculture;
  - Enhance youth knowledge and technical capacity in farming practices and the use of appropriate green technology in food-related enterprises.

Table 2. Summary of the food security status of the region and all subregions

Indicators		Year	Arab	CiCs	GCC	LDCs	MICs
			Latest	Latest	Latest	Latest	Latest
Code	Description		Value	Value	Value	Value	Value
CORE INDICATORS							
CO1	Undernourishment (R) -%	2018	10.0	27.9	4.5	12.5	4.3
CO2	Food insecurity (R) - %	2018	27.2	26.0	8.0	n.a.	27.3
CO3	Obesity (R) - %	2016	26.4	25.9	34.1	8.9	29.9
AVAILABILITY INDICATORS							
AV1	Wheat yield - %	2018	84.5	52.1	121.4	n.a.	100.9
AV2	Agriculture expenditure - index	mult.	n.a.	n.a.	n.a.	n.a.	0.2
AV3	Food loss (R) - %	2017	4.4	n.a.	2.3	1.3	6.9
AV4	Dietary energy supply - %	2018	127.4	110.9	129.1	105.5	141.4
AV5	Wheat Import dependency (R) - %	2016	63.3	66.7	94.5	41.7	58.7
AV6	Agriculture water (R) - %	2017	56.6	36.5	532.2	n.a.	67.5
ACCESS INDICATORS							
AC1	Poverty (R) - %	2019	29.2	48.1	n.a.	46.0	17.0
AC2	Food consumption (R) - %	2018	31.0	35.7	18.9	n.a.	33.0
AC3	Unemployment (R) - %	2020	11.0	13.1	4.9	14.6	10.6
AC4	Logistics - index	2018	2.6	2.2	3.2	2.4	2.7
AC5	Inflation (R) - %	2019	10.5	n.a.	-1.5	45.5	7.9
UTILIZATION INDICATORS							
UT1	Drinking water access - %	2017	88.6	86.9	99.0	59.6	95.4
UT2	Sanitation access - %	2017	83.0	83.6	99.8	38.2	91.9
UT3	Child stunting (R) - %	mult.	22.0	26.7	n.a.	36.6	17.2
UT4	Child wasting (R) - %	mult.	8.2	8.4	n.a.	15.9	6.3
UT5	Women anaemia (R) - %	2016	35.5	42.3	37.8	34.4	32.0
STABILITY INDICATORS							
ST1	Climate change (R) - index		n.a.	n.a.	n.a.	n.a.	n.a.
ST2	Price Anomalies (R) - index	2018	-0.2	n.a.	1.6	n.a.	-0.7
ST3	Political stability - ranking	2018	16.1	1.2	41.4	7.7	18.6
ST4	Production variability (R) - 1000$/capita	2015	8.8	8.3	6.7	n.a.	10.1
ST5	Supply variability (R) - kcal/cap/day	2017	42.2	n.a.	45.0	14.0	44.9

(R) = Reversed during normalization n.a.= Not Available mult.= Multiple years

Note: Calculations are based on 2019 population data and on FAOSTAT (CO1, CO2, AV1, AV2, AV3, AV4, AV5, AV6,AC2, UT1, UT2, UT3, UT4, UT5, ST4, ST5); ESCWA (AC1, AC3); World Bank (AC4, AC5, ST3), WHO (CO3) and UNSTAT (ST1, ST2), accessed on 18-19 November 2020. The national poverty line represents the cost of basic needs (of $8.50 per day in 2011 dollars PPP).

COVID-19:
Emerging Challenges for Food Security in the Arab Region

KEY MESSAGES

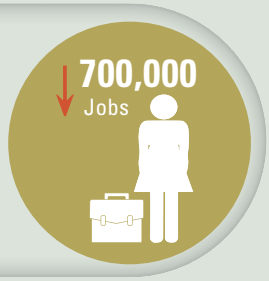
COVID-19 is a global pandemic projected to increase the number of hungry people globally by 83 million to 132 million, beyond the already 690 million hungry people in 2019. The pandemic hit the Arab region at a time of already critical sociopolitical, economic and food security challenges. It has further revealed weaknesses in food value chains and the high vulnerability stemming from heavy dependence on food imports;

In the early days of the pandemic, local agri-food production was impacted by restrictions on movement, which prevented farm workers from accessing fields, among other constraints. Import shortages, driven by international trade disruptions, increased prices of much needed inputs including livestock feed and veterinary products, especially in countries already facing economic challenges. Food hoarding and intensified demand in the early months of the pandemic put a strain on retailers;

While workers from various sectors were able to work from home, those in the vital food sector needed to continue working on the ground. Urgent protective measures were required for farms, food processing industries, and wholesalers and retailers. Agriculture ended up being more resilient than many other economic sectors;

COVID-19's impact on food access resulted from increased unemployment and poverty. Regional unemployment is projected to reach 15 per cent by 2022; poverty rates are also expected to increase. Countries in conflict had the highest pre-COVID-19 poverty rates. These are anticipated to rise to as much as 56.5 per cent of the population in these countries, or 54 million people, in 2022;

COVID-19 challenges have particularly affected women, who already face higher unemployment rates than men. It is expected that women will lose over 700,000 jobs, limiting their access to food. At the same time, women farmers' contributions to maintaining food supply chains during the crisis and economic shutdown proved extremely valuable. Many women turned challenges into opportunities.



II. COVID-19: Emerging Challenges for Food Security in the Arab Region

The rapid spread of COVID-19 worldwide forced countries to enact restrictive measures aimed at containing the virus, maintaining capacity in their existing health systems and saving lives. Some of these measures included restricting exports of certain food items, the closure of borders, restrictions on movement within and across countries, and closure of or remote working for key components of the economy such as restaurants, schools, offices and others. These restrictive measures disrupted local, regional and international travel and trade, and the functioning of supply chains.

In the Arab region, the loss of livelihoods associated with measures to curb the health crisis together with increased local food prices compromised the economic capacity of people as well as their ability to access food. The crisis affected vulnerable groups, with workers in the informal sector, refugees and IDPs being at highest risk. Initially, food imports and local trade faced restrictions, which led to shortages and the disruption of local food production, and a short-term spike in consumer demand.

A. The COVID-19 pandemic

The COVID-19 crisis was declared a pandemic on 11 March 2020. By the end of March 2021, the total number of cases recorded worldwide was about 125 million, with about 2.8 million fatalities (WHO-Dashboard, 2021). The disease in its severe form has disproportionately affected the elderly and those with comorbidities, though no population group has been spared. The high prevalence of risk factors in developed countries and urban areas explains higher incidence in some countries and areas compared to others, with the poorest and most vulnerable groups experiencing the greatest impacts on health and livelihoods (see box 5). The Arab region had about 5 million people or 4 per cent of total world cases with 80,000 deaths or 3 per cent of total world deaths as of March 2021 (ibid.).

Box 5. COVID-19 and nutrition

COVID-19 more gravely affects people with comorbidities such as high blood pressure, diabetes and obesity, which are often related to unhealthy diets. Poverty and inadequate public health programmes compound these problems. Healthy diets, which help to prevent chronic diet-related diseases, are unaffordable to 3 billion people (FAO and others, 2020a). Moving towards healthy diets could reduce the incidence of diseases over the long term and equip people with better defense mechanisms to fight infectious diseases.

B. A global burden exposing the vulnerabilities of food systems

Closures and restrictions due to the pandemic led to an economic standstill potentially causing one of the biggest recessions in recent decades (World Bank, 2020a). Well-off countries were able to deploy a wide range of fiscal and monetary measures to overcome the economic crisis, though these proved insufficient to halt the contraction of the global economy. The contraction was estimated at 3 per cent in April and 4.9 per cent in June 2020 (IMF, 2020a), and is projected to be about 3.5 per cent in 2021 as restrictions ease and economies reopen (IMF, 2020b). The current round of restrictions following the renewed wave of COVID-19 in the last months of 2020 might lead to a further contraction.

The COVID-19 pandemic has challenged the achievement of the SDGs, notably by overturning progress in reducing poverty and inequalities (see box 6). The world poverty rate was expected to decrease from 9.2 per cent in 2017 to 7.9 per cent in 2020, yet in the aftermath of the pandemic, poverty might now afflict between 9.1 and 9.4 per cent of the world population. Recent projections estimate that between 88 million and 115 million people will fall back into extreme poverty in 2020, with an additional 150 million falling into it in 2021 if lockdown measures aimed at halting the virus persist (World Bank, 2020b). This increase is largely a result of higher unemployment associated with a decrease in remittances, among other factors.

The COVID-19 pandemic has affected the food sector from production to distribution, and impacted nutritionRecently, a report of the High Level Panel of Experts on Food Security and Nutrition (HLPE Report 15) advocated for the expansion of the number of food security dimensions to six by adding one on "agency" to account for people's preferences in the food security definition and one on "sustainability" that complements the "stability" dimension to account for longer-term effects. Figure 3 highlights selected impacts of the pandemic on the six dimensions of food security (FAO-CFS, 2020).

The pandemic is projected to increase the number of hungry people globally by 83 million to 132 million, beyond the already 690 million hungry people (FAO and others, 2020a), in part through impacts on food systems from restrictions to control the virus. In the early days of the pandemic, food imports and exports were susceptible to bans and suspensions as some producing countries feared not being able to meet their own needs. About 22 countries announced plans to limit food exports, but restrictions were discontinued before they could substantially crimp global food supplies and cause price hikes like those of the food price crisis of 2007-2008 (IMF, 2020c) (box 7 identifies previous lessons learned).

Box 6. The SDGs and COVID-19

COVID-19 challenges the achievement of the SDGs as it has overturned progress made towards reducing poverty and inequality since the 1990s. The expected rise in poverty stems from increased unemployment, decreased remittances and declines in export revenues. Given the urgent need to reverse pandemic outcomes, to realign with the SDGs and to identify pathways to accelerate progress towards food security, a Food System Summit will be held in 2021 as part of the Decade of Action to achieve the SDGs by 2030. The summit will seek ways to maximize the co-benefits of a food systems approach applied to the entire 2030 Agenda for Sustainable Development while also addressing climate change.

The drop in the price of oil did not translate into a reduction of staple food prices. These remained slightly higher than before the pandemic. The price of cereals increased by 19.9 per cent between November 2019 and 2020, while the price of rice was 12.6 per cent higher than at the beginning of the pandemic (FAO, 2020a; IMF, 2020c). Pandemic-related restrictive measures combined with adverse economic conditions have also led to food price hikes in local markets. Higher food prices together with job and income losses have hindered access to food.

Disruptions in national food supply chains have impacted food availability and led to shortages in selected food commodities (FAO-CFS, 2020). The spread of COVID-19 in large food processing facilities and among farm workers led to closures and reduced the availability of labour for farm operations. The sudden closure of restaurants and large caterers and reduced export opportunities owing to closed international borders increased food waste. Perishable foods were most affected in some countries, resulting in the dumping of excess produce, such as milk, as adequate storage was lacking.

Figure 3. Pandemic impacts on the six food security dimensions

Source: Adapted from FAO-CFS, 2020.

Box 7. Pandemics and trade: lessons learned?

After COVID-19 emerged in the spring of 2020, many observers quickly warned of a food crisis risk given the potential for global trade restrictions. As a reference point, several observers pointed to the plague that struck the Western Indian city of Surat in 1994. This short-lived bubonic and pneumonic plague led to food export restrictions within days, affecting the entire Indian sub-continent in the autumn of 1994, which was nearly isolated internationally (Ramalingaswami, 2001). The great and recurring lockdowns across the world in the aftermath of the COVID-19 outbreak quickly raised fears of panics affecting food trade similar to the Indian experience in the 1990s (Schmidhuber, 2020). Global food traders and exporting countries have learned from previous crises, however. No major and sustained trade restrictions have been seen so far, and it remains unlikely food trade will be affected by COVID-19.

C. Disruption of food systems within the region

Arab countries adopted a variety of restrictive measures to combat the COVID-19 pandemic, similar to those enacted globally. Some countries opted for lighter measures while others took much harsher ones that may be among the strictest in the world (Annex I). Jordan imposed a lockdown within days, preventing people from purchasing food for a few days. Morocco closed its airports until the end of August, while the GCC lockdown has been one of the longest. In addition to air, land and sea border closures and movement restrictions both within and between localities, other measures included social distancing; closure of educational institutions, religious sites and eating venues; and the suspension of all social and tourist events (ESCWA, 2020d).

Unprecedented socioeconomic challenges to regional food systems stemmed from confinement measures and the associated economic decline. Key issues affecting food availability and accessibility include trade, production and changes in consumer behaviour on one hand, and unemployment and poverty on the other. While people in various other sectors were able to work from home, those in the vital food sector needed to continue working on the ground. Urgent protective measures needed to be in place for farms, food processing industries, and wholesalers and retailers.

D. Restraints in food availability

COVID-19 threatened the availability of food across the region mainly through the disruption of food production, trade and international supply chains. Globally, trade in agricultural products has been more resilient than overall trade, reflecting the essential nature of food, the relative income-inelasticity of demand, and the nature of transportation for most products, namely, bulk marine shipments that were not as heavily disrupted by movement restrictions to curb the spread of the virus (WTO, 2020a).

That said, trade disruptions occurred for specific commodities and countries, particularly in the early months of the pandemic. COVID-19 reduced agricultural and food processing exports by an estimated 8 per cent and imports by 14 per cent in 2020 (ESCWA, 2020d). Disruptions in exports of staple foods and delays in shipments due to border restrictions limited food availability in importing countries. In Libya, almost half (48 per cent) of cities reported shortages of basic food items such as vegetables, eggs and wheat products in

early April (OCHA-Libya, 2020). Yemen, which imports up to 90 per cent of its food, recorded a decrease of 12 per cent, 43 per cent and 39 per cent in imported quantities in February, March and April, respectively, compared to the same months in 2019 (UNICEF-Yemen, 2020; OCHA-Yemen, 2020a). World Bank simulations have indicated that Egypt and Yemen were among the most vulnerable to restrictions on trade as food prices may have increased by around 16 per cent (Espitia, Rocha and Ruta, 2020). See box 8 for country examples.

Local food production was impacted by restricted movement preventing farm workers from accessing fields to perform operations like planting, spraying, picking or harvesting. In Jordan, a restrictive local emergency plan prevented farmers from reaching their fields, which delayed daily activities and disrupted the entire harvest season. In Tunisia, local markets endured a shortage of locally produced fruits due to movement restrictions and an inability of farm workers to reach fields. In Yemen, restrictive measures led to fuel shortages, which affected fishing activities, and resulted in farm losses following an outbreak of locusts as crop and pasture spraying was delayed. The destruction from the locusts affected beehives as well.

Domestic agriculture depends on imported inputs. As such, disruptions from government-imposed lockdowns or interruptions in the supply chain have led to increased prices of much needed inputs. In Syria, the price of agricultural inputs and animal feed increased substantially, negatively affecting crop production as well as poultry and small livestock farming, which might diminish food availability in upcoming seasons (FAO-Syria, 2020). In Jordan, the restrictive local emergency plan prevented agricultural inputs from being distributed (WFP and FAO, 2020).

Initial estimates of the impact of the pandemic in 2020 indicate that the Arab region will lose at least $42 billion, equivalent to 8 per cent of total regional wealth. Before COVID-19, the region was losing around $60 billion annually owing to food loss and waste. At 210 kilograms per capita per year, total food loss and waste is estimated at around one-third of the region's food. In some countries, per capita food loss and waste have reached up to 427 kilograms per capita per year (ESCWA, 2020e).

Box 8. Impact of COVID-19 on food trade in selected countries

- Iraq's food imports were delayed, particularly rice imports, leading to a serious shortage. By the end of May 2020, only 190,000 tons were available compared to yearly needs of 1 million to 1.25 million tons (FAO, WFP and World Bank, 2020);
- Tunisia's export of agricultural products dropped significantly as the European Union restricted imports of fresh produce, leading to an estimated loss of about $5 million notably on fish exports (IFPRI, 2020);
- Jordan faced delays in receiving imported food from Egypt and India (WFP and FAO, 2020);
- Sudan, which was struggling with the devaluation of its currency, saw its fish and livestock exports to Saudi Arabia interrupted due to COVID-19 restrictions (IPC-Sudan, 2020);
- In Somalia, imports of rice, wheat flour and sugar were 54 per cent, 10 per cent and 22 per cent lower, respectively, for the month of July, although there was also decreased local demand due to the closure of local restaurants (FEWSNET, 2020);
- Comoros, where the economy is not highly diversified, faced trade disruptions due to the pandemic as both India and the European Union, its main export markets, restricted imports. This led to a sharp drop in quantities exported, and therefore a substantial drop in foreign currency revenues needed to import food and agricultural inputs. Revenues declined for many smallholder farmers and unskilled labourers involved in the sector (UNDP-Comoros, 2020).

E. Disruptions in food access

As highlighted by United Nations Secretary-General António Guterres, "The region's economy is expected to shrink by more than 5 per cent – with some countries facing double-digit contractions." It is estimated that the loss in GDP in the Arab region will exceed $40 billion. Vulnerable groups will be hardest hit, including women and migrants, who make up 40 per cent of the workforce, as well as the 55 million people relying on humanitarian assistance for livelihoods (Guterres, 2020).

The intensity of COVID-19 impacts on economies and supply chains has differed among regions and countries. The pandemic exposed the fragility of Arab economies that had yet to fully recover from the 2007-2008 and 2010-2011 food price crises (see box 9 on Arab regional responses to the former). The region also suffers from various vulnerabilities challenging its ability to respond to the impacts of a pandemic. These include protracted socioeconomic and political unrest in several countries, including Iraq, Lebanon and Sudan, along with ongoing conflicts in Iraq, Libya, Somalia, the State of Palestine, Syria and Yemen (United Nations, 2020a).

Box 9. Arab regional responses to the 2007-2008 food crisis

During the 2007-2008 crisis, the transmission of global food prices to domestic prices led to higher inflation rates at the country level, which adversely impacted poor and food importing countries as their populations spend more of their income on staple foods. The sudden rise in food prices led to higher food insecurity and raised the global number of undernourished people in 2009 to over 1 billion.

When the impact reached the Arab region, it marked the outset of public unrest in many countries, including Egypt, Jordan, Libya, Syria and Tunisia. The total food import bill increased substantially, which left many net-food importing countries with higher trade deficits. The high prices were passed on to consumers given the stress they imposed on public budgets, which led to citizen discontent. It is therefore no surprise that a potential food price spike leaves the Arab region highly concerned, explaining great interest in how COVID-19 may impact food prices.

Though still debatable, the 2007-2008 and 2011 food spikes are thought to have been driven by speculation in commodity markets due to high biofuel demand, among other factors. Volatile prices led to stockpiling by some countries with key staple foods restricted from trade. The sudden price hike led to macroeconomic shocks including exchange rate volatility, which stifled economic growth in vulnerable countries.

In the Arab region, countries have undertaken a number of policy measures to reduce exposure to possible food shortages. Government policies in middle-income countries have encouraged domestic production of wheat. In most countries, wheat import and export, marketing and storage are managed by state or semi-public trading bodies. Countries use various control systems to check the flow of wheat internally and across borders, including tariffs, quotas and licensing. Safety nets to absorb price risks at the national level and protect vulnerable population are also used (FAO, 2020b). Some of the main lessons learned from past crises can be summarized as follows:

- Trade insulation increased prices and volatility in international markets. This spurred even higher local price increases in importing countries;
- Restrictive trade policies can result in increased volatility due to domestic supply shocks;
- Regarding food strategies, the closure of borders is not as effective as increased productivity and openness to trade;
- Price volatility increased risks for farmers and hindered longer-term investment by smallholders;
- Although fertilizer prices increased, harming farmers, higher crop prices compensated.

The economy of the region has contracted by at least 5.7 per cent, with the pandemic exacerbating long-lasting social challenges at the national level, including unemployment, poverty and inadequate social safety nets. Prevailing inequalities and inequities have intensified (ESCWA, 2020). The pandemic is expected to cause a loss of $35 billion out of $1 trillion in export (United Nations, 2020a). A substantial drop in oil prices has already drastically reduced public revenues, remittances have declined due to layoffs of migrant workers, and tourism revenues have fallen. In Yemen, remittances were down by 60 to 70 per cent compared to the previous year. This led to an 80 per cent decrease in income for households dependent on remittances (OCHA Yemen, 2020a).

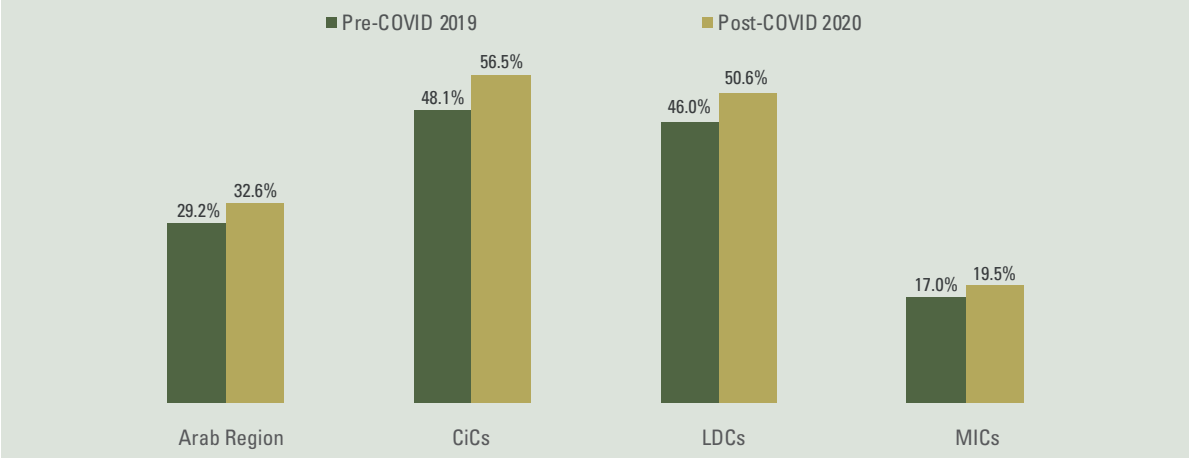
While average regional unemployment remained constant at 10 per cent between 2018 and 2019, it is projected to increase by up to 5 per cent by 2022 as a result of the pandemic, with a loss of about 1.7 million jobs anticipated in the second quarter of 2020 (ESCWA, 2020a; ESCWA, 2020f). Lockdown measures and movement restrictions disrupted normal work activities and led to the temporary, and in some cases permanent closure of businesses and loss of jobs, especially those occupied by migrants and women in the informal sector. In addition, closures, in general, and of educational facilities, in particular, meant women involved in informal employment in the food sector had to assume additional responsibilities from unpaid care work at home.

The loss of livelihoods due to the pandemic has been widespread throughout the region and directly impacts the purchasing power of households, particularly the most vulnerable, to access adequate and nutritious food.

Table 3. Snapshots of pandemic impacts on employment in selected countries of the region

GCC	
Saudi Arabia	Departure of 1.2 million foreign workers from the labour market 400,000 jobs are expected to be lost after the reduction in tourism and religious events (Hajj and Omra) (OECD, 2020a)
Qatar	Reduction in salaries and numbers of non-Qatari employees; Qatar Airways reduced salaries by 35 per cent; Qatar Petroleum reduced 800 jobs (OECD, 2020a)
CiCs	
Libya	Increased unemployment to include 70 per cent of migrants and refugees (Libya FSS, 2020)
Iraq	More than 50 per cent of small and medium enterprises either dismissed their employees or reduced their salaries (FAO and others, 2020b)
Syria	Livelihoods of 1.2 million farmers impacted
MICs	
Algeria	Unemployment rate reached 12 per cent (FES, 2020)
Egypt	Loss of around 1.6 million jobs in the informal sector (OECD, 2020b)
Lebanon	The financial and economic crisis was well underway before the pandemic and further exacerbated by the disastrous port explosion on 4 August 2020 Pandemic and financial crises have pushed nearly one in every three Lebanese out of work and reduced the salary of one in every five (WFP-Lebanon, 2020)
LDCs	
Djibouti	Loss of more than 30,000 jobs, where more than 10,000 are informal and 20,000 are formal; 31.5 per cent of households live in poverty (UN Country Team-Djibouti, 2020)
Comoros	Highest impact is on informal workers who hold 79.2 per cent of jobs including most female jobs, and contribute to 70 per cent of GDP (UNDP-Comoros, 2020)

Figure 4. Poverty rates in the subregions before and after COVID-19



Source: ESCWA, 2020a.

Box 10. COVID-19 brings challenges and opportunities for Arab women

Women in the Arab region, similar to women all over the globe, have been disproportionately impacted by the socioeconomic consequences of the pandemic and measures to limit the spread of the virus. Existing inequalities have been exacerbated on three levels in particular (UN Women, 2020). First, women have felt the economic impacts more acutely as generally gender gaps still persist in employment and wages. Women in the Arab region earn nearly 79 per cent less than men on a per capita basis and constitute 62 per cent of workers in the informal sector (United Nations, 2020a). Second, the burden of unpaid care work has significantly increased with the bulk undertaken by women (ESCWA, 2020g; ILO, 2018). Third, violence against women has exponentially increased.

More women are expected to fall into poverty during the pandemic as they are prone to losing their jobs and livelihoods first; 700,000 of the 1.7 million jobs expected to be lost in the Arab region are held by women (ESCWA, 2020g). In the State of Palestine, 68 per cent of women reported increased unpaid work since the lockdown, while 76 per cent lost income compared to 65 per cent men (UN Women-State of Palestine, 2020).

For women in agriculture, the pandemic and ensuing government-mandated national lockdowns have disrupted agricultural value chains, led to the closure of processing and packaging units, and restricted access to physical markets, leaving them and their families without a reliable income. At the same time, women in agriculture have emerged as leaders, keeping activities going through the pandemic. A woman farmer from the State of Palestine, for instance, created a WhatsApp group that has supported several women to maintain their agricultural activities and sell their products. She commented: "I launched an initiative with the women of Jalamah. It started as an ad hoc WhatsApp group, where I offered to exchange extra fertilizer for pesticide for my tomatoes. In no time, women started to follow, offering other inputs and suggesting an exchange of produce too!" (UN Women-State of Palestine, 2020).

With adequate support from governments and local actors, women in agriculture could overcome some of the challenges of COVID-19, namely financial and mobility challenges, and continue to supply the market with agricultural products.

In Morocco, the Ministry of Solidarity, Social Development, Equality and Family, in partnership with the Social Development Agency, developed an online marketplace, called ADS Coopsclub, to support women's cooperatives to sell products during the crisis. This initiative was further supported by UN Women, which helped with administrative processes such as online registration, and sessions to raise awareness of hygiene protocols and recommended physical distancing measures (UN Women-Arab States, 2020).

The highest pre-COVID-19 poverty rates are in countries in conflict, at up to 56.5 per cent of the population or 54 million people (Figure 4). Higher unemployment rates are expected to lead to higher poverty rates, pulling down a quarter of the Arab population or more than 124 million people (ESCWA, 2020a).

Countries in conflict face many challenges due to war and have low resilience to shocks. A decrease in humanitarian assistance is expected to boost poverty rates. Refugees and IDPs are highly vulnerable as restrictive measures decreased the ability of countries and humanitarian agencies to provide assistance (ESCWA, 2020e). Many international humanitarian agencies entrusted with securing food for populations caught in conflict or violence, such as in Yemen, had to evacuate their staff. Yemen is already witnessing high child stunting and levels of anaemia among women reaching over 40 per cent. Food security in other countries in conflict is further exacerbated by international sanctions affecting their ability to purchase food and medical products (OCHA Yemen, 2020a). Box 10 highlights challenges and opportunities for Arab women.

F. Consumer behaviour

The closure of and limits on the maximum occupancy capacity of restaurants and catering businesses led to a slowdown in food consumption there. Other disruptions in the food system included the ways people shop for food as social distancing meant reducing the numbers of people allowed simultaneously in food establishments such as supermarkets. The early days of the lockdowns led to panic buying, queuing and hoarding of commodities. Fears of widespread food supply disruptions were short-lived, however, and food shopping resumed, albeit at reduced capacity.

The hoarding of food by households put a strain on supermarkets and other retailers of food and essential items as shops shelves ran empty, and customers stayed away from those unable to restock rapidly. In Tunisia, increased demand for staple food products like semolina, flour, sugar, oils and dairy products led to shortages and disruptions throughout the supply chain; subsequently, a 26 per cent increase in wheat demand was recorded (IFPRI, 2020). In Kuwait, there were shortages of eggs, milk and vegetables on the first day of the lockdown. During the lockdown, longer shelf life foods were preferred as people prepared to spend long periods in isolation. This situation was compounded by dwindling purchasing power from job losses because of mandatory lockdowns and the inadequate social safety nets plaguing most Arab countries. This aggravated the difficulties that vulnerable populations, including the elderly, refugees and IDPs, and the poor, already faced in accessing safe, sufficient and nutritious food. In Lebanon, expenditure on food is expected to reach 85 per cent of total expenditures for the most vulnerable households throughout the crisis (ESCWA, 2020h). Initiatives to alleviate the hardships of COVID-19 are discussed in box 11. Box 12 sheds light on a women's empowerment project giving emphasis to women's important roles in self-sufficiency and sustainability.

Food stockpiling also led to food waste as fresh produce was discarded (United Nations, 2020b). Food waste at the consumption level in the region is around 34 per cent. In the early stages of the pandemic, panic-purchased foods, usually bought in large quantities, might have been wasted at greater rates than foods acquired in normal circumstances as they might not be of the preferred brand, size or formulation. Online food purchases, which are increasing, may temper impulse food purchases

and increase consumers' "psychological distance" to food, which has been shown to decrease the tendency to generate more food waste (Ilyuk, 2018).

The pandemic's economic stress overall has probably stimulated improvements in efficiency at the household level and resulted in less food wasted (Roe, Bender and Qi, 2020).

Box 11. The other side of pandemic impacts: GCC examples

Despite devastating effects, the pandemic has had some positive socioeconomic and environmental impacts. With restrictions on movement and concerns about exposure to other people in public spaces, consumer behaviour changed. A survey undertaken by Ernst and Young (2020) on consumer behaviour in Saudi Arabia and the United Arab Emirates showed that 58 per cent of consumers are uncomfortable going to a mall, while 33.3 per cent are uncomfortable going to a grocery store. As a result, many people reverted to purchasing from local shops and minimarkets, usually situated in small neighbourhoods, rather than depending on supermarket systems where a large number of people can be found. This increasing trend to some extent strengthened national supply chains and opened new trading opportunities for many businesses that have converted their venues from trading in other sectors (restaurants and clothing) to trading in food.

Social distancing in countries with reliable Internet infrastructure has boosted e-commerce and online grocery shopping. A McKinsey report (2020) found that Saudi Arabia and the United Arab Emirates have seen among the highest rates of "new or increased" users of online deliveries; grocery e-shopping increased by 10 per cent, while food takeout and e-delivery shot up by 30 per cent. This shift generates demand for labour to sustain related operations, and provide logistics and customer support, hence creating new jobs and alleviating the effects of rising unemployment.

Box 12. Women's empowerment through organic vegetable production: the Soufra Project

The Women's Programmes Association is an NGO targeting women in Palestinian refugee camps in Lebanon. It has sponsored a rooftop vegetables organic garden project in Burj al-Barajneh refugee camp to enhance the competitiveness and self-sufficiency of female Palestinian refugees. They produce and process their own organic vegetables. A large share goes to "Soufra", a catering business through which they generate income.

The vegetable garden holds up to 2,600 plants and 15 different types of vegetables, providing 75 per cent of the produce required for Soufra. Vegetables are irrigated through water collected from air conditioners. Space-saving recycled eco-planters were designed by local innovator Cedar Environmental. A composting unit transforms food waste into natural fertilizer.

This programme is a successful example of an initiative that not only improves food security through production for direct consumption or income but also demonstrates the rewards of sustainable and environmentally friendly urban agriculture. It also empowers refugee women financially. By providing a long-term learning opportunity, it supports self-sufficiency and sustainability (Alfanar, 2020).

G. Recommendations for action

The impact of COVID-19 on the food sector is still unfolding, and uncertainty continues to be high. Countries need to assess the impact of the pandemic at the national and local levels to identify needed actions. The following key measures can strengthen the resilience of the sector, taking into consideration the critical role of coordination and cooperation in national actions to address food and health impacts. The national actions are categorized as short and medium term, while the regional actions focus on the medium term.

1. Short-term national actions

- Enhance the resilience of supply chains to pandemics through diversifying procurement channels for needed food commodities;
- Adopt trade facilitation mechanisms, including through expediting and scaling up digital technologies, such as the electronic exchange of sanitary and phytosanitary certificates, to reduce the time and costs of trade, which in turn can help boost food availability, and reduce food losses and waste;
- Support the public and private sectors in increasing food storage capacity at the national and subnational levels. Private and/or government institutions to establish national or subnational reserves that are linked to a centrally managed electronic system can provide better and faster national market information on available food stocks among different stakeholders, including governments, suppliers, distributors and vendors;
- Ensure the provision of social protection systems, including health systems, to support the most vulnerable people;
- Engage with different stakeholders in the design and implementation of shock response measures, including farmers' groups, women, youth and other communities;
- Provide rapid targeted support to women in the agricultural/informal sector so they can contribute to maintaining food supply chains;
- Support women's community centres to ensure they provide reproductive health services, and nutritional, diet and health advice for underprivileged women and women in rural communities.

2. Medium-term national actions

- Encourage investments and businesses that reduce post-harvest crop and storage losses and enhance food availability, including investments in food banks and food processing, among others;
- Address food systems as a cluster, and plan accordingly for building the resilience of the sector to shocks, starting with seed security, and access to feed and veterinary services for livestock and agricultural production, with an eye towards managing medium- and long-term impacts on food security;
- Support the access of farmers and rural women, including agricultural input suppliers, wholesalers, food retailers and suppliers from the private sector, and consumers along value chains, to information technology and fundamental tools for digital services, including by working through civil society organizations.

3. Regional actions

- Explore investment opportunities for member countries, with support from the private sector, to establish a regional/subregional food reserve/storage facility (notably for wheat and cereals) to manage risks associated with high cereal import dependency and ensure the availability of appropriate food stocks. Having reliable food in stock as well as for sale on the market can stabilize domestic prices. The World Bank asserts that good public management of stocks and involvement of the private sector (which holds most food stocks throughout the world) must be emphasized in the coming years. Coordination of physical stocks across the region has the potential to mutually benefit governments and may help to reduce pressure on thin global food markets. Regional food reserves can be based on the concept of pooling resources into a common reserve, to be drawn on based on pre-agreed rules (Konandreas, 2017);
- Improve regional and subregional collaboration on the movement of food across borders along with the movement of agricultural workers. The Arab Organization for Agricultural Development with other regional actors, including FAO and ESCWA, can facilitate dialogues among member countries to address the impact of and opportunities from the pandemic in terms of regional food cooperation.

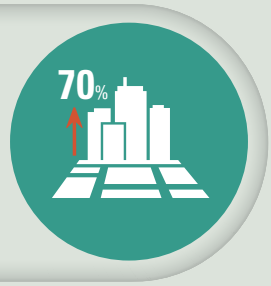
FOOD SECURITY
Vulnerabilities Further Pressured by COVID-19

KEY MESSAGES

Arab regional vulnerabilities include scarce natural resources, socioeconomic challenges (population growth, unemployment and poverty), import dependency and conflicts. These are exacerbated by the pandemic, and affect the region's ability to respond to food system shocks;

The region has limited, highly seasonal and erratic rainfall, which is used for up to 56 per cent of agricultural production. Overexploitation of groundwater for irrigation has depleted the water table;

Demand for food is expected to continue increasing in coming years with the total population expanding by 53 per cent and urbanization reaching 70 per cent by 2050 (670 million people will be living in the region by 2050). Arab countries already import 50 per cent of calories consumed, and dependence on food imports is expected to rise. On average, the region imports 63 per cent of wheat, the most consumed staple. Some countries import more than 90 per cent of their food;



The protracted conflicts in five countries affect food trade through, among other issues, reduced food imports and exports, and/or disrupted supply chains. Conflicts have led to higher levels of undernourishment, propelling significant increases in child stunting and wasting, and anaemia among women. Containment measures to combat COVID-19 have pressured the livelihoods of refugees and IDPs, and restricted humanitarian aid.

III. Food Security Vulnerabilities Further Pressured by COVID-19

At least 80 million people are moderately or severely food insecure in the region, even if the many countries in conflict or considered least developed are not included in the tally (FAO and others, 2020a). Achieving food security has always been a policy concern, more so since the food price crisis of 2007 to 2008. The region faces serious challenges limiting its capacity to produce more food, including scarce natural resources and institutional capacities, socioeconomic challenges and instability. As a result, it has increasingly relied on global food markets to meet its needs, which has subjected it not only to price volatility but also to sociopolitical pressures, shocks and interferences. This has further weakened the ability to respond to direct and indirect food system shocks such as those caused by the COVID-19 pandemic.

When the pandemic broke out, Arab countries tried to support domestic production, fearing that trade restrictions could hamper food availability by reducing bilateral trade even within the region. The region is self-sufficient in fruit and vegetables but consumes more cereals, meat and milk products, and fats and oil products than it produces. A significant increase in domestic production in the short term is limited by institutional and financial resources in the LDCs and by natural resource scarcity in the region as a whole. The region will need to invest in strengthening bilateral trade to absorb shocks keeping in mind the need for regional strategic food stocks in the medium term. This section will expand further on certain food security vulnerabilities including scarce natural resources, socioeconomic challenges, import dependency and conflicts.

A. The scarcity of natural resources heavily impacts food security

Among the major vulnerabilities is the rising scarcity of natural resources, notably water and land resources, which are challenged by degradation, overconsumption, biodiversity loss, pollution and harsh climatic conditions. More than 90 per cent of regional land is classified as arid or hyperarid with limited rainfall and rapidly degrading land (ESCWA, 2020i). Per capita arable land[1] is at one of the lowest levels in the world, having fallen from 0.5 hectares in 1962 to about 0.14 recently. Bahrain, Djibouti, Kuwait, Qatar and the United Arab Emirates have per capita arable land of 0.01 hectare or below (World Bank Open Data, 2020).

1 Hectare per capita arable land includes land defined by FAO as under temporary crops, temporary meadows for mowing or for pasture, under market or kitchen gardens and temporarily fallow.

Table 4. Agricultural water withdrawal and availability

	Agricultural water withdrawal as a percentage of total water withdrawal	Year	Total renewable water resources per capita (cubic meters per capita per year) (2017)
Algeria	64	2016	282.4
Bahrain	33	2016	77.7
Egypt	79	2017	589.4
Iraq	91	2016	2,348.0
Jordan	53	2016	96.6
Kuwait	54	2002	4.8
Lebanon	38	2015	740.4
Libya	83	2012	109.8
Mauritania	91	2005	2,579.0
Morocco	88	2010	811.4
Oman	88	2003	302.0
Qatar	59	2005	22.0
Saudi Arabia	82	2017	72.9
Sudan	96	2011	932.6
Syria	88	2005	919.5
Tunisia	77	2017	400.2
United Arab Emirates	83	2005	16.0
Yemen	91	2005	74.3

Source: FAO AQUASTAT.

Box 13. Rainwater harvesting to enhance agriculture production

Rainwater harvesting technology could be a solution for supplementing water for agriculture. In addition to contributing to the preservation of water resources, rainwater harvesting reduces soil erosion and degradation. It entails collecting precipitation from any suitable surface to be stored for later use or directly used in agriculture, for domestic applications, or even for providing drinking water for humans and animals if properly treated.

Rainwater harvesting is best suited for areas with yearly average rainfall above 200 millimeters. Depending on the catchment size and type, several systems exist such as rooftop/courtyard rainwater harvesting, microcatchment systems, macrocatchment systems and flood water harvesting systems. Applications of rainwater harvesting systems have been found in the Arab region since ancient times and are still implemented today, especially in agriculture.

In the mountains of Lebanon, rooftops of greenhouses were used to harvest rainwater that was stored in ponds and used in drip irrigation for flowers and vegetables. In Jordan, a microcatchment system was used to rehabilitate the Badia rangeland that suffered from severe degradation. Positive results included increased biodiversity, reduced evaporation of precipitation by around 50 per cent, an increase in the yield of forage shrubs in the rangeland, and a doubled economic rate of return compared with the traditional way of planting rangelands (ESCWA, 2017a; FAO, 2018).

Water resources are limited and pressured by increasing population and affluence, and the impacts of climate change (Mohtar and others, 2016). The Arab region has the lowest renewable water resources in the world, where, of the 22 countries, 18 are below the annual threshold value of 1,000 cubic meters per capita, and 13 are below the water scarcity threshold of 500 cubic meters per capita (ESCWA, 2020b). The region also has limited, highly seasonal and erratic rainfall, mostly used for agricultural production (Table 4). Such low levels of water availability have led to the overexploitation of water resources and pollution, which are increasing water scarcity. In the Sana'a watershed in Yemen, water levels are dropping by around 4 to 8 meters per year (Taher, 2016). In Jordan's Azraq watershed, groundwater salinity levels have increased due to saltwater intrusion (USAID, 2017). Another challenge is related to transboundary watersheds, where some rivers originate outside the region and are increasingly pressured by upper riparian countries. For example, Egypt is concerned by the changing dynamics along the Nile River. The threat of reduced river flows is rising as the filling of the Grand Ethiopian Renaissance Dam gets underway.

In some countries, improvements in agricultural production techniques have led to country-wide yield increases, such as in Egypt, or area-specific increases, such as for horticultural crops in Morocco. Technological advances in agriculture, however, have been relatively limited. Once promising investments in foreign land that would presumably spur strong agricultural growth in countries with resources, such as Sudan, and yield benefits for the region have, thus far, largely failed to materialize. The necessary accompanying infrastructure and institutional reforms have remained elusive. Box 13 identifies water harvesting technologies as a possible solution to enhance agriculture production causing one of the biggest recessions in recent decades (World Bank, 2020a). Well-off countries were able to deploy a wide range of fiscal and monetary measures to overcome the economic crisis, though these proved insufficient to halt the contraction of the global economy. The contraction was estimated at 3 per cent in April and 4.9 per cent in June 2020 (IMF, 2020a), and is projected to be about 3.5 per cent in 2021 as restrictions ease and economies reopen (IMF, 2020b). The current round of restrictions following the renewed wave of COVID-19 in the last months of 2020 might lead to a further contraction.

COVID-19 has underscored the urgent need for domestic production in the region to enhance food availability. Yet with natural resources already overexploited, more integrated, long-term approaches will be needed to sustain them while enhancing local production.

B. Socioeconomic status and food security

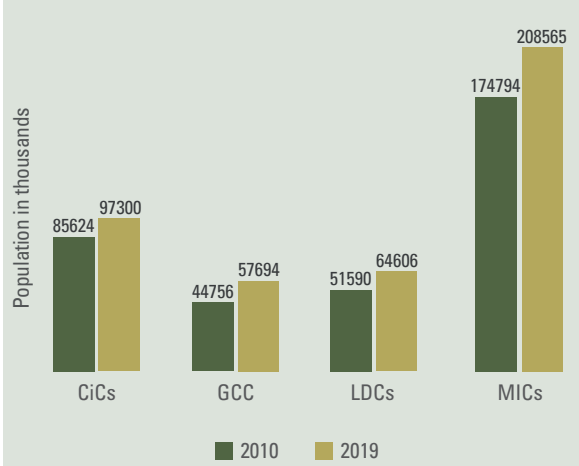
The Arab population grew from 72 million in 1950 to 436 million in 2020, about a sixfold increase, whereas the world population grew by three times during the same period. Figure 5 shows subregional population growth between 2010 and 2019, with the highest increase in the GCC countries at 29 per cent. The population of the region is expected to reach 670 million by 2050, based on faster growth than the world average (United Nations Population Division, 2019).

Concomitantly, the rate of urbanization is expected to rise rapidly. The share of the population living in urban areas rose from 25 per cent in 1950 to 50 per cent in the late 1980s, and has reached close to 60 per cent in recent years. It is expected to be 70 per cent by 2050. Income growth will continue.

Having increased fourfold between the early 2000s and 2020, it is expected to further double by 2030 (United Nations Population Division, 2019). Thus, the demand for food is expected to increase rapidly over the next few years, which will put additional pressure on already dwindling natural resources and increase food import dependency. Specific population groups will be more at risk than others, including women and youth, poor people, rural dwellers, low-wage earners and displaced people. With a growing inability to afford basic food supplies, their precarity will further increase with the potential for more socioeconomic instability, particularly in most LDCs, and especially as the region witnesses a bulging youth population reaching 74 million (ESCWA, 2020a).

Employment in agriculture declined between 2005 and 2019 by 22 per cent for Bahrain and Egypt, as shown in Figure 6. A few countries, including Yemen, recorded a gain of about 15 per cent. The long-term trend is towards declining agricultural employment, an indication of faster growth in other economic sectors and therefore economic development. Such a shift tends to go together with enhanced productivity in agriculture as farmers adopt technology and machinery to replace farm workers and feed urban dwellers.

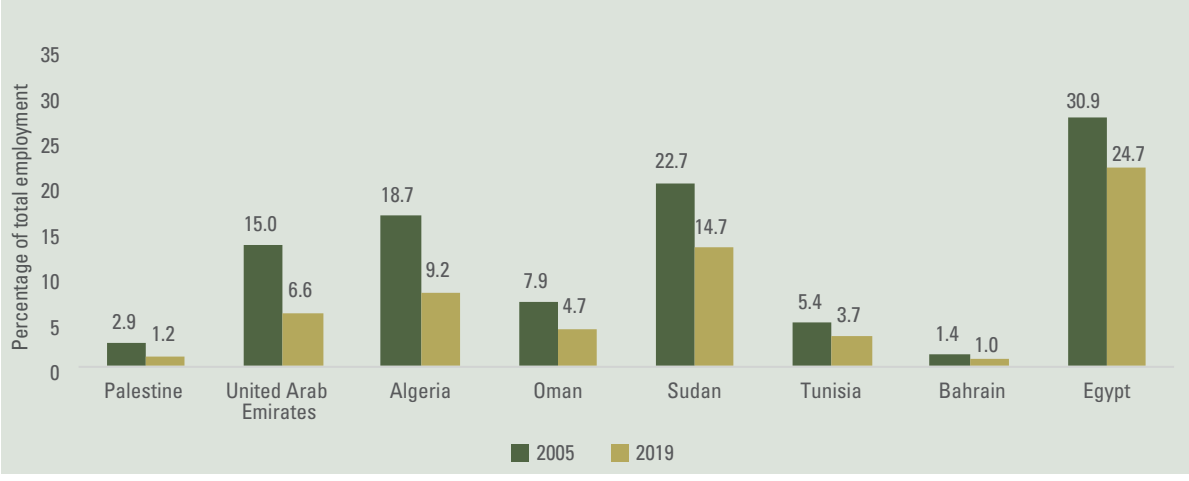
Figure 5. Subregional population growth between 2010 and 2019



Source: World Bank Open Data, 2020.

The agricultural sector remains an important source of revenue in the region although its share of regional GDP has decreased by about 16 per cent (Table 5). A well-performing sector is critical to food security as well as economic development, notably in Arab LDCs, and most middle-income and conflict-affected countries. With continued economic development, however, agriculture is expected to lose its importance in the national economies of more affluent countries. Recent declines in agricultural GDP reflect conflict impacts and other socioeconomic and political events rather than economic growth.

Figure 6. Employment in agriculture in selected countries



Source: World Bank, World Development Indicators.

Table 5. Agriculture, forestry and fishing, value added

	Agriculture as a percentage of GDP		
	2005	2018	Change (percentage)
Algeria	7.7	12.0	55.8
Bahrain	..	0.3	..
Comoros	29.4	32.6	10.9
Djibouti	..	1.4	..
Egypt	14.0	11.2	-20.0
Iraq	6.9	2.0	-71.0
Jordan	3.8	5.6	47.4
Kuwait	0.3	0.4	33.3
Lebanon	3.6	2.9	-19.4
Libya	2.5	..	..
Mauritania	28.2	25.9	-8.2
Morocco	11.8	12.3	4.2
Oman	1.6	2.2	37.5
Qatar	0.1	0.2	100.0
Saudi Arabia	3.2	2.2	-31.3
Somalia	..	..	..
State of Palestine	5.2	..	..
Sudan	30.6	31.5	2.9
Syria	20.7	..	..
Tunisia	9.2	10.4	13.0
United Arab Emirates	1.4	0.7	-50.0
Yemen	10.6	4.0	-62.3
Arab region	6.1	5.2	-16.0

Source: World Bank, World Development Indicators.

Iraq recorded an over 70 per cent drop in agricultural GDP and Yemen more than 60 per cent, followed by Egypt and Lebanon, which saw a 20 per cent drop, mainly due to economic downturns and conflicts.

COVID-19 is expected to further exacerbate these declines, adding more socioeconomic pressures and intensifying existing food insecurity. In addition to the millions of people already undernourished, there will be an increase in poverty that could lead to an additional 1.9 million people becoming undernourished (ESCWA, 2020e).

C. Challenges from food import dependency

Arab countries are among the largest net importers of food in the world. Currently, more than 50 per cent of the calories consumed in the region are from imported food sources. This share is expected to rise to 64 per cent by 2030 (ESCWA, 2017a) as dependence on food imports is predicted to maintain an upward trend due to population growth, urbanization and rising affluence. Of the total wheat consumed in the region, 63 per cent is imported, with GCC countries importing more than 90 per cent of what they need.

The region thus spends around $110 billion on food imports annually, which is about 4 per cent of GDP. In fact, the region is home to only 5 per cent of the world's population but imports a third of traded sheep meat and more than a quarter of the milk and wheat available on global markets (ESCWA, 2017a; ESCWA, 2020e). While imports contribute to food availability, ensuring adequate quantity, quality and variety, a high dependence on them can also imply acute susceptibility to global supply shocks and price volatilities.

Given that domestic agricultural production in the region is unlikely to meet the demand for cereals, dairy and meat products, and fats and oil, food imports will continue to play a crucial role in achieving food security. This is a major concern among policymakers throughout the region, especially in the LDCs and countries in conflict. Higher food prices from increased demand and stockpiling, or short-term difficulties in trade logistics resulting from the pandemic will mean that countries unable to adequately meet food needs may face more instabilities. Poorer and more vulnerable countries will likely confront budget constraints in fulfilling their food needs while GCC and middle-income countries will have to devote a greater share of their public revenues to stabilizing national food markets to the detriment of other socioeconomic needs.

In summary, population and GDP are expected to continue rising towards 2030. Production and yields of major crops are anticipated to grow though largely at a slower pace, notably for key staples such as cereals. This accentuates the need for continued food imports to meet population needs. Land use for agriculture is not expected to increase but rather to further decrease due to land degradation and urbanization. The pandemic struck at a time where socioeconomic systems were not prepared to absorb its impacts as people and countries did not have sufficient means to sustain themselves throughout the lockdown, and beyond. As a result, governments will increasingly devote their strained budgets to importing adequate food while also striving to maintain social schemes so the most vulnerable groups can access food.

D. Worsened food security in countries in conflict

Food insecurity exacerbates sociopolitical instability. The region saw "bread riots" in the 1980s and 1990s as well as, more recently, the sociopolitical events of the early 2010s, which could be traced partially to rising food security concerns in the aftermath of the food price crises between 2007 and 2011. On the other hand, conflicts exacerbate food insecurity. The Arab region has the largest number of displaced people (refugees and IDPs) in the world, around 26 million people, of whom nearly 16 million are moderately to severely food insecure (ESCWA, 2020e). Refugees and IDPs put pressure on natural resources, which compounds their vulnerability as well as that of the receiving community. Due to political instability in Iraq, armed groups have controlled a considerable portion of cereal production, hence affecting access to agriculture inputs, the cereal harvest and post-harvesting activities. In 2016, conflicts in Iraq led to the loss of 70 to 80 per cent of corn, wheat and barley crops in Salah al-Din, and 43 to 57 per cent of barley crops in Ninewa. In addition, 32 to 68 per cent of land destined for wheat crops was not cultivated (FAO, 2016).

Protracted conflicts throughout the region have led to higher levels of undernourishment, food insecurity, child stunting and wasting, and anaemia among women compared to regional averages as shown in Figure 7. Affected people lack adequate food and means to acquire it, and often resort to unbalanced diets.

The number of food-insecure Palestinians in 2020 reached around 1.7 million or a third of the population (WFP-State of Palestine, 2020) while the conflict in Yemen led to a 10 per cent higher prevalence of acute malnutrition with 23.3 million people needing some form of assistance (HRW, 2020). In Syria, more than 11.7 million people need at least one form of humanitarian assistance, including 5 million in acute need (UNOCHA, 2019). In June 2020, 9.3 million Syrians faced severe acute food insecurity and an additional 1.9 million were at risk of food insecurity (FAO, 2020c). Most pregnant women in conflict areas suffered from anaemia (United Nations Human Rights Council, 2015), largely due to most households in camps being women-headed and suffering from food insecurity (UNHCR, 2019). Extreme poverty has been exacerbated by the conflict in Syria, with an estimated 40 per cent of the population living on under $1.90 per day in 2019 (ESCWA, 2020b).

The loss of crops, livestock and farming assets has cost Syria more than $16 billion and resulted in higher unemployment rates as employment in agriculture diminishes (Reliefweb, 2018). Pre-conflict, Syria was a major agricultural producer with annual wheat production reaching 4 million tons. It exported 1.5 million tons annually and reserved 3.5 million tons for emergency use (Reliefweb, 2018). Conflict has reduced the cultivated area by a third, and led to the destruction or lack of maintenance of irrigation canals, a shortage of electricity and limited fertilizer availability, which have negatively affected food production.

Although Yemen has always been a net food importer with 95 per cent of the wheat consumed being imported, the conflict there has resulted in a 33 per cent reduction in cereal production (Reliefweb, 2018). In the State of Palestine, the Israeli occupation challenges the development of the agriculture sector through a strict control of water resources that includes limiting Palestinian farmers from accessing groundwater wells while also diverting water resources towards Israeli settlements in the West Bank.

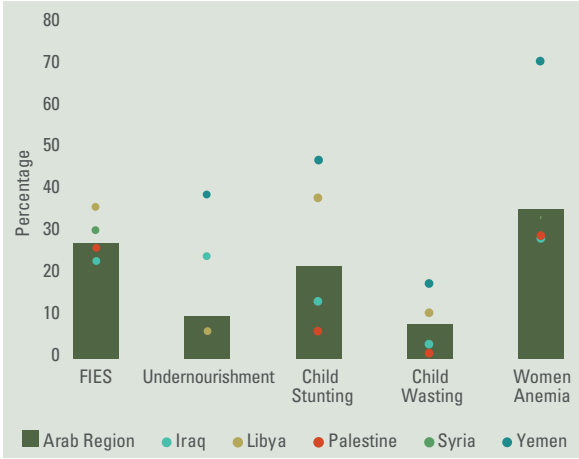
Protracted conflicts are expected to affect food trade through, among other issues, reduced food imports and/or disrupted supply chains. Trade routes shift to avoid conflict zones, which could lead to restricted trade and increased costs that might raise food prices. Export routes from Mashreq to GCC countries have already shifted and now include maritime and air freight, which has increased costs by some 60 per cent compared to land routes (CEIP, 2019). Between 2010 and 2016, food and agriculture exports from Jordan to Syria dropped by $62 million, while imports dropped by $208 million (CEIP, 2019), leading to higher food prices in Jordan. The disruption in trade between Iraq and Syria has increased poverty rates in Mafraq governorate in Jordan, which relied heavily on cross-border trade.

Food aid, which is provided in-kind from donor countries in many cases, represents a core segment of humanitarian aid in countries under conflict or witnessing natural disasters. Yet despite the ever-increasing commitments of donors, the gap between needs and humanitarian aid persists. External shocks such as COVID-19 are further increasing the vulnerability of more than 55 million people in need of humanitarian aid in the region, and limiting their coping strategies.

Compared to 2019, 42 per cent more Syrians are food insecure in 2020 and in need of food aid. In Yemen, with a dire need for food assistance, only 24 per cent of the humanitarian response plan was funded by the end of August 2020. Aid agencies were able to reach 6 million fewer Yemenis compared to December 2019.
In 2020, food aid for the Arab region (Somalia, Sudan, Syrian Arab Republic and Yemen) is expected to be 1 billion

tonnes, equivalent to 9.5 per cent of the total cereal import requirement for these countries (ESCWA 2020e). One priority is for humanitarian actors to expand their coverage to host communities as unbalanced support between refugees and host communities may trigger social unrest and tension over access to basic needs and resources.

Figure 7. Selected food security indicators in conflict countries



Source: World Bank, World Development Indicators.

E. Recommendations for action

To build back better from COVID-19, the region needs to focus on the sustainable use of resources, inclusive societies and sustainable economies along with dedicated efforts for peacebuilding and easing the suffering of refugees and IDPs. Gender-responsive economic and social policies must place women's economic lives in particular at the heart of pandemic response and recovery plans. The region can benefit from existing successful strategies and policies to adopt technology, enhance education and improve resource efficiency (see box 14).

1. Natural resources scarcity

- Promote green and digital technologies for use by smallholder farmers that require low investment and are easily adopted in rural communities. In the short term, the focus needs to be on increasing land and water productivity, relying on already successful available technologies (drip irrigation, subsurface irrigation, cover crops to reduce evapotranspiration, organic mulching, adoption of best irrigation practices, use of short-cycle crops, use of drought-resistant crops, promotion of supplementary irrigation, rainwater harvesting, safe use of treated water, crop rotation practices, reliance on weather data, adoption of no-till practices, etc.). Supporting local institutions to pilot and disseminate practices should be a priority. Building human capital through tailored extension services, and taking advantage of information and communication technologies is core to accelerate adoption. Effective water allocation policies would create an enabling environment to encourage farmers to increase water use efficiency and productivity;
- Facilitate access to financing especially when piloting new technologies that increase water and land productivity in cooperation with research/academic institutions and the private sector. These technologies may include the use of remote sensing and artificial intelligence for identifying water requirements and soil moisture conditions. Governments and the international community should facilitate this process in coordination with civil society organizations entrusted to support adoption and dissemination;
- Support investment in reducing food losses and waste, and food transformation. The more governments invest in reducing food losses and waste, the less pressure is imposed on the region's natural resources;
- Lead dialogues among the private sector, academia and research institutions, NGOs and rural communities on needed policies for adoption of rainwater harvesting technologies in agriculture. This includes facilitating financing and support for local NGOs to conduct community-based technical training and capacity-building.

2. Socioeconomic

- Encourage national and international investment in employment programmes for youth in LDCs, countries in conflict and countries receiving refugees, with a complementary focus on upgrading productive assets (agricultural roads, post-harvest units, irrigation canals, etc.);
- Engage the private sector in investing in green technologies for farmers and cooperatives, and to support rural livelihood opportunities in food processing using innovative and appropriate technologies that most likely will not be disrupted in times of crisis;
- Call on NGOs and food banks to implement awareness programmes to reduce food waste and risks of consumer stockpiling and overbuying, especially in times of crisis.

3. Trade dependency

- Diversify the sourcing of imported food to reduce exposure using transparent public tendering processes;
- Encourage public and private partnerships to modernize ports and facilitate the entry of food imports;
- Foster regional cooperation to enhance intraregional trade in food commodities.

4. Countries in conflict

- Review food aid modalities by the development community to address changing logistical dynamics, and identify safe corridors to provide food aid and protect livelihoods;
- Ensure safe access to public water collection points during periods of imposed movement restrictions in areas where water is not available on the premises of refugees, IDPs and people in host communities;
- Provide refugees in camps with in-kind assets for small animal husbandry and production of short-cycle season crops (as short as 50 days) through the provision of seeds and compost, enabling access to food in case of disruption in aid provision;
- Commit to a cessation of sociopolitical strife and armed conflicts to end civilian suffering while facilitating the distribution of humanitarian assistance by lifting all barriers to imports, supply chain functioning, and the movement of people and goods, including humanitarian personnel and their equipment;
- Rehabilitate and repair civilian infrastructure, particularly at ports of entry and road networks, to enable quick and safe transportation of food and medical supplies and other assistance to facilitate the distribution of food.

5. Regional measures

- Operationalize the Arab food security fund, a resolution by the League of Arab States, with support from different Arab and global development funds to provide relief during food shortages or emergencies like the COVID-19 pandemic, and ensure a regional rapid response;
- Establish a regional and/or national social solidarity fund that supports vulnerable communities to ensure a rapid response, and provide relief during food shortages or health emergencies.

Box 14. Agriculture in the Netherlands

The Netherlands has succeeded in becoming the second largest exporter of agricultural goods in the world with agricultural exports reaching around 94.5 billion euros in 2019. This considerable increase in productivity was possible through policy reform, public funding, and investment in research and education centered on sustainable agriculture and environmental sustainability.

The country developed and adopted innovative agricultural solutions for crop quality, energy efficiency and indoor farming. Technologies include: automated cultivation systems (drones, driverless tractors), smart agriculture and climate-controlled greenhouses, precision farming tools such as quadcopters to monitor plant growth and measure the pedological and hydrological characteristics of soil, renewable energy, rainwater harvesting, biological pest and disease control, urban agriculture, saline agriculture, use of treated wastewater and other technologies. This has optimized yields of both family businesses and big companies, and increased efficiency while ensuring sustainable resource use. Enhancing post-production processes through smart conservation and packaging techniques reduced food losses.

Agricultural development and modernization in the Netherlands started at the end of the nineteenth century with the introduction of artificial fertilizers, factory processing of dairy products and new crop varieties, along with the formation of institutions for farmers and financing systems. Investment in education, research and extension systems took place concurrently (Feng, 1998). The second wave of agricultural modernization started at the end of the second world war through policy reforms, investments and state funding supporting research in agricultural technologies. By 2000, the country had adopted the "twice as much food using half as many resources" principle, and started to shift towards sustainable agriculture and related research investment. Research and innovation allowed farmers to reduce dependence on water for key crops by 90 per cent and stop using chemical pesticides in greenhouses. In 2017, antibiotic use by poultry and livestock breeders declined by 63 per cent. In 2019, the Government backed a shift towards circular agriculture, and in 2020, it pledged $40 million to promote sustainable agriculture, halt deforestation and mitigate climate change.

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COVID-19

Impacts and Alternative Scenarios for Food Security

KEY MESSAGES

Prior to COVID-19, most countries in the region, except Sudan, were on track to record positive albeit slow economic growth for 2020-2021, with a growth rate of 2.6 per cent or below for most countries. Inflation rates remained below 3 per cent. Economic challenges included currency fluctuations;

With the exception of Egypt, **all economies in the region are projected to go into recession in 2020 due to the COVID-19 pandemic**, but to resume growth in 2021;

Medium-term growth projections suggest that the current crisis will slow economic development across the region through 2030 compared to pre-COVID-19 expectations;

Growth in total food consumption is projected at 2 per cent for major staples over the coming decade, driven mainly by population growth rather than rising per capita income. Overall per capita food consumption will marginally increase and is expected to be only slightly below pre-pandemic projections by 2030;

Countries facing an economic crisis or sociopolitical unrest face more severe food security disruptions with COVID-19, due to higher domestic food prices and a slower recovery period compared to more stable countries;

The continued reliance on imported cereals for the bulk of dietary energy entails a systemic risk to domestic food supply, as countries are susceptible to food supply shocks resulting from potential production shortfalls in major exporters or other trade restrictions resulting in global food price spikes;

Consumers in the region spent on average about $90 per capita per year on imported agricultural commodities in 2017-2019, which is projected to increase to $95 per capita per year by 2030. The net trade bill of the region is expected to reach a deficit of $46 billion by 2030, up from $36 billion in 2017-2019 (in constant 2004-2006 prices);

A scenario simulation of global trade restrictions suggests an increase in the regional basic food trade deficit by another $30 billion, reaching $76 billion by 2030. A corresponding simulation of a potential mitigation through improved cereal yields in a number of countries results in a reduction of the regional trade deficit by $20 billion in 2030. These potential savings have to be compared against necessary investments as well as expected benefits from improved profitability in the domestic agricultural sector;

Non-conflict affected countries with a substantial agricultural sector and import capacities are less impacted by potential trade, price and yield shocks, which might help secure the national food supply in turbulent times and prop up food security across the region;

The triple crises of economic recession, currency devaluation and COVID-19 have severely affected Lebanon, which has seen growing poverty levels and food insecurity. In Yemen, an LDC suffering from armed conflict and currency devaluation, among other crises that now include COVID-19, 80 per cent of the population is in a precarious food security situation and relies on humanitarian assistance for daily needs.

IV. COVID-19 Impacts and Alternative Scenarios for Food Security

At the beginning of the COVID-19 pandemic, there were concerns that food security would be negatively affected particularly in poor countries and nations relying heavily on the food trade to meet their needs. Fortunately, these concerns were overstated, notably in the Arab region, where sudden and deep changes on the world market would prove hazardous due to its high dependence on imports. Changes in macroeconomic environments, energy and credit markets, and input and agricultural factor markets in the aftermath of the pandemic may have more profound effects on domestic food supplies, however. These might alter the demand for and access to food, resulting in unforeseen nutritional outcomes for millions of people in the region.

This section analyses the impact of COVID-19 on the demand and supply of agricultural commodities as well as the potential effects that alternative market shock scenarios might have at the Arab regional level and for its four subregions. The analysis begins with a review of macroeconomic challenges, as they underpin agricultural commodity projections. It then examines the supply and demand of agricultural commodities in key groups – cereals, meat, fish, dairy, roots and tubers, sugar and vegetable oils – to assess the potential effects of COVID-19.

An alternative scenario with two simulations supplements the baseline analysis. It aims to inform debate on policy instruments, strategies and programmes that Arab countries could envisage to ensure food security over the long term. The simulations encompass a shock to global food prices, assumed to be caused by international trade restrictions, and shock mitigation through potential cereal yield enhancements. The section concludes with case studies on Lebanon and Yemen.

Simulations were conducted using the Aglink-Cosimo model, managed by OECD and FAO. It is a recursive-dynamic, partial equilibrium economic model to analyse both supply and demand in world agriculture. The country and regional modules and projections were developed in coordination with country experts and national administrations. The model simulates annual market balances and prices of the main agricultural commodities produced, consumed and traded worldwide to 2030. Baseline values involve specific assumptions regarding macroeconomic conditions, agriculture and trade policy settings, weather conditions, longer-term productivity trends and international market developments. Alternative scenarios estimate the deviations from this baseline due to variations in underlying assumptions around the main drivers, like productivity, market and trade policies, or weather conditions (OECD and FAO, 2015).[1]

1 For more information on the Aglink-Cosimo model, see: http://www.agri-outlook.org/documents/Aglink-Cosimo-model-documentation2015-.pdf.

The projections discussed in the following sections are largely based on conditions after the occurrence of COVID-19 with a few comparisons to simulations without the pandemic to assess the medium-term impact. The simulations include assumptions on restrictions on the movement of people and goods due to lockdowns and/or due to national concerns around self-sufficiency that resulted in trade disruptions. These assumptions were captured using WTO (2020a) and McKibbin and Fernando (2020) quantifications of various costs affecting imports and exports of all commodities from different countries. Additional background information on the simulations is provided in Annex 2.

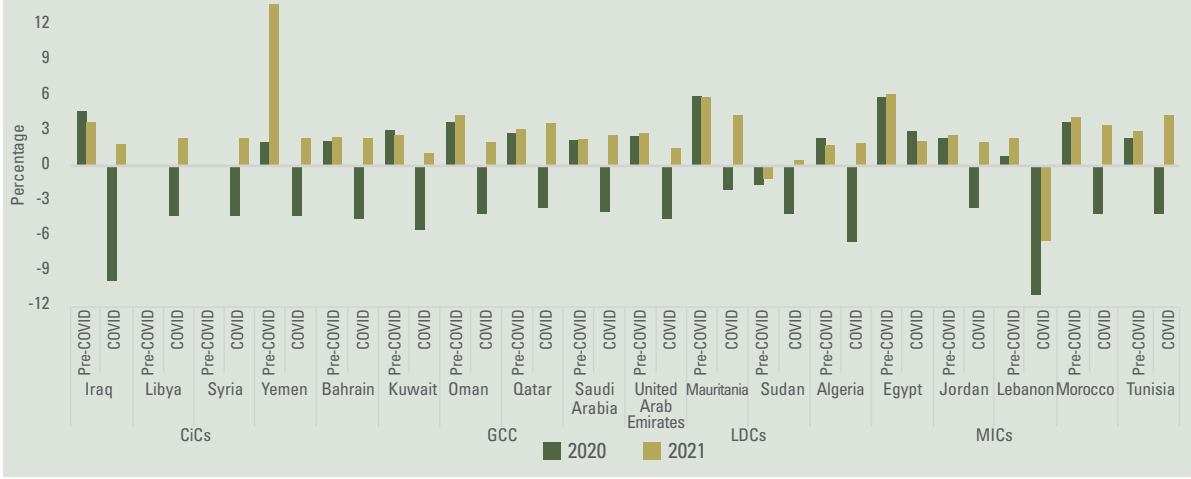
A. Challenging macroeconomic conditions

The outbreak of COVID-19 disrupted economic activities due to the lockdowns imposed in most Arab countries. The restrictions came at a time when most Arab countries were in weak fiscal positions. Prior to COVID-19, most countries, except Sudan, were on track to record a positive albeit slow rate of economic growth for 2020-2021 (Figure 8) (IMF, 2019). Post COVID-19, Lebanon has been most affected among the middle-income countries as it was already struggling with an ongoing economic crisis (World Bank, 2020a and 2020b). The Lebanese economy is forecasted to contract by 11 per cent in 2020 and another 6 per cent in 2021 due to the combined effect of the pandemic and a financial crisis resulting from pre-existing economic and political challenges. Iraq sees a similar contraction in 2020, of nearly 10 per cent, but will return to growth by 2021, albeit at a slow rate (World Bank, 2020a).

Arab economies are projected to experience a slow recovery over the medium term (Table 6). GDP projections for 2030 remain lower than what they would have been without COVID-19. With projected GDP growth rates and current efforts oriented towards containing the pandemic, responding to food supply and demand issues will be challenging for governments in the region.

Libya and Syria are among the countries projected to have lower GDP in 2030 compared to 2019 due to the COVID-19 pandemic. Both are affected by conflict. Algeria, Lebanon, Oman and Sudan will continue to experience slow growth. Egypt has been predicted to be a resilient economy as it has a robust growth path with levels

Figure 8. GDP growth, before and after COVID-19



Source: IMF, 2019 and World Bank, 2020a.

reaching around 5 to 6 per cent before the pandemic. It is expected to maintain economic growth despite COVID-19.

In addition to Egypt, Morocco and Tunisia are projected to record higher growth than most Western Asia and GCC countries. All Arab countries are projected to experience positive real GDP growth as early as 2022 assuming continued improvements in economic conditions. LDCs are projected to be more resilient to the economic shock of COVID-19, with Sudan remaining at similar levels of GDP growth as in the pre-COVID-19 assumptions.

To understand the impact of COVID-19 on food access in the region, consumer price index growth has to be assessed as the pandemic has not only affected economic activities but also inflation. The consumer price index is elevated for Algeria, Egypt, Libya, Sudan, Tunisia and Yemen, to varying degrees (Figure 9), compared to pre-COVID assumptions (IMF, 2019 and 2020a).

The macroeconomic assumptions therefore suggest that inflation due to higher demand, import and production costs or weaker domestic currencies, among other drivers, will pressure food prices in several countries, making food less affordable notably for low-income households that expend a considerable share of their income on it.

Over the medium term, inflationary pressure in Sudan is expected to continue due to the poor performance of the economy and high overall debt, which have led to a substantial currency devaluation. The situation is worsened by other factors, including diminished revenues due to lower oil prices, political instability in several governorates, and more recently, widespread flooding and the impact of COVID-19, all of which have led to a rise in the consumer price index of more than 60 per cent. The index is expected to remain high until 2030. Most other Arab countries will experience relatively stable rates, although on the upper side for Algeria, Egypt, Libya and Yemen (Table 7).

Table 6. GDP growth from 2019 to 2030, before and after COVID-19

GDP growth, percentage		Pre-COVID-19	Post-COVID-19
CiCs	Iraq	2.27	1.09
	Libya	0.00	-0.04
	Syria	0.00	-0.04
	Yemen	4.55	2.56
GCC	Bahrain	2.53	1.90
	Kuwait	2.56	1.61
	Oman	1.63	0.85
	Qatar	2.50	1.82
	Saudi Arabia	2.21	1.62
	United Arab Emirates	2.27	1.54
LDCs	Mauritania	5.65	4.83
	Sudan	0.70	0.69
MICs	Algeria	1.01	0.40
	Egypt	5.47	4.90
	Jordan	2.65	1.96
	Lebanon	2.34	0.55
	Morocco	4.02	2.99
	Tunis	3.66	3.21

Source: FAO, Aglink-Cosimo projections based on IMF, 2019 and World Bank, 2020a.

Figure 9. Consumer price index, before and after COVID-19

Source: IMF, 2019 and World Bank, 2020a.

Table 7. Consumer price index change from 2019 to 2030, before and after COVID-19

GDP growth, percentage		Pre-COVID-19	Post-COVID-19
CiCs	Iraq	1.71	1.65
	Libya	6.14	7.86
	Syria	0.00	-0.51
	Yemen	6.82	6.22
GCC	Bahrain	2.09	2.07
	Kuwait	2.47	2.17
	Oman	2.44	2.34
	Qatar	1.84	1.58
	Saudi Arabia	1.93	1.80
	United Arab Emirates	1.78	1.60
LDCs	Mauritania	3.61	3.69
	Sudan	64.21	67.60
MICs	Algeria	7.06	6.85
	Egypt	6.71	6.45
	Jordan	2.30	2.04
	Lebanon	2.24	2.24
	Morocco	1.76	1.63
	Tunis	3.94	3.97

Source: FAO, Aglink-Cosimo projections based on IMF, 2019 and World Bank, 2020a.

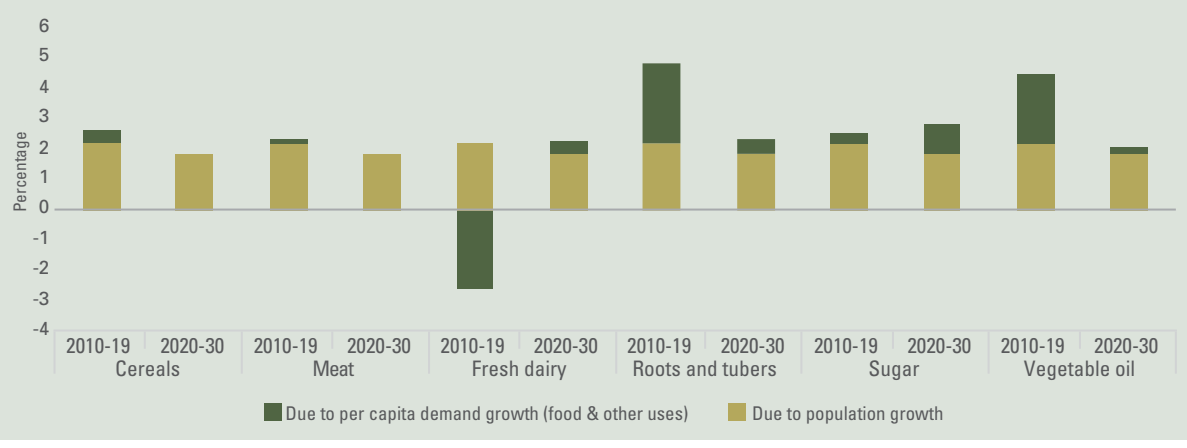
Sustained inflation rates might lead to a decrease in dietary quality and quantity due to the impact on food prices, notably for high-value products such as meat and dairy. Such a decrease would be more pronounced in poorer countries and affect the most vulnerable there. This could result in higher prevalence of malnutrition and other negative consequences such as economic underperformance.

B. Before and after COVID-19: A baseline scenario for the region and subregions[2]

1. Demand

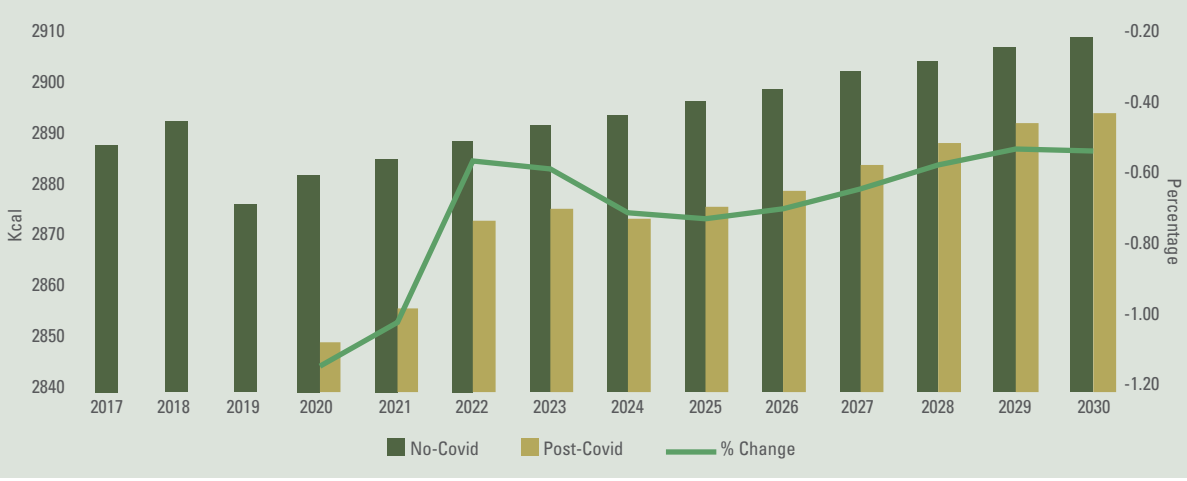
The main drivers of food demand will continue to be population growth followed by per capita income. Average annual growth in food consumption for major staples, including cereals, pulses, and roots and tubers but also meat, dairy, sugar and vegetable oil, is expected to remain at or above 2 per cent over the coming decade (Figure 10). During the projection period (2020 to 2030), additional spending on cereals and meat will result mostly from population growth. Rising affluence will not lead to a strong food demand increase compared to the period from 2010 to 2019.

Figure 10. Growth in regional food demand by food group



Source: FAO, Aglink-Cosimo projections.

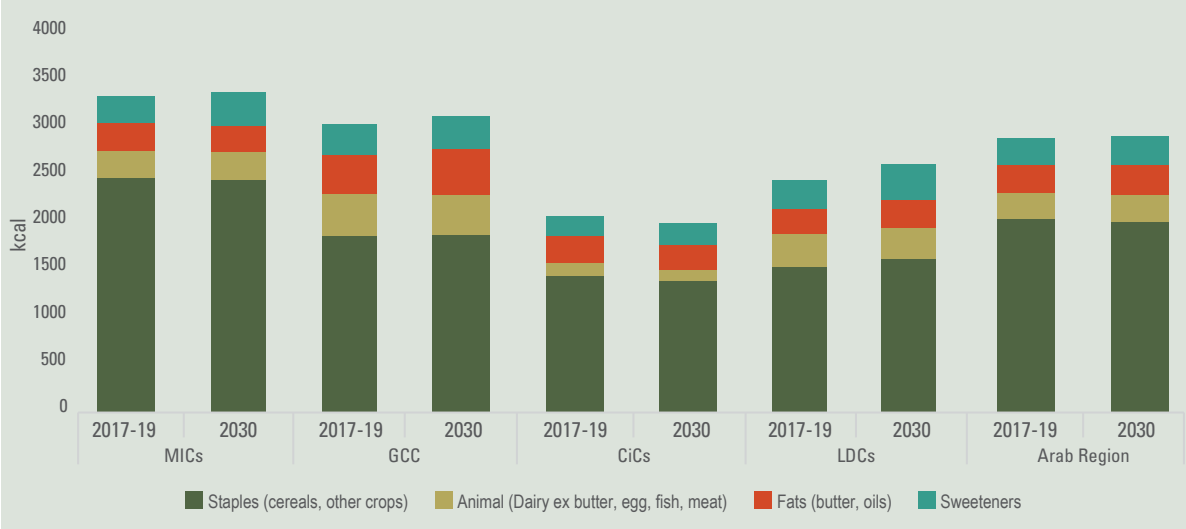
Figure 11. Total food consumption average for the Arab region (kilocalories per capita per day)



Source: FAO, Aglink-Cosimo projections.

2 Pre-COVID-19 projections were taken from OECD and FAO, 2020.

Figure 12. Caloric availability from staples, animals, fats and sweeteners



Source: FAO, Aglink-Cosimo projections.

Per capita food consumption will marginally increase between 2017-2019 and 2030, despite a slight decline in 2020-2021 reflecting lower demand due to the impact of COVID-19 (Figure 11).[3]

Due to the ongoing evolution of regional food consumption patterns, staples remain the most important source of calories, followed by fats and sweeteners (Figure 12). The projections foresee a decline in calories consumed from animal sources in all subregions, except middle-income countries, and an increase in caloric availability from sweeteners by 9 per cent between 2017-2019 and 2030. The latter is projected at 18 per cent in the LDCs, where consumption of sugars is above the recommended WHO calorie intake of no more than 10 per cent of total calories.

Middle-income countries have access to more dietary energy with most provided by cereals and particularly wheat. These countries include some of the largest net importers of wheat in the world. The caloric availability composition is expected to remain unchanged as additional income is not sufficient to allow diets to move away from staples towards animal products. GCC countries have access to a broader range of food than any other country group in the region, with the highest intake of animal products on a per capita basis. Projections indicate an increase in sugar and fats, however, reflecting growing consumption of processed and ultraprocessed foods.

On the other end of the spectrum, where countries in conflict face disruptions to domestic and international food supply chains, the situation is not expected to improve enough to increase the caloric supply. Consequently, caloric availability could decrease even further. LDCs are affected by low productivity and poor integration within domestic and world markets. Their situation will improve marginally over the next decade allowing an increasing supply of staples and sweeteners, which are the most affordable sources of calories. Given the macroeconomic assumptions, both of these groups of countries will continue to face significant challenges ensuring that all of their populations and particularly the most vulnerable groups are able to access sufficient food to meet their dietary needs.

3 Food consumption is measured in total per capita caloric availability (kilocalories per person per day) on average for the Arab region.

The population in the Arab region is estimated to grow by about 75 million people between 2020 and 2030 and will thus require more food to feed its population. Total food demand will be only marginally affected by the impact of COVID-19 (Table 8). Per capita food demand is expected to expand in particular for higher value foods, due to income growth and ongoing urbanization. As a result of growing affluence and evolving consumption habits in urban settings, a nutritional transition, characterized by a shift towards energy-rich foods and protein from animal origins, is already underway in many countries and will continue in the coming decade (Hwalla, Bahn and El Labban, 2015). Pressure will continue to build on governments to ensure that adequate food is available to meet evolving demand.

The region's continued reliance on imported cereals for a large share of dietary energy needs makes countries susceptible to potential food supply shocks resulting from global market uncertainties. Local food production is also subject to uncertainties linked to scarce natural resources, volatile weather or the risk of conflict. As such, a balance between import costs and risks and the opportunity costs of increasing domestic production needs to be closely analysed. Such an analysis would allow policymakers to avoid resource use inefficiencies and unsustainability while responding to the demands of rural dwellers and food businesses for government support and assistance.

Table 8. Socioeconomic and food demand indicators, the post-COVID-19 scenario

	2007-2009	2017-2019 base	2020-2021	2030	Percentage change, base to 2030	Growth 2010-2019, percentage	Growth 2020-2030, percentage
MACROECONOMIC							
Population	322,928.88	400,688.80	419,414.33	490,307.56	22.37	1.88	1.51
Per capita GDP (kilocalories per dollar PPP)	14.68	15.67	15.93	18.26	16.48	0.50	1.31
DEMAND AND FOOD SECURITY							
Caloric availability (kilocalories per capita per day)	2,833.93	2,885.19	2,852.76	2,893.41	0.28	0.03	0.14
FOOD AVAILABILITY (KILOGRAMS PER CAPITA PER YEAR)							
Staples	224.15	222.02	222.18	221.23	-0.35	-0.11	0.07
Meat	28.53	28.92	28.08	28.82	-0.26	-0.16	0.20
Dairy	13.38	11.53	11.04	11.68	1.27	-1.40	0.52
Fish	10.10	13.39	13.64	14.89	11.22	1.74	0.80
Sugar	32.74	33.86	34.31	37.67	11.25	0.75	0.91
Vegetable oil	11.83	14.27	14.24	15.06	5.60	2.78	0.57

Source: FAO, Aglink-Cosimo projections.

Note: Daily per capita calories represent availability, not intake. Dairy includes butter, cheese, milk powders and fresh dairy products, expressed in milk solid equivalent units. Staples comprise cereals, pulses, roots and tubers. Growth is per annum compound growth.

Table 9. Agricultural production in the Arab region, post-COVID-19 scenario

	2007-2009	2017-2019 base	2020-2021	2030	Percentage change, base to 2030	Growth 2010-2019, percentage	Growth 2020-2030, percentage
PRODUCTION							
Net value agricultural and fisheries (thousands of dollar)	63.49	70.79	73.26	85.79	21		
Crops (billions of dollars)	10.83	11.61	12.41	13.95	20	1.1	1.1
Other crops (billions of dollars)	33.33	38.71	40.29	47.73	23		
Livestock (billions of dollars)	19.33	20.47	20.56	24.11	18	0.3	1.5
QUANTITY PRODUCED (KILOTONS)							
Cereals	47,590.54	52,062.23	56,234.30	62,243.02	20	1.1	0.9
Pulses	1,423.79	1,704.32	1,776.06	2,033.15	19	1.8	1.3
Roots and tubers	2,333.34	3,685.59	3,871.90	4,682.27	27	3.6	1.8
Oilseeds	1,091.75	1,118.58	1,151.71	1,253.31	12	0.5	0.8
Meat	6,361.63	7,535.50	7,625.48	8,926.81	18	1.3	1.5
Dairy	3,458.63	3,228.04	3,287.27	3,982.95	23	-0.9	1.8
Sugar	2,847.02	3,757.00	4,280.79	5,750.97	53	3.2	2.9
Vegetable oil	1,344.34	2,049.23	2,069.85	2,442.10	19	4.1	1.6
LAND USE							
Total agricultural land use	430,109.96	426,939.97	427,128.72	427,458.96	0.1	0.0	0.01
Total land use for crop production	62,800.20	60,441.06	60,540.99	59,295.75	-1.9	0.2	-0.2
Total pastureland use	367,309.76	366,498.91	366,587.73	368,163.21	0.5	-0.02	0.04

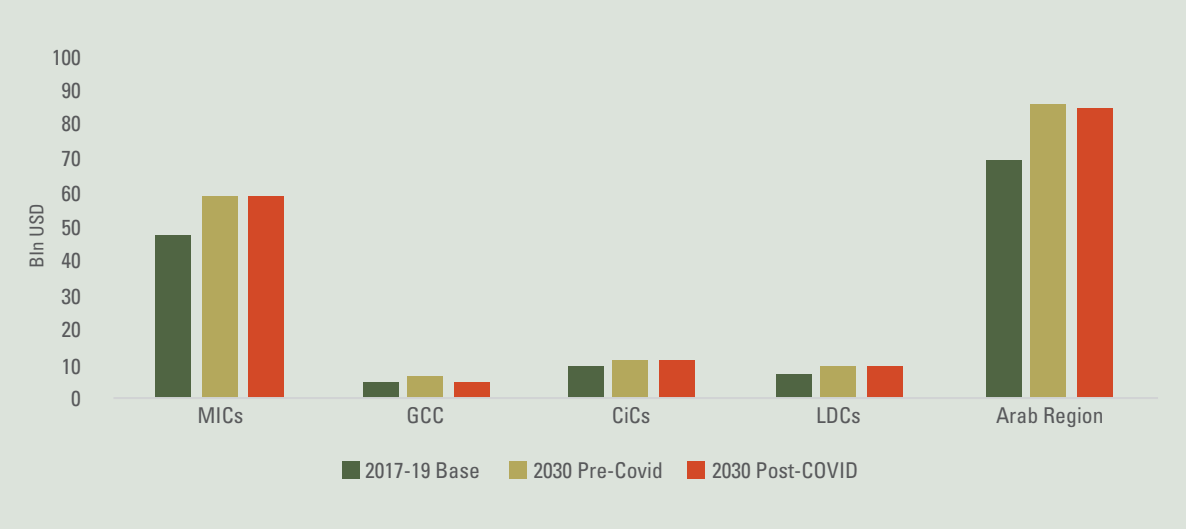
Source: FAO, Aglink-Cosimo projections.

Note: The net value of agricultural and fisheries output is based on the set of commodities represented in the Aglink-Cosimo model. Land use is reported in thousands of hectares. Crop land use area accounts for multiple harvests of arable crops. Pasture land use represents land available for grazing by ruminant animals. Oilseeds represents soybeans and other oilseeds. Dairy includes butter, cheese, milk powders and fresh dairy products, expressed in milk solid equivalent units. Growth is per annum compound growth.

2. Production

Total agricultural production value is projected to increase by around 21 per cent between 2017-2019 and 2030 (Table 9), slightly below the pre-COVID-19 projections (Figure 13). The production value of basic field crops (cereals, oilseeds, roots and tubers, pulses) is projected to increase by around 20 per cent, in line with the pre-COVID-19 outlook. Egypt continues to account for more than half of the region's crop production. Production of "other crops", mainly fruits and vegetables, is projected to increase by almost 25 per cent during the same period, comparable to the pre-COVID-19 outlook.

Figure 13. Projections on agricultural production in the Arab region in constant 2004-2006 dollars



Source: FAO, Aglink-Cosimo projections.

The value of livestock production is projected to increase by nearly 18 per cent, slightly below the estimate in the pre-COVID-19 outlook. None of the individual country outlooks show significant deviations from the aggregate. The slowdown of economic activity due to COVID-19 also reduces the projected growth of agricultural production in 2020. These effects become even more visible from 2021 onwards, especially in countries in conflict, such as Iraq and Yemen, which will face the slowest economic recovery. Exceptions are Libya and Sudan, which face a small economic contraction in 2020 due to COVID-19, and where agricultural production is projected to be mostly unaffected by the pandemic.

Production of cereals in the region in 2020 is projected to expand by around 19 per cent between 2017-2019 and 2030, but movement restrictions and other containment measures are expected to result in lower growth than previously expected. Starting in 2021, the slower expansion compared to the pre-COVID outlook becomes more apparent, especially in countries with slow economic recovery expectations. Production of vegetable oil (mostly from imported seeds) is projected to expand by around 19 per cent over the projection period; however, seed imports and processing activities are expected to be depressed by the pandemic.

Meat production in the region is projected to increase by around 18 per cent between 2017-2019 and 2030 (Figure 14). Due to expected restrictions in the meat industry and overall reduced economic activity in the region, growth expectations have been lowered from nearly 21 per cent in the pre-COVID-19 outlook for the same period. Middle-income countries will account for most of the meat supply expansion. Egypt, the largest meat producer in the Arab region, is projected to increase production by 29 per cent, followed by Morocco, where production is expected to expand by 26 per cent. Industry prospects in both countries were lowered (by about 4 percentage points in each) due to the impact of the pandemic. Poultry production will continue to account for more than 50 per cent of the region's meat production in 2030, yet the impact of COVID-19 will also be felt by this sector, lowering expected growth by 2030 to 24 per cent (from almost 27 per cent in the pre-COVID-19 outlook). Beef and mutton production remains pasture based and is therefore projected to be largely unaffected by the pandemic.

Figure 14. Projections on meat production in the region

Source: FAO, Aglink-Cosimo projections.

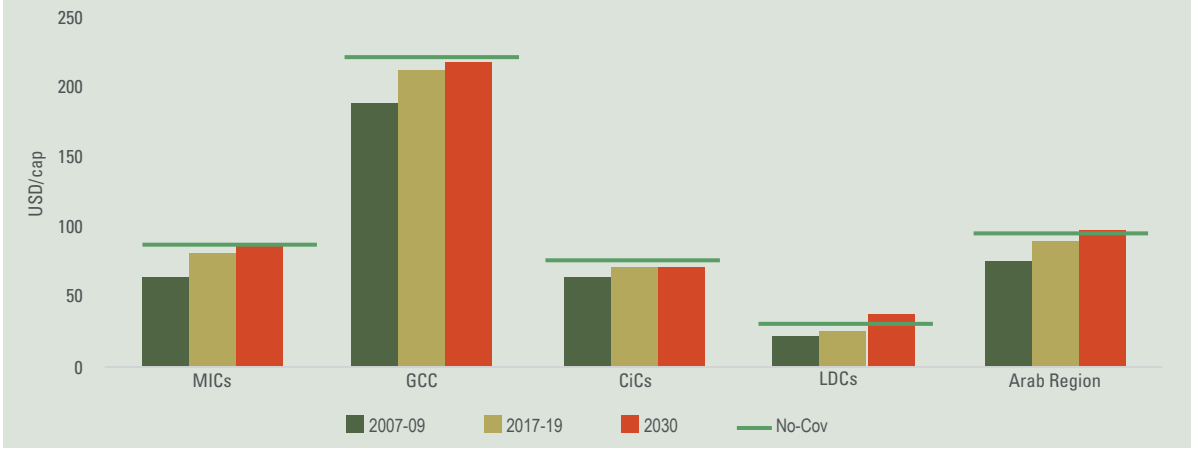
Dairy production, also mostly pasture based, is estimated to increase by around 23 per cent over the projection period, with the pandemic not believed to cause severe constraints. Fresh dairy products account for more than 80 per cent of the region's production. Egypt and Sudan are projected to remain the two biggest dairy producers.

Total agricultural land use is expected to remain fixed over the next 10 years as overall agricultural production is projected to be largely unaffected by the pandemic. Slight trade-offs between arable and pasture land are expected, however. This will be driven mostly by the expansion of livestock production in Sudan, which involves mainly sheep and goat production under non-intensive low productivity systems, frequently nomadic or semi-nomadic.

3. Agricultural trade

Net per capita agricultural imports will grow by 2030 regardless of the pandemic. Consumers in the Arab region spent on average about $90 per year on imported agricultural commodities in 2017-2019, and will spend close to $95 by 2030, about the same amount as without the pandemic (Figure 15). Spending on basic food commodity imports grew at a faster rate between 2007-2009 and 2017-2019 compared to the coming decade, except in the LDCs, where

Figure 15. Per capita net agricultural imports in the region in constant 2004-2006 dollars



Source: FAO, Aglink-Cosimo projections.

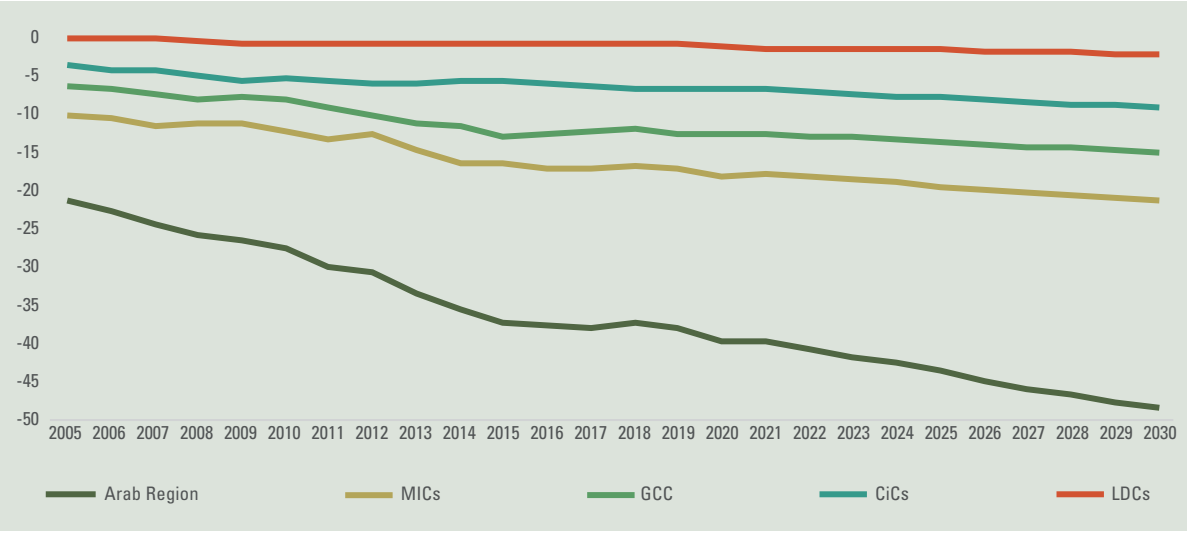
faster growth in import spending over the projected period is expected.

The regional trade balance for basic food commodities shows a deficit that deepens from $20 billion in 2005 to more than $46 billion by 2030 in the post-COVID-19 scenario, which is about half a billion dollars lower than a projection without COVID-19 (Figure 16). The growing per capita demand for food in the richer GCC economies drives further imports, while demand in middle-income countries is predominantly driven by population growth. In conflict-affected countries and the LDCs, slow growth in production together with a fast-growing population are the main causes of the projected growth in imports. This is despite the LDCs benefitting from investments by the GCC countries, which could help to further increase production and exports.

With growing, urbanizing and more affluent populations demanding more food, dependence on global food markets will continue to increase, a cause of political concern due to the potential risk of regional and global challenges. The estimated costs of compensating for potential shocks, such as through food price subsidies, need to be compared to the inherent domestic risks and investments necessary to increase domestic food production, which could lower trade dependency and therefore exposure to global market shocks.

According to the underlying supply and demand conditions of the simulation, the net import share of most basic food commodities is projected to further increase over the coming decade (Table 10). Fundamental market conditions on the supply side, such as natural resource constraints (water scarcity, sea-level rise and soil degradation), along with deficient physical infrastructure, technological shortcomings and inadequate human and financial resources will limit the growth of the agricultural sector during the coming decade. The region is further challenged by sociopolitical uncertainties and a lack of prioritization of resources. Some of these issues might be overcome through structural reforms in the sector, technological advances and other enabling conditions, but the opportunity costs of unlocking additional production potential need to be carefully evaluated against the likely benefits.

Figure 16. Agricultural net trade balances in the Arab region and subregions in constant 2004-2006 dollars



Source: FAO, Aglink-Cosimo projections.

The slowdown in the economy due to COVID-19 has slightly lowered the projected food demand growth for 2020-2021 and up to 2030, but demand for food will keep growing while local and regional production growth falls increasingly short, reducing the self-sufficiency of the region (Figure 17).

All in all, the economic shock due to the COVID-19 pandemic augments the challenges that countries are facing to ensure that nutritious, sustainably produced food is available and accessible to all. This will likely increase their reliance on international markets to procure food.

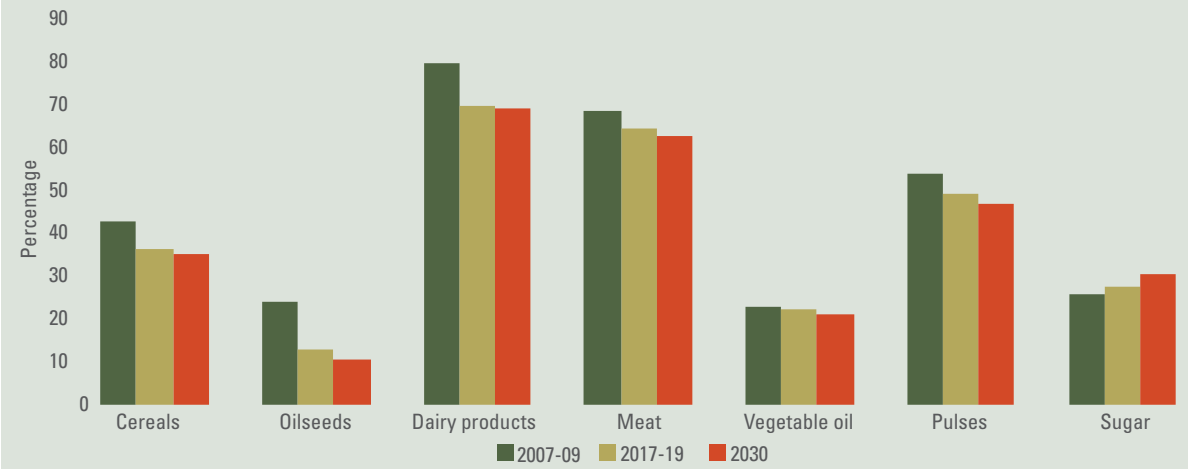
Table 10. Results on selected indicators in the region under the post-COVID-19 scenario

	2007-2009	2017-2019 base	2020-2021	2030	Percentage change, base to 2030	Growth 2010-2019, percentage	Growth 2020-2030, percentage
TRADE (CONSTANT PRICES)							
Net trade (billions of dollars)	-24.56	-36.22	-38.07	-46.42	28.17	3.23	1.82
Net value of exports (billions of dollars)	4.03	4.33	3.88	3.98	-8.16	0.18	0.24
Net value of imports (billions of dollars)	28.59	40.55	41.95	50.39	24.29	2.85	1.68
TRADE (NOMINAL PRICES)							
Net trade (billions of dollars)	-36.69	-48.87	-46.52	-71.46	46.22	0.37	3.97
Net value of exports (billions of dollars)	5.83	5.80	4.82	6.19	6.76	-2.65	2.42
Net value of imports (billions of dollars)	42.52	54.67	51.35	77.65	42.03	-0.02	3.83
SELF-SUFFICIENCY RATIO							
Cereals	42.78	36.35	37.21	35.33	-2.83		
Meat	69.03	65.04	64.74	63.18	-2.86		
Sugar	25.96	27.43	29.09	30.94	12.82		
Vegetable oil	23.03	22.60	21.39	21.47	-4.99		

Source: FAO, Aglink-Cosimo projections.

Note: The self-sufficiency ratio is calculated as Production / (Production + Imports - Exports). Growth is per annum compound growth.

Figure 17. Self-sufficiency rate of selected commodities in the region



Source: FAO, Aglink-Cosimo projections.

To get staple food commodities from the world market, countries will have to improve macroeconomic conditions with a particular focus on currency stability. This will help avoid substantially higher domestic food prices that might challenge people already grappling with reduced economic means, given the prevailing level of unemployment and poverty.

C. Alternative scenario

The baseline projections illustrate the potential vulnerability of the region's food supply to shocks in international markets, particularly for cereals. To further explore these risks and possible mitigating strategies, an alternative scenario was simulated with Aglink-Cosimo. The initial simulations illustrate the effects of an increase in global reference prices for cereals, as might be caused by a reduction in the global export supply of about 10 per cent (Table 11).

Without compensatory consumer price subsidies, domestic consumer prices will reflect the higher prices of imports, which might affect domestic consumption. Lower consumer demand will, however, lead to lower imports compared to the previous level. Still, higher international agricultural prices would lead to an increase in the food import bill by about $30 billion between 2017-2019 and 2030 (Table 12).

Domestic producers could take advantage of these higher prices to expand local production. The price hikes of 2007-2008 and 2010-2011 did not result in significant agricultural production growth in developing nations, however. Local production might not significantly increase. Moreover, and as previously explained, the possibilities are severely constrained in most countries due to limited natural resources.

Cereal import bills rise the most in middle-income and conflict-affected countries because of their high share of cereals in total food imports. Despite being the largest cereal producers in the region, these countries are not able to respond significantly to the global price rise. Import bills in GCC countries and LDCs rise to a lesser degree, though the former rely almost entirely on imports to meet domestic demand and therefore absorb the full cost without a domestic response in terms of increased production. LDCs have production possibilities but cannot react to the price incentive due to technological and financial constraints. Being large net importers of feed and food cereals, LDCs and countries in conflict could face potential food security problems due to their reduced means and weak fiscal space. The simulation results confirm that well-targeted policy support will be needed to increase production sustainably over the medium term.

There are few options conceivable to mitigate such shocks. The second part of the scenario illustrates the implications of sustainable

Table 11. Scenario assumptions

Group of commodities	Commodity	Shock
Cereals	Wheat Maize Rice Other cereals	Reduction in global supply: 10 per cent of global exports
Oilseed complex	Soybeans Other oilseeds	
Other staples	Roots and tubers	

Source: FAO, Aglink-Cosimo projections.

Table 12. Changes in production and trade due to a global food price shock scenario

	2007-2009	2017-2019 base	2030	Percentage change, base to 2030	Growth 2010-2019, percentage	Growth 2020-2030, percentage
PRODUCTION						
Net value agricultural production (thousands of dollars)	63.49	70.79	86.04	21.54		
Net value crops (billions of dollars)	10.83	11.61	14.12	21.59	1.14	1.21
Net value other crops (billions of dollars)	33.33	38.71	47.77	23.39		
Net value of livestock production (billions of dollars)	19.33	20.47	24.15	18.02	0.25	1.52
TRADE (CONSTANT PRICES)						
Net trade (billions of dollars)	-24.56	-36.22	-45.97	26.93	3.23	1.90
Net value of exports (billions of dollars)	4.03	4.33	4.00	-7.77	0.18	0.22
Net value of imports (billions of dollars)	28.59	40.55	49.96	23.22	2.85	1.75
TRADE (NOMINAL PRICES)						
Net trade (billions of dollars)	-36.69	-48.87	-75.54	54.56	0.37	3.90
Net value of exports (billions of dollars)	5.83	5.80	6.47	11.44	-2.65	2.42
Net value of imports (billions of dollars)	42.52	54.67	82.00	49.98	-0.02	3.77

Source: FAO, Aglink-Cosimo projections.

Note: Net value of agricultural and fisheries output based on the set of commodities represented in the Aglink-Cosimo model.

yield improvements in those Arab countries with adequate natural resources. The yield scenario is implemented to assess ways to mitigate the risk inherent to low self-sufficiency ratios for basic foods, which is projected to slightly decline in the medium term (see also Figure 17). In the scenario simulations, cereal yields in countries with perceived agricultural potential were increased to the level of Egypt, which currently has the highest commercial yields. The simulations illustrate cereal productivity potential in the region if agricultural development emulated the Egyptian model, taking into consideration prevailing land and water constraints.

In Egypt, the limited arable land along the Nile and in its delta coupled with high population density led to substantial investments in land development in the form of irrigation canals and drains, dams and barrages, and the installation of water pumps to facilitate irrigation. Additional government policies led to the development of a commercially oriented agricultural production sector, which emphasizes inputs, strict crop rotation and advanced crop varieties, all supported by a strong marketing programme. These initiatives have propelled cereal yields to become among the highest in the world. Such commitment to high agricultural productivity could serve as a roadmap for other Arab countries within the limitations of their natural resources. For example, Morocco might have substantial potential, though it faces frequent droughts that might limit agricultural expansion. Sudan also has high potential but lacks adequate means to invest heavily in necessary infrastructure for irrigation and transportation. Iraq and Syria are still in the midst of sociopolitical strife, which hampers widespread agricultural investments.

One of the countries with the most promising potential, Morocco, could expand its production of wheat by 10.8 per cent and other cereals by 12.8 per cent by 2030 (Table 13). Morocco has already adopted an ambitious agricultural development plan, the Green Morocco Plan, which could serve as a blueprint for further yield enhancements. Across the region, increased yields by 7 to 8 per cent on average could present opportunities to consider further investments in areas such as water use efficiency, supplementary irrigation, wastewater reuse, peri-urban and urban agriculture, and improved seed technologies, among other options. Appropriate cost-benefit scenarios against less expensive alternatives would be needed. Feasibility assessments, accounting for sociopolitical issues, need to be carefully conducted, including related to rural development, land degradation, use of renewable and non-renewable resources, food security risks from heavily relying on trade, and assistance for those relying on agriculture for livelihoods.

The scenario results demonstrate that increasing cereal yields boost agricultural production in the region by around 9 per cent by 2030 compared to the baseline. The increase is more visible in countries where the scenario assumes the highest yield increases, such as the LDCs and countries in conflict. The value of production increases there between 2017-2019 and 2030 by around 50 per cent and 40 per cent, respectively. Domestic livestock production is hardly affected, however, given that it is based mainly on arid and semi-arid nomadic systems, whereas intensive systems that rely on imported cereals and meals as compound feed are relatively limited (Table 14). In the LDCs, livestock production is projected to increase by around 18 per cent between 2017-2019 and 2030.

Food demand remains at levels similar to the baseline, with staples and particularly cereals remaining the mainstay of diets. Furthermore, consumer preferences for sugar and fats and oils remain at baseline levels. In the LDCs however, where production increases the most, the per capita calorie availability rises by 8 per cent between 2017-2019 and 2030, allowing the region to improve its food security.

Yield improvements lower the agricultural trade deficit and decrease the net agricultural imports bill by about $10 billion by 2030. Subsequently, the self-sufficiency rate for cereals is projected to improve from 36 per cent in 2017-2019 to 53 per cent in 2030. As for production, the trade deficit improves the most in the LDCs, which not only increase domestic consumption of food and animal feed as mentioned above, but now become net exporters of cereals. The trade deficit improves as well in countries in conflict, although the net trade status remains as in the baseline (net importers of cereals).[4]

The simulation illustrates that improving cereal yields is a potential instrument to strengthen the region's resilience to global market price volatility as illustrated through the increased self-sufficiency rates. This could provide a buffer against spikes in global prices. Additional benefits of such increased productivity would be enhanced rural livelihoods and revitalization of rural areas. Necessary investments have to be considered against potential benefits, however. The food availability aspect of food security will not be significantly impacted by domestic production measures. Ensuring secured stable and reliable imports remains of utmost importance for food security throughout the region.

4 Simulations do not include the disposable income of consumers and therefore do not account for potential increases in domestic demand due to increased farm income.

Table 13. Evolution of yields (tonnes/hectare) in the yield improvement simulation

		BASE YEAR	BASELINE				YIELD IMPROVEMENT SCENARIO			
		2019	2020	2025	2030	Percentage growth 2019-2030	2020	2025	2030	Percentage growth 2019-2030
WHEAT										
LDCs	Mauritania	2.5	2.52	2.6	2.7	0.7	2.68	3.8	5.39	7.2
	Sudan	2.51	2.53	2.61	2.71	0.7	2.69	3.82	5.41	7.2
MICs	Algeria	2.22	2.23	2.27	2.32	0.4	2.38	3.32	4.64	6.9
	Egypt	6.62	6.58	7.05	7.61	1.3	No yield shock			
	Jordan	1.5	1.51	1.55	1.6	0.6	1.61	2.27	3.2	7.1
	Lebanon	2.8	2.82	2.91	3.02	0.7	3	4.26	6.04	7.2
	Morocco	1.55	2.08	2.23	2.4	4	1.72	2.87	4.8	10.8
	Tunisia	2.43	1.84	1.99	2.14	-1.2	2.56	3.31	4.28	5.3
GCC	Bahrain	1	1.03	1.1	1.19	1.6	No yield shock			
	Kuwait	1	1.03	1.1	1.19	1.6	No yield shock			
	Oman	3	3.02	3.12	3.23	0.7	3.22	4.56	6.46	7.2
	Qatar	1	1.03	1.11	1.19	1.6	No yield shock			
	Saudi Arabia	6.36	6.36	6.35	6.35	-0.02	No yield shock			
	United Arab Emirates	1	1.03	1.11	1.19	1.6	No yield shock			
CiCs	Iraq	2.61	2.62	2.69	2.78	0.6	2.79	3.94	5.55	7.1
	Libya	0.91	0.95	1.02	1.08	1.6	0.98	1.46	2.17	8.2
	Syria	1.73	1.82	1.97	2.13	1.9	1.87	2.83	4.26	8.6
	Yemen	1.03	1.08	1.19	1.28	2	1.12	1.69	2.56	8.6
TRADE (CONSTANT PRICES)										
LDCs	Mauritania	0.43	0.44	0.47	0.51	1.6	0.46	0.69	1.02	8.3
	Sudan	0.5	0.51	0.57	0.62	2	0.54	0.82	1.25	8.7
MICs	Algeria	2.42	2.44	2.48	2.55	0.5	2.59	3.63	5.1	7
	Egypt	3.49	3.59	3.83	4.13	1.5	No yield shock			
	Jordan	1.32	1.33	1.36	1.39	0.5	1.42	1.99	2.79	7
	Lebanon	2.06	2.07	2.12	2.17	0.5	2.21	3.1	4.35	7
	Morocco	0.82	1.33	1.42	1.53	5.9	0.92	1.68	3.07	12.8
	Tunisia	1.17	1.12	1.22	1.31	1	1.26	1.82	2.62	7.6
GCC	Bahrain	1	1.03	1.1	1.19	1.6	No yield shock			
	Kuwait	3	3.01	3.08	3.16	0.5	No yield shock			
	Oman	1.57	1.64	1.77	1.9	1.8	1.7	2.55	3.81	8.4
	Qatar	0.5	0.51	0.55	0.6	1.6	No yield shock			
	Saudi Arabia	2.7	2.59	2.8	3.02	1	No yield shock			
	United Arab Emirates	1	1.03	1.11	1.19	1.6	No yield shock			
CiCs	Iraq	1.09	1.09	1.11	1.14	0.5	1.15	1.54	2.06	6
	Libya	0.36	0.37	0.4	0.43	1.5	0.39	0.58	0.86	8.1
	Syria	1.5	1.51	1.53	1.57	0.4	1.61	2.25	3.14	7
	Yemen	0.35	0.43	0.42	0.47	2.7	0.38	0.6	0.94	9.4

MAIZE										
LDCs	Mauritania	0.71	0.8	0.91	1.05	3.7	0.78	1.28	2.11	10.5
	Sudan	2.8	2.83	2.88	2.96	0.5	3	4.21	5.91	7
MICs	Algeria	3	2.97	3.19	3.44	1.3	3.24	4.72	6.89	7.9
	Egypt	6.85	6.87	7.02	7.19	0.5	No yield shock			
	Jordan	25	21.8	23.42	25.21	0.1	No yield shock			
	Lebanon	3	3.08	3.32	3.57	1.6	3.25	4.81	7.14	8.2
	Morocco	0.89	1	1.07	1.15	2.4	0.97	1.49	2.3	9.1
	Tunisia	1	1.03	1.12	1.2	1.7	1.08	1.61	2.4	8.3
GCC	Bahrain	1	1.03	1.11	1.19	1.6	No yield shock			
	Kuwait	17.6	17.68	18.1	18.56	0.5	No yield shock			
	Oman	8.6	8.64	8.85	9.07	0.5	No yield shock			
	Qatar	1	1.03	1.11	1.19	1.6	No yield shock			
	Saudi Arabia	6.36	6.35	6.85	7.38	1.4	No yield shock			
	United Arab Emirates	28.47	30.14	32.41	34.92	1.9	No yield shock			
CiCs	Iraq	3.18	3.23	3.47	3.74	1.5	3.44	5.07	7.48	8.1
	Libya	3	3.06	3.27	3.49	1.4	3.24	4.75	6.98	8
	Syria	3.1	3.22	3.47	3.76	1.8	3.36	5.03	7.51	8.4
	Yemen	0.31	0.5	0.55	0.6	6.3	0.35	0.64	1.2	13.2
RICE										
LDCs	Mauritania	0.71	0.8	0.91	1.05	3.7	0.78	1.28	2.11	10.5
	Sudan	2.8	2.83	2.88	2.96	0.5	3	4.21	5.91	7
MICs	Algeria	3	2.97	3.19	3.44	1.3	3.24	4.72	6.89	7.9
	Egypt	6.85	6.87	7.02	7.19	0.5	No yield shock			
	Jordan	25	21.8	23.42	25.21	0.1	No yield shock			
	Lebanon	3	3.08	3.32	3.57	1.6	3.25	4.81	7.14	8.2
	Morocco	0.89	1	1.07	1.15	2.4	0.97	1.49	2.3	9.1
	Tunisia	1	1.03	1.12	1.2	1.7	1.08	1.61	2.4	8.3
GCC	Bahrain	1	1.03	1.11	1.19	1.6	No yield shock			
	Kuwait	17.6	17.68	18.1	18.56	0.5	No yield shock			
	Oman	8.6	8.64	8.85	9.07	0.5	No yield shock			
	Qatar	1	1.03	1.11	1.19	1.6	No yield shock			
	Saudi Arabia	6.36	6.35	6.85	7.38	1.4	No yield shock			
	United Arab Emirates	28.47	30.14	32.41	34.92	1.9	No yield shock			
CiCs	Iraq	3.18	3.23	3.47	3.74	1.5	3.44	5.07	7.48	8.1
	Libya	3	3.06	3.27	3.49	1.4	3.24	4.75	6.98	8
	Syria	3.1	3.22	3.47	3.76	1.8	3.36	5.03	7.51	8.4
	Yemen	0.31	0.5	0.55	0.6	6.3	0.35	0.64	1.2	13.2

Source: FAO, Aglink-Cosimo projections.

Table 14. Regional results for selected indicators of the yield improvement simulation

	2007-2009	2017-2019 base	2020-2021	2030	Percentage change, base to 2030	Growth 2010-2019, percentage	Growth 2020-2030, percentage
PRODUCTION							
Net value agricultural production (thousands of dollars)	63.49	71.90	73.63	92.91	29.23		
Net value crops (billions of dollars)	10.83	11.61	12.66	20.30	74.79	1.14	4.58
Net value other crops (billions of dollars)	33.33	39.39	40.43	50.00	26.92		
Net value of livestock production(billions of dollars)	19.33	20.47	20.55	22.62	10.51	0.25	0.88
DEMAND AND FOOD SECURITY							
Daily per capita caloric availability (kilocalories)	2,833.93	2,885.19	2,853.57	2,914.95	1.03	0.03	0.21
Per capita food availability (kilograms)							
Staples	224.15	222.02	220.10	224.49	1.11	-0.11	0.20
Meat	28.53	28.92	25.75	28.84	-0.21	-0.16	0.20
Dairy	13.38	11.53	11.04	11.79	2.24	-1.40	0.60
Sugar	32.74	33.86	34.31	37.63	11.15	0.75	0.90
Vegetable oil	11.83	14.27	14.23	15.02	5.32	2.78	0.55
TRADE (CONSTANT PRICES)							
Net trade (billions of dollars)	-24.56	-36.22	-37.91	-41.90	15.69	3.23	0.88
Net value of exports (billions of dollars)	4.03	4.33	3.90	4.99	15.11	0.18	2.29
Net value of imports (billions of dollars)	28.59	40.55	41.81	46.88	15.63	2.85	1.02
TRADE (NOMINAL PRICES)							
Net trade (billions of dollars)	-36.69	-48.87	-46.27	-61.98	26.83	0.37	2.63
Net value of exports (billions of dollars)	5.83	5.80	4.84	7.19	23.91	-2.65	3.80
Net value of imports (billions of dollars)	42.52	54.67	51.11	69.17	26.52	-0.02	2.75
SELF-SUFFICIENCY RATIO							
Cereals	42.78	36.35	38.05	53.67	47.64		
Meat	69.03	65.04	64.95	62.86	-3.36		
Sugar	25.96	27.43	27.43	31.20	13.75		
Vegetable oil	23.03	22.60	22.60	21.52	-4.77		

Note: The net value of agricultural and fisheries output is based on the set of commodities represented in the Aglink-Cosimo model. The self-sufficiency ratio is calculated as Production / (Production + Imports - Exports). Staples comprise cereals, pulses, roots and tubers. Growth is per annum compound growth.

D. Lebanon case study: A triple burden of COVID-19, currency devaluation and economic downturn

The COVID-19 pandemic hit Lebanon at a time when the country was facing a grave economic and political crisis. Based on a World Bank simulation, the initially estimated 5 per cent drop in GDP in 2019 is projected to further drop to -19.2 per cent in 2020 (World Bank, 2020b). There is wide variation in unemployment rates. ESCWA (2020a) estimates that 13 per cent of people will be unemployed by 2022, while the World Bank shows a severe rise in unemployment from a 2019 value of 12 per cent to more than double that amount in 2020, reaching 30 per cent (Abi-Rached and Dlwan, 2020) or 2 million people unemployed by the end of 2020. More than 50 per cent of people are expected to have problems meeting basic food needs by the end of 2020 (ESCWA, 2020h).

Table 15. Changes in the prices of common Lebanese commodities

Type	Unit	Average price in November 2019 (LBP)	Average price in November 2020 (LBP)	Price change (percentage)
144 per cent change* in vegetable prices				
Tomato	1 kilogram	1,639	6,287	284
Potato	1 kilogram	1,181	2,798	137
Cucumber	1 kilogram	1,442	4,324	200
Zucchini	1 kilogram	1,746	5,238	200
Carrots	1 kilogram	1,416	3,420	142
128 per cent change* in fruit prices				
Oranges	1 kilogram	1,582	3,038	92
Local banana	1 kilogram	1,466	3,377	130
Lemon	1 kilogram	1,749	4,029	130
95 per cent change* in meat prices				
Fresh lamb meat (local)	1 kilogram	28,513	58,645	106
Fresh beef meat (local)	1 kilogram	16,491	36,558	122
Whole chicken	1 kilogram	5,818	13,401	130
122 per cent change* in egg and dairy product prices				
Powdered milk	1 pack of 2.5 kilograms	28,250	49,995	77
Egg	30 pieces	6,419	16,666	160
Labneh	1 pack of 500 grams	6,027	10,137	68
232 per cent change* in grains, seeds and nut fruits				
Rice	1 kilogram	2,566	2,824	10
Flour	1 kilogram	5,170	11,721	127
Red lentils	1 kilogram	3,512	9,999	185
195 per cent change* in fat and oil products				
Olive oil	3.6 litres	48,439	117,016	142
Sunflower oil	3.5 litres	11,557	49,212	326
182 per cent change* in miscellaneous food items				
Sugar	1 kilogram	1,336	3,597	169

Source: FAO Ministry of Economy and Trade-Lebanon. See: http://www.economy.gov.lb/en/services/center-for-pricing-policies/mini---basket-weekly-.

Note: *The number is representative of commodities identified by the Ministry.

On 4 August 2020, the capital, Beirut, was devastated by a chemical explosion[5] that resulted in the destruction of Lebanon's main port, the site of 80 per cent of the country's trade through the sea (WFP, 2020). National grain reserves stored in silos at the port were lost, resulting in prices of subsidized bread increasing by a third (LBP 1,500 to 2,000).

Lebanon's deteriorating economic situation and COVID-19-induced GDP shock (ESCWA, 2020h) have prompted wide variations in the dollar exchange rate against the Lebanese pound, from LBP 1,508 as the official rate in banks, to LBP 3,900 as the official rate for local dollar withdrawals, to a black market rate of more than LBP 7,500 as dollars became a scarce commodity. The loss of purchasing power is intense and mostly felt by middle-and lower-income groups, who earn in Lebanese pounds and have no other sources of income in foreign currencies. Overnight, people lost access to their money reserves and, simultaneously, the value of their earnings dropped, while the prices of all consumables and products increased, including food supplies.

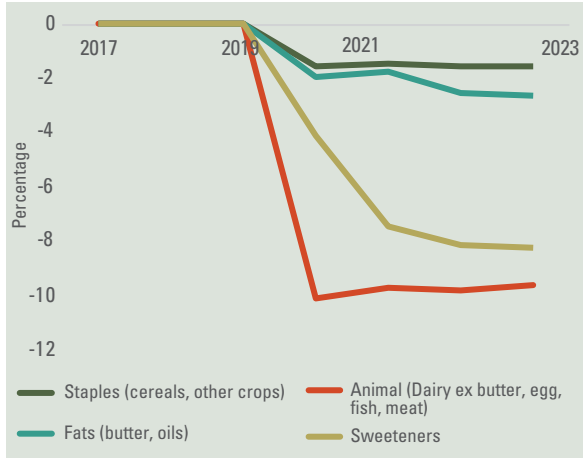
Table 15 shows price changes for selected vegetables, fruits, meat, dairy and grains. Although the ministries of agriculture and economy and trade issued fixed prices for meat products, price fluctuations can be easily found in the market. The following section simulates changes in calorie availability, agricultural trade and self-sufficiency rates, taking into consideration a post-COVID-19 baseline scenario and a dollar exchange rate scenario from LBP 1,508 to LBP 3,900.

Scenario analysis: Dollar exchange rate changes from LBP 1,508 to LBP 3,900

Compared to the 2019 inflation rate of 2.9 per cent, inflation in Lebanon is expected to reach an annual average of over 50 per cent in 2020 (ESCWA, 2020h). The loss of purchasing power has rendered 40 per cent of Lebanese households unable to satisfy their food requirements and other basic needs (World Bank, 2020b), consequently jeopardizing their food security. As such, the projected calorie availability per capita per day, for all commodities, was investigated under the increased exchange rate scenario, taking the post-COVID-19 projections as a baseline value (Figure 18). A negative response in calorie availability is expected for all commodities as prices are directly linked to the dollar-LBP exchange rate. The highest decrease is estimated in commodities of animal origin followed by the decrease in available calories from sweeteners and fats. Calorie availability from staples – cereals and other crops – was least affected due to the low-income elasticity specifically on wheat, which is subsidized by the Government. Besides the overall reduction in food consumption, the expected declining quality of diets is a concern.

Projections of the impact of increased exchange rates on the Lebanese agricultural trade balance[6] imply a 21 per cent decrease

Figure 18. Percentage difference in the calorie availability for different commodities in Lebanon between the post-COVID-19 and exchange rate scenarios



Source: FAO, Aglink-Cosimo projections.

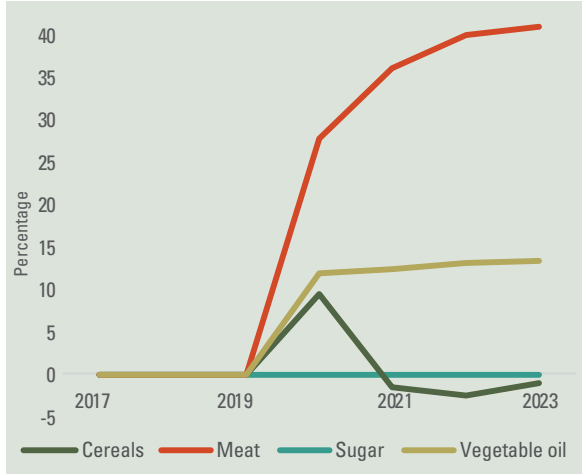
5 The port explosion killed 204 people and displaced 300,000 inhabitants. Many people including children have yet to overcome the tragedy.

6 As discussed earlier, the authors used a post-COVID-19 scenario as a baseline.

Figure 19. Percentage difference in agricultural trade balances in Lebanon in constant value, post-COVID-19 versus exchange rate scenarios

Source: FAO, Aglink-Cosimo projections.

Figure 20. Differences in self-sufficiency rates for selected commodities in Lebanon between post-COVID-19 and exchange rate scenarios



Source: FAO, Aglink-Cosimo projections.

in the agricultural trade balance by 2020. Figure 19 compares post-COVID-19 projections with those of the exchange rate scenario. Net trade for each scenario is calculated as the difference between imports and exports of commodities covered in the agricultural outlook in billions of dollars measured at constant 2004-2006 prices. The decrease in liquidity amid a devaluation of the Lebanese currency is coupled with a decrease in exports due to implemented trade restrictions, and an increase in the costs of imports due to the decrease in the availability of foreign currency.

The exchange rate scenario shows an uncompensated drop in imports due to the decrease in quantities consumed following the purchasing power reduction. On the flip side, the self-sufficiency ratio of meat increases by 44 per cent, followed by vegetable oil with an increase of 14 per cent (Figure 20). The share of food in overall expenditures is expected to reach over 85 per cent for the most vulnerable households (ESCWA, 2020e).

If this challenging situation remains as projected, the recovery will be longer and more difficult, and require diverting expenditures from other economic sectors to food procurement. The challenges can be mitigated by addressing political instability and initiating necessary reforms in all sectors. There is an urgent need to implement an emergency food security plan that includes measures to monitor and stabilize market food prices, including for agricultural inputs; to subsidize essential food commodities for vulnerable groups; and to expand existing social welfare and food assistance programmes.

E. Yemen case study: COVID-19 compounds multiple crises to worsen food insecurity

1. The impact of conflict on food security and health

The high level of food insecurity in Yemen is largely a result of the deteriorating sociopolitical situation that has prevailed since 2004 and worsened due to the armed conflict since 2015. Food insecurity has become so entrenched that it is bending towards famine in several regions and among the most vulnerable populations.

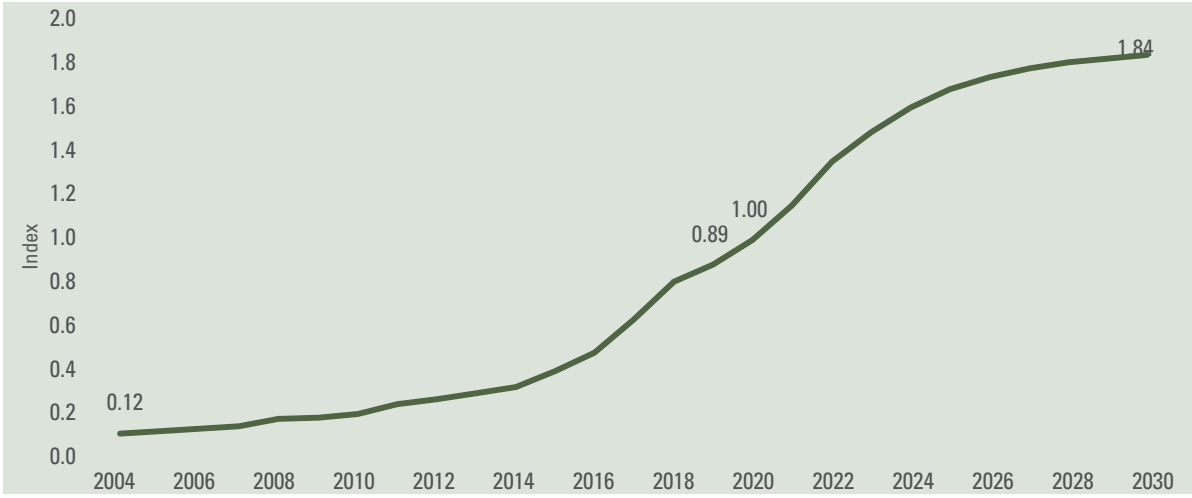
Ongoing armed conflict has entrenched a serious economic crisis resulting in a loss of livelihoods. Millions of people lack means to acquire food and other basic items, and rely on humanitarian assistance.

The conflict has closed or blocked ports, which has reduced commercial imports of food and other commodities such as fuel, and affected many areas of the economy, including the agricultural sector. Crucial activities such as cropping and farming or irrigating fields have declined. Since Yemen imports up to 90 per cent of the food it needs, commercial food availability was drastically curtailed, leading to substantial hikes in prices. Worsening inflation has been growing at a faster rate since 2015 and is not expected to level off until the middle of this decade (Figure 21). With an intensification of the armed conflict since 2015, many people have lost their jobs. Even those still employed including in government positions face intermittent salaries. As a result, 24 million people out of 30 million Yemenis or about 80 per cent are in a precarious food security situation, with many relying on humanitarian assistance for survival (Oxfam, 2017; Lootsma, 2020) (see box 15).

2. COVID-19 further worsening the situation

The conflict in Yemen has worsened overall macroeconomic conditions. The Yemeni rial (YER) has continued to lose its value although

Figure 21. Inflation in Yemen 2004-2030 (base year 2020)



Source: ESCWA, 2020a (background data).

Box 15. Impact of extreme food insecurity

Extreme food insecurity over long periods of time tends to further weaken people, making them more susceptible to other diseases. In early 2017, up to 8.4 million people in Yemen had been on the brink of famine for a sustained time. More than 1.2 million people were impacted by an outbreak of cholera; 2,500 cases were fatal, and 58 per cent of the cases reported were among children. The cholera outbreak was one of the largest in recorded history, and it is thought that it spread easily and with deadly consequences because of precarious living conditions. The widespread destruction of water and sanitation infrastructure due to ongoing conflict likely hastened the contagion. An inadequate and underequipped health-care system was rapidly overwhelmed as it was already struggling to address prolonged malnutrition (Federspiel and Ali, 2018).

Figure 22. Nominal dollar exchange rate

Source: ESCWA, 2020a (background data).

different rates have prevailed between the southern and northern parts of the country. In the south, the exchange rate reached 820 YER per dollar in September 2020, while in the north it was 600 YER per dollar compared to a rate of about 200 YER per dollar in the early 2010s. The rate is projected to rise further by 2030 (Yemen FEWS NET, 2020; ESCWA, 2020a).

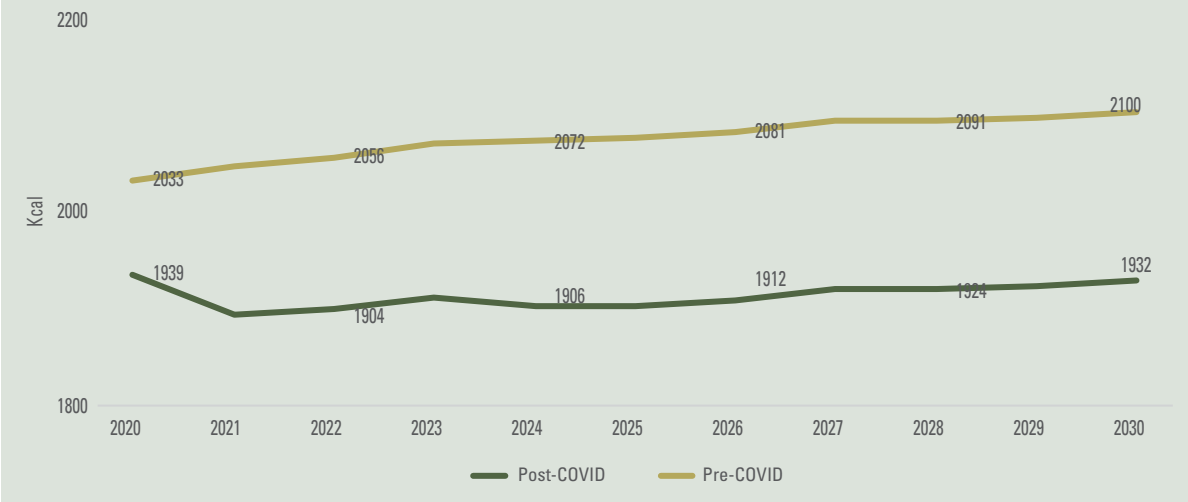
As a result, the minimum food basket was 56,000 YER in some areas of the southern governorates where inflation is highest.

Table 16. Change in average prices in Yemen, August 2020

Commodity/item	Mid-August	Price change	
		6 months, percentage	1 year, percentage
Exchange rate (dollar per YER)			
South	758	-14	-23
North	598	0	-3
Minimum food basket (YER per person per month)	5,760	9	21
South	6,318	18	32
North	5,295	2	11
Wheat flour (YER per kilogram)	321	13	19
Rice (YER per kilogram)	967	9	11
Vegetable oil (YER per kilogram)	720	25	47
Sugar (YER per kilogram)	437	24	40
Beans (YER per kilogram)	968	16	17
Diesel (YER per litre)	457	19	21
South	423	21	35
North	485	17	12
Petrol (YER per litre)	420	26	19
South	341	2	5
North	487	36	29

Source: WFP-Yemen, 2020.

Figure 23. Caloric supply before and after COVID-19, kilocalories



Source: FAO, Aglink-Cosimo projections 2020.

This was more than 20 per cent higher than the national average. A shortage of fuel has increased costs throughout the food supply chain, including for transportation, food processing and water pumping for irrigation (Table 16). Prices of vegetable oil, sugar and red beans have increased even further in the south by 54, 46 and 43 per cent, respectively, while the price of wheat flour increased 33 per cent. Fuel prices rose up to 35 per cent in selected areas due to added restrictions following the outbreak of COVID-19 (Yemen FEWS NET, 2020).

When the COVID-19 pandemic reached Yemen, it found fertile ground as many Yemenis suffered from acute malnutrition, respiratory infections, malaria, dengue fever and the frequent outbreak of cholera. These further weaken health, even as many people lack means to seek required health care. Though the WHO (2020) estimates that Yemen has slightly more than 2,000 confirmed cases of COVID-19 with about 600 deaths as of 8 December 2020, it is believed that cases are underreported. UNDP estimated that up to 30 per cent of cases result in fatality compared to a world average of 3 per cent (Lootsma, 2020).

The pandemic has also worsened livelihoods as remittances from Yemenis living abroad, which usually provided up to $3.5 billion annually, decreased by up to 70 per cent due to the recession, particularly in the GCC countries following the sharp drop in oil prices and the impact of COVID-19. Millions of Yemeni families who depended on those remittances joined the ranks of those seeking humanitarian assistance, with many expected to remain on assistance for long period of time, and caloric availability remaining well below their estimated levels pre-pandemic (Lootsma, 2020; FAO, Aglink-Cosimo projections 2020). Approximately 17 million to 19 million people are at risk of famine if the situation does not improve soon, particularly women and children who are most at risk in conflict situations (Yemen FEWS NET, 2020).

Even though the situation is anticipated to improve slightly, with the easing of some COVID-19 control measures particularly in urban areas and a resumption of remittance receipts, livelihoods will remain significantly constrained with millions of people continuing to rely on humanitarian assistance.

F. Recommendations for action

Food security in the Arab region was at risk prior to COVID-19. The pandemic further exposed regional vulnerabilities and food security challenges. The projections above have analysed the impact of COVID-19 on food supply and demand by 2030 along with two plausible scenarios on price hikes and yield enhancement. In addition, two case studies on Lebanon and Yemen were discussed. The objective is to help member countries consider priority food security actions to enhance resilience in the coming years. Below are additional key actions to be considered.

- Support economic development as it is key to enhancing food access, which provides more avenues for enhancing food security than focusing on food availability alone. Macroeconomic stability such as sound public finances could mitigate inflation so that temporary food price fluctuations would not transmit into higher consumer spending, notably for the poor and most vulnerable;
- Promote a stable regional and global sociopolitical and economic environment that could help avert trade restrictions, regardless of their causes, including from a pandemic such as COVID-19. This requires ensuring that regional and global supply chains are resilient and world stocks are sufficient for a determined period to weather trade restrictions or sudden price hikes, and work for all, particularly vulnerable and food import-dependent countries;
- Support the development of intraregional trade. This could provide opportunities for the region to weather potential trade restrictions in times of crisis, while offering better utilization of regional resources, including natural, financial and human. These would arise from opportunities offered by an increased exchange of goods and services, and greater labour mobility;
- Support rural income and development through investments aimed at increasing yields wherever achievable sustainably by promoting, among others, agricultural innovation, including improved technologies for more efficient water use, wastewater treatment, seed technology, and urban and peri-urban agriculture;
- Integrate trade as part of food security strategies and as a means of economic growth. The COVID-19 crisis provides an opportunity to advance agriculture modernization and transformation and to boost productivity and enhance resilience, keeping in mind environmental constraints and sustainability.

Regional

- Undertake joint investment and partnership in countries with relatively high production potential. Despite potential increases in domestic production, no country can achieve food self-sufficiency and reduce food import dependency on its own. Countries have the opportunity to cooperate in ways that complement each other's economic and competitive advantages through enhanced regional links. Disruption to global supply chains offers a chance to enhance food security at the regional level through comprehensive policies such as those of the European Union (Common Agricultural Policies) and the African Union (Comprehensive Africa Agricultural Development Programme). These can aim at enhancing production where possible while allowing greater and freer regional agricultural trade;
- Support the regional joint water and agricultural coordination mechanism, coordinated by the League of Arab States, to put forward harmonized regional policies for these two key sectors;
- Explore policy options to mitigate the potentially negative effects of integrating agriculture in preferential trading agreements, and to increase benefits in terms of food security, employment and exports.

THE WAY FORWARD: Enhancing Food Security Resilience in the Wake of COVID-19 Shocks

V. The Way Forward: Enhancing Food Security Resilience in the Wake of COVID-19 Shocks

Arab countries are challenged by fragile food security, which is expected to deteriorate further in the near future due to the negative effects of the COVID-19 pandemic. In response, Arab governments have renewed their focus on food availability and access, while also acknowledging the tight food and health nexus. The pandemic provides an opportunity to reimagine food security in the Arab region and "build it back better".

Food security involves a complex and integrated ecosystem that goes from farm to fork, and from individual to national to global levels. Food security-related policymaking is inherently complex, multidimensional and spread across socioeconomic factors and natural resources. It involves a set of diverse stakeholders interacting with each other, including different public institutions, farmers, households, communities, businesses, academia and research centres, and civil society institutions. Addressing food security in the region requires vision, and governance mechanisms that enhance the agility, robustness and functioning of the region's food systems for all.

Building resilience to rising food insecurity to allow countries and communities to withstand and recover from shocks that affect it, be they natural (floods, drought, climate change), human-made (conflicts, social unrests, trade restriction), market-based (market volatility, price hikes) or health related (COVID-19) has to become an urgent key policy objective to allow countries to meet their commitments to the SDGs by 2030. Building resilience entails preparing for, protecting against, enhancing responses to and recovering from short-, medium- and long-term shocks. Countries and all actors from the regional to the subregional, national and community levels should embrace an emphasis on resilience. This starts with addressing regional vulnerabilities through careful assessment and prevention programmes aimed at identifying early signs of shocks and acting quickly to minimize their impacts on food security.

The region needs to strengthen existing mechanisms, and develop effective institutions and programmes flexible enough to respond to sudden shocks to food security. Building resilience will entail measures to:

- Ensure that the food supply chain is working as intended, and that the necessary infrastructure and appropriate incentives are in place. Food must be available at all times and reach all corners of any given country. Steps should be taken to reduce food loss and waste;
- Ensure that plans to address food insecurity are in place and able to respond to food shortages and provide food assistance in case of limitations in social safety nets;

- Promote healthy diets and implement more robust social protection programmes to ensure vulnerable people have access to safe, sufficient and nutritious food to address under- and overnutrition;
- Ensure constant monitoring of food security status through data and information collection, evaluation and dissemination, which would include building effective early warning programmes and utilizing appropriately innovative technologies;
- Leverage existing resources at the country and community levels to arrest problems as they arise, and distribute and reallocate limited resources;
- Strengthen multistakeholder collaboration across groups of actors and sectors to achieve greater impacts on food security and nutrition.

In addition to these measures, specific strategies to address the consequences of COVID-19 in the short, medium and long terms are detailed below.

In the short to medium terms, governments are expected to prioritize addressing macroeconomic difficulties such as currency devaluation, poverty and unemployment, insufficient social safety nets for the poor and food subsidies. This may involve higher cooperation with the international community along with stronger regional collaboration to alleviate the effects of the pandemic. Since there is still great uncertainty around how long the pandemic will last, promoting local agricultural production remains an important component of a food security strategy, where natural resources and infrastructure are available, as in Algeria, Egypt, Morocco, Lebanon, Sudan and Tunisia.

At the same time, natural resource constraints can be mitigated if countries can invest heavily in technological innovations such as aquaponics, vertical agriculture, water efficiency technologies, urban and peri-urban agriculture, remote sensing and modernized integrated farming systems, among many others. The region can draw lessons from the water-energy-food nexus to maximize resource efficiency. While agricultural production helps enhance food security, support to the agricultural sector can also develop rural areas, and protect natural resources and biodiversity for future generation.

Given natural resource constraints, namely in terms of water and arable land, domestic agricultural production must be continuously re-evaluated in the mid-to long term to avoid further depletion of resources, for example through more emphasis on virtual water trade.[1] Trade will continue to play an important role in promoting food availability and access, and as such, countries may consider facilitating practices to reduce procedural and administrative bottlenecks, and boost intraregional trade to strengthen resilience to global shocks.

In the medium to long term, the private sector needs to focus on food processing to aid the development of a profitable, sustainable and inclusive regional food industry. This would present an opportunity to engage available human capital, with a young and educated population one of the region's most promising assets. In the medium to long term, the region will benefit from further trade liberalization, while a monitoring system to track food prices, food production, export potentials and market access could further enhance food security.

1 Virtual water refers to water embedded in the production of agricultural products.

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ANNEXES

Annex 1. Selected national measures to address the COVID-19 pandemic

Country	Measures		Measures 2	
	Start date	End date/start of eased restrictions with curfew	Start date	End date/start of eased restrictions with curfew
Algeria	27 March 2020	7 June 2020 (73 days)	Partial lockdown 9 August 2020	31 August 2020
Bahrain	26 March 2020	7 May 2020 (50 days)		
Comoros	30 April 2020	Missing – NA		
Djibouti	18 March 2020	17 May 2020 (61 days)		
Egypt	16 March 2020	30 April 2020 (45 days)	Fines imposed on residents who do not apply hygiene and social distancing measures to avoid another lockdown to save the economy	
Iraq	24 March 2020	14 June 2020 (82 days)		
Jordan	18 March 2020	21 April 2020 (34 days)	6 October 2020 Lockdowns on Fridays and Saturdays	
			11 November 2020	14 November (4 days)
Kuwait	12 March 2020	31 May 2020 (79 days)		
Lebanon	22 March 2020	18 May 2020 (57 days)	14 November 2020	30 November 2020
Libya	15 April 2020	1 September 2020 (borders opened, but eased restrictions were implemented before)	31 July 2020	5 August 2020
			26 August 2020	31 August 2020
Mauritania	19 March 2020	7 May 2020		
Morocco	18 March 2020	11 June 2020 (74 days)		
Oman	10 April 2020	27 May (47 days)	25 July 2020	7 August 2020
			11 October 2020	24 October 2020
State of Palestine	05 March 2020	5 May 2020 (61 days)	22 June 2020	27 June 2020 (in Nablus)
			3 July 2020	8 July 2020 on all governorates
Qatar	11 March 2020	8 June 2020 (90 days)		
Saudi Arabia	3 March 2020	21 June 2020 (11 days)		
Somalia	19 March 2020	23 June 2020 (96 days)		
State of Palestine	5 March 2020	5 May 2020 (61 days)	22 June 2020	27 June 2020 (in Nablus)
Sudan	18 April 2020	7 May 2020 (25 days)		
Syria	1 April 2020	29 April 2020 to 26 May 2020 (27 days)		
Tunisia	22 March 2020	4 May 2020 (43 days)		
United Arab Emirates	22 March 2020	24 April 2020 (33 days)	5 November 2020; stricter lockdown measures but not a complete lockdown	Now
Yemen	14 March 2020	12 July 2020 (120 days)		

Annex 2. Background on simulations

The baseline simulation builds on the pre-COVID outlook but adopts the June forecast of the World Bank (2020a), based on which, due to the COVID pandemic, real GDP in 2020 is expected to drop by around 4.2 per cent against 2019 in the Middle East and North Africa. In 2021, the economies are expected to start recovering, with real GDP growing by around 2.3 per cent (against 2020). The scenario assumes that all countries should return to their pre-COVID-19 yearly growth rates after 2022 but should not resume their pre-COVID-19 expected levels of economic output, suggesting a so-called L-shaped recovery for the medium term.

Subsequently, the inflation rate has been adjusted, albeit following the April 2020 update of the IMF's World Economic Outlook (IMF, 2020a), because of the lack of more recent information, such as the June forecast of the World Bank's Global Economic Prospects (World Bank, 2020a). The inflation rate due to COVID-19 increases compared to the pre-COVID-19 outlook, which is alone a factor that will put pressure on domestic prices.

The effects of COVID-19 on energy markets and energy costs are reflected in the evolution of crude oil prices, referenced from the World Bank (2020b). The scenario sets crude oil prices in 2020 and in 2021 to around $36 per barrel and $40 per barrel respectively. The scenario assumes that crude oil prices shall return to the pre-COVID-19 medium-term evolution from 2023 and onwards, whereby 2022 serves to smooth the recovery of prices.

Restrictions on the movements of people and goods due to lockdowns and/or concerns of countries for their self-sufficiency resulted in trade disruptions. The scenario captures this following the WTO quantifications of the respective trade costs affecting imports and exports of all commodities in the different countries (WTO, 2020b). The scenario assumes higher trade costs not only for 2020 but also for 2021, given the limited capacity of customs offices, ports, airports and transportation companies to resume operations at full scale.

Restrictions on the movements of people also results in disruptions in economic activities because workers who could not telework either could not go to their working place at all for some period of time or had to work only part time and on a rotating basis. Such effects in agricultural activities resulted on average in lower labour productivity and affected mostly labour-intensive production (for example, meat processing activities and the harvest of fruits and vegetables). The scenario captures this by assuming higher labour costs in 2020, following quantifications of the respective productivity losses by the WTO (2020b) and in McKibbin and Fernando (2020). Such restrictions, however, affect agricultural production mostly in countries with intensive production systems and with processing activities in place (e.g., meat processing) and not so much countries in which agricultural production is rather family-based and involves extensive production systems, such as arid and semi-arid when it comes to crops, and nomadic and semi-nomadic when it comes to livestock.

The effects of COVID-19 are also seen in fiscal and external balances. The scenario assumes a deeper devaluation of the foreign exchange rates particularly of Lebanon, Sudan and Yemen in 2020, compared to the pre-COVID-19 projections (following the June 2020 spot exchange rates). This in turn is expected to put further pressure on the trade balance of countries. Until 2030, the scenario assumes constant real effective exchange rates.

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As the COVID-19 pandemic swept through the world, food security vulnerabilities further weakened the Arab region's ability to respond. Pre-pandemic, the region's food security situation showed that up to 27 per cent of the population (116 million people) experienced food insecurity. Undernourishment and adult obesity were rampant, affecting 10 and 26 per cent of the population, respectively. The present report analyses the disruptions caused by the COVID-19 pandemic regarding food availability, unequal access and deficient utilization, including changes in consumer behaviours. It also puts in context rising vulnerabilities in terms of natural resources scarcity, socioeconomic shocks, food import dependency, and the increasing impact of conflict.

The report highlights that although conditions are expected to improve in 2022 in the aftermath of the COVID-19 pandemic, food supply will remain a challenge as local availability will be slightly lower than projected levels before the pandemic. Cereal production has been and will remain below 40 per cent of requirements and given its sizable contribution to the diet, the region will continue to depend on global markets for its food needs. Crises-affected countries face complex food security challenges owing to economic shocks, destroyed infrastructure, socio-political crises and armed conflict, whose impact deepened during the pandemic. Addressing food security in the region will require vision and governance mechanisms that enhance the agility, robustness and functioning of food systems. Governments need to address existing macroeconomic difficulties, while responding to rising natural resource constraints through technological innovations, regional collaboration and partnerships, support to the private sector, and the development of a sustainable and inclusive regional food industry.

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