

MIDDLE EAST, NORTH AFRICA,
AFGHANISTAN, AND PAKISTAN
DEVELOPMENT REPORT

Building Food Security, Creating Jobs

Policy Pathways for the Region



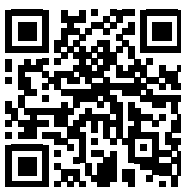
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Building Food Security, Creating Jobs

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AND PAKISTAN DEVELOPMENT REPORT

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Policy Pathways for the Region

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- “Food Security in MENAAP: Assessing the Present, Forecasting the Future, and Shaping the Response” (2026): Bo Pieter Johannes Andrée, Erwin Knippenberg, Julius Adewopo, and Steve Penson
- “The State, Drivers and Evolution of Food Demand in MENAAP” (2026): Reem Alsukait, Anne Marie Provo, Chiara Dell’Aira, Rebekah Kathryn Pinto, Juul Pinxten, Wiem Jinzri, and Ugo Gentilini
- “The State, Trends and Drivers of Domestic Food Supply in MENAAP” (2026): Sebastian Heinz, Xiaoyue Hou, Andrea Kutter, Sandrine Jauffret, Kanako Hasegawa, Pavel Sierra, Adeel Abbas, Azka Shoaib, Gabriella Izzi, Chris Fischer, Sergiy Zorya, Melody Tamer, and Robert Mansour Harrison, with inputs and data from experts from WorldFish (Chin Yee Chan, Ka Yi Karen Chung, and Evren Sar) and the International Food Policy Research Institute (IFPRI) (see below)
- “Food Trade in MENAAP” (2026): Massimiliano Calì, Giorgio Presidente, and Zeinab Elbeltagy
- “Fragile, Conflict and Violent Contexts and Food Security” (2025): Hadi Fathallah, Melody Tamer, Esther Laske, Laura Moreno Herrera, Bo Andrée, Phoebe Spencer, Vanina Forget, and Jan von der Goltz

- “Policy Scenarios in MENAAP with IMPACT Model” (2025), conducted by IFPRI: Mark W. Rosegrant, Timothy B. Sulser, Abhijeet Mishra, Nicola Cenacchi, Sherwin Gabriel, Keith Wiebe, and Dirk Willenbockel
- “Transforming Agrifood Jobs in MENAAP: Pathways to Food and Nutrition Security” (2026): Jan von der Goltz, Aziz Atamanov, Gianluigi Nico, Vanina Forget, Ganesh Seshan, Erwin Knippenberg, Stefania Rodica Cnobloch, Bruno Paz, and Hina Khan Sherwani, with original data from One-to-One and Arab Barometer.

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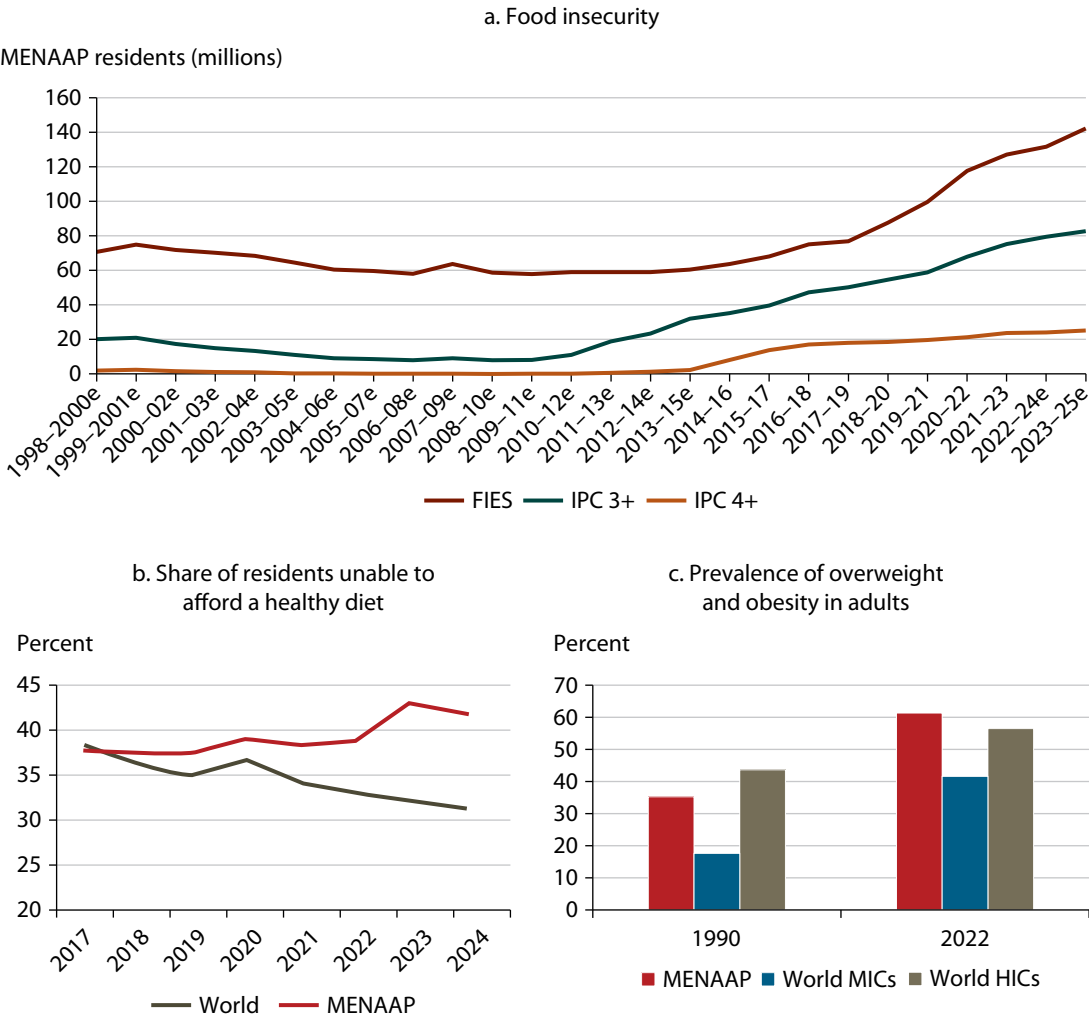
Executive Summary

The Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region can bolster food and nutrition security and create more and better jobs if it pursues more ambitious and coherent investments and policies and empowers the private sector. While countries differ widely, all face challenges in ensuring food and nutrition security (FNS)—and all share opportunities for creating more and better jobs in their agrifood systems (AFSs). This report offers three central insights. First, more ambitious investment and policy making are needed to meet the moment. Second, policy cannot succeed unless it leverages opportunities across the economy, beyond the AFS: it needs to empower consumers to access nutritious food, but also needs to boost production, ensure more sustainable water and land use, leverage trade, and create a business environment that lets the private sector thrive. Third, with such an improved business environment, the private sector can do far more.

WHY THINK ABOUT REGIONAL FOOD AND NUTRITION SECURITY?

Regional food insecurity is at a historically high level, with one in every six residents lacking secure access to food and 82 million residents suffering crisis levels of food insecurity. An estimated 142 million people in the region experience self-reported food insecurity (refer to figure ES.1). The share of those affected has risen from 12 percent of the population in 2003–05 to 18 percent in 2023–25.¹ This level of food insecurity—second highest among the world’s regions—imposes a significant health and economic burden and challenges political stability.

FIGURE ES.1
Evolution of Different Dimensions of Food and Nutrition Security in MENAAP



Sources: Panel a, World Bank, World Food Security Outlook (WFSO), April 2025 data. Panel b, FAO (<https://www.fao.org/faostat/en/#data/CAHD>) and World Bank (<https://databank.worldbank.org/source/world-development-indicators>). Panel c, WHO Global Health Observatory (<https://www.who.int/data/gho/data/indicators>).

Note: e = estimated; FIES = Food Insecurity Experience Scale; IPC = Integrated Food Security Phase Classification; HICs = high-income countries; MICs = middle-income countries.

Conflict is the chief cause of outright hunger, but food affordability and poor nutrition are also middle-class problems and affect the region much more broadly. Food and nutrition security concerns all the region's countries. In MENAAP, nothing is as strongly associated with hunger and malnutrition as conflict: the region's economies affected by fragility, conflict, and violence (FCV) are home to over four in five of those living through a food insecurity crisis (IPC Phase 3 or above). At the same time, 42 percent of people in the region cannot afford a nutritious diet. Most of them live in the region's middle-income countries (MICs), with Pakistan (151 million) and the Arab Republic of Egypt (66 million) home to the largest groups. Poor nutrition outcomes are common, with nearly two-thirds (62 percent) of adults overweight and fewer than two out of every five children benefiting from minimum dietary diversity. Strikingly, being overweight is a common condition both in the region's conflict-affected economies (55 percent), where it coexists with high food insecurity, and in the region's wealthiest countries (72 percent in Gulf Cooperation Council [GCC] countries), far exceeding its prevalence in global high-income countries (HICs) (56 percent) (refer to figure ES.1).

KEY MESSAGE 1: BEFORE INVESTING MORE, THE REGION CAN MAKE LARGE GAINS BY CUTTING WASTE IN THE FOOD SYSTEM

Food demand in the region is projected to rise by 67 percent by 2050, commensurate with population growth and economic development. Modeling for this report shows a steep rise in food demand, with population growth alone leading to a 50 percent increase, and rising incomes contributing an additional 17 percent. Demand is expected to grow fastest in today's FCV economies (by 79 percent). However, it is also projected to rise by nearly half in the MICs and GCC countries (45 and 44 percent). With food availability, affordability, and quality strained even today, investment and reform will be critical to ensure future needs are met.

One-third of food is lost or wasted from farm to consumer, but logistics investment and better consumer choices can help reduce this waste. Food lost today could feed millions and free up fiscal and natural resources. Cold chains, storage, logistics, and consumer incentives offer some of the highest-return, lowest-risk opportunities for improving food security in the region. Waste reduction would contribute directly to food security. It would also save scarce water

resources used in growing food domestically and fiscal resources used in importing and subsidizing food.

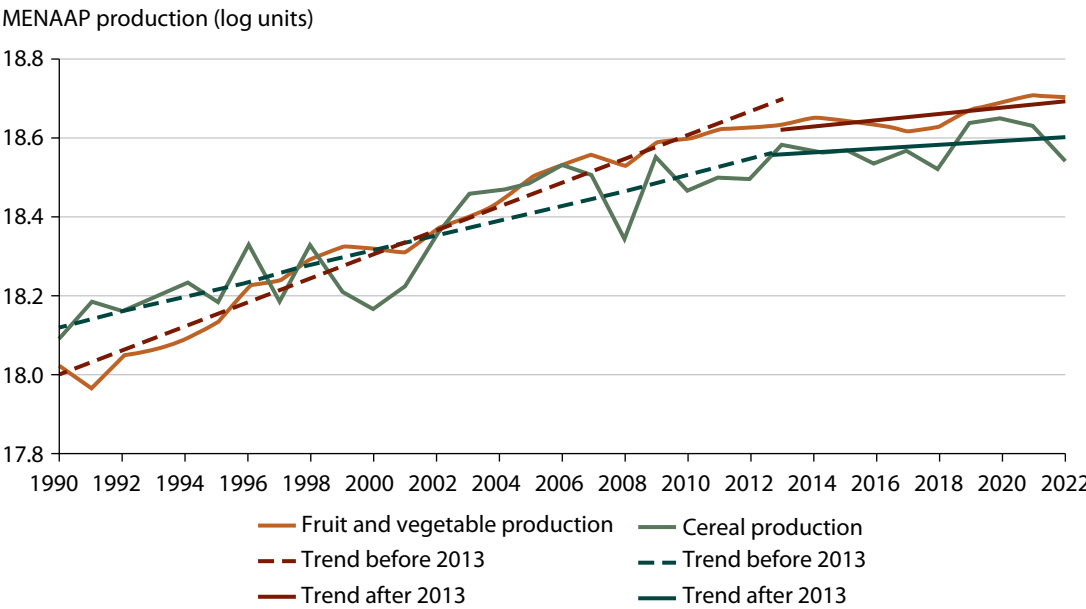
With rising incomes, more must be done to encourage nutritious consumer choices and avoid overreliance on processed foods with high oil and sugar content. Efforts to reduce food waste can go hand in hand with policies that nudge healthier consumer choices. Globally, consumer food preferences change with higher income levels, and projections for the region anticipate strong per capita demand growth by 2050 for animal products (21 percent) and oils and sugars (18 percent), with cereal consumption remaining elevated. While higher protein intake could help reduce undernutrition, the rising demand for sugars, oils, and animal fats alongside the current high consumption of refined flour could further increase the prevalence of overweight and obesity. To avoid these consequences, better consumer awareness, along with efforts to limit the spread of sugar-sweetened beverages and ultra-processed convenience foods, is critical. New tools, such as food labeling, regulation of advertising to children, and targeted taxes on unhealthy foods, can help balance demand in favor of more nutritious options.

KEY MESSAGE 2: DOMESTIC FOOD PRODUCTION CAN RISE SUBSTANTIALLY WITH PRIVATE AND PUBLIC INVESTMENTS IN TECHNOLOGY ADOPTION AND DEVELOPMENT

Domestic production supplies 61 percent of calories, but growth has slowed. Striking variations in land and water endowments shape sharp regional disparities. Whereas Pakistan is nearly food self-sufficient, the rest of the region imports 51 percent of its calories and 60 percent of its cereals (2020–22 averages). Significant yield gains have sustained domestic production amid an expanding population: since the 1990s, cereal yields have increased by 96 percent in Pakistan and by 59 percent in the rest of the region. Production has risen steeply across most value chains, with fruit, vegetable, and fish production more than doubling in MENA (Middle East and North Africa) MICs between 1990 and 2022. However, yield growth has now slowed outside of Pakistan due to water scarcity, climate change, land degradation, and low investment (refer to figure ES.2).

Proven solutions already exist in MENAAP to produce more food within ecological boundaries, but sustaining and scaling up innovation requires a deliberate and strategic effort. The countries

FIGURE ES.2
Slowing Trends in the Region’s Production of Cereals and Fruits and Vegetables



Sources: World Bank calculations; data from FAOSTAT (<https://www.fao.org/faostat/en/>).
Note: Growth rates for fruit and vegetable production slowed from 3 percent in the 1990–2013 period to 0.8 percent in 2013–22. Likewise, growth in cereal production slowed from 1.9 percent to 0.5 percent over the same period.

of the region can look to a broad range of technologies and practices that have already been successfully piloted to help sustainably increase rates of on-farm production. These include, for instance, conservation agriculture, enhanced crop varieties, precision farming, and drip irrigation and other water-saving techniques, among other climate-smart practices. At the same time, investment is needed to ensure that the innovation pipeline continues to deliver. Critically, scaling what works today while investing in what will work tomorrow requires the private sector to be engaged as a co-designer from the outset.

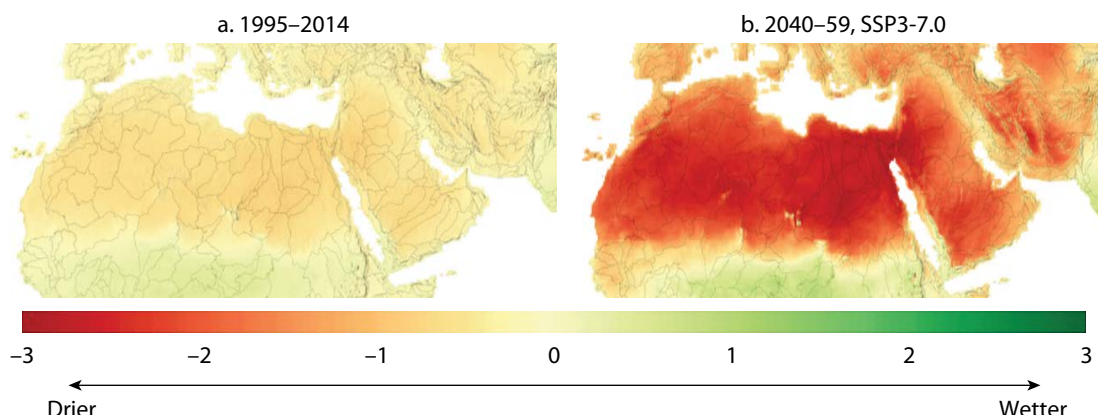
Together with business climate reforms, increasing investment in innovation and irrigation to US\$5.7 billion annually could more than double fruit and vegetable production and raise cereal yields by 72 percent by 2050. Sustained growth in domestic food supply will require such ambition, extending not just to the adoption of existing technology but also to the continued development of new solutions. Modeling done for this report shows that this increase in production would require only a minimal expansion of the area planted (6 percent) and could reduce irrigation water use by 7 percent.

KEY MESSAGE 3: INCREASING DOMESTIC FOOD SUPPLY WHILE MOVING AWAY FROM THE REGION'S CURRENT UNSUSTAINABLE WATER USE TRAJECTORY REQUIRES US\$12 BILLION ANNUALLY

In MENAAP, the world's most water-stressed region, agriculture accounts for 87 percent of water use. MENAAP has the lowest renewable freshwater resources globally, at 854 cubic meters (m³) per capita per year, and most countries in the region are at or below the water scarcity threshold of 1,000 m³ per capita. Many MENAAP countries overuse groundwater, largely for agriculture; Aquastat data estimate that, in 2020, countries in the MENA subregion overused groundwater for irrigation by 22 billion m³ (or 26 percent of the sustainable volume). Without greater investments in water-use efficiency, along with appropriate incentives and regulation, modeling shows that unsustainable withdrawals of water for agriculture could rise by a further 12 billion m³. It is unclear how long this overuse of available water resources could continue. In addition, soil salinization from poor irrigation practices is a problem of massive scale, affecting between 25 and 50 percent of irrigated land in countries from Egypt to Iraq and Pakistan.

As climate change intensifies, water will become increasingly scarce, necessitating far better water resource management. With strong population growth, most of the region's countries are projected to reach the absolute scarcity threshold of 500 m³ per capita by mid-century. At the same time, climate change is expected to increase the frequency of water shocks in Pakistan and droughts elsewhere, with dry conditions becoming more common in North Africa and the Mashreq (refer to figure ES.3). In the MENA subregion, areas that today account for up to one-half of the production of major export crops and one-third of wheat production are expected to regularly face severe drought by 2050. Sustainable irrigation is therefore critically needed.

Sustainable growth in the AFS requires ambitious efforts to increase water use efficiency. Modeling for this report shows that roughly doubling the region's private and public investment in irrigation efficiency could begin to reduce water use and bend the rising trend in groundwater abstraction, thus helping to keep withdrawals stable despite growing agricultural output. However, further efforts to curb groundwater use will be needed to move toward sustainability. This will require more ambitious investment in water

FIGURE ES.3**Historical and Projected Climatology of the Annual SPEI Drought Index**

Source: World Bank Climate Change Knowledge portal (<https://climateknowledgeportal.worldbank.org/>).

Note: SPEI = Standardized Precipitation-Evapotranspiration Index; SSP3-7.0 = Shared Socioeconomic Pathway.

infrastructure, in a range of US\$3.3 billion to US\$6.7 billion per year. These investments add to the US\$5.7 billion estimated investment needs reported above, bringing overall financing needs up to US\$12 billion. Concerted efforts to build institutions dedicated to changing the way water is used in the sector will be equally important. With such an effort, reduced water usage can be consistent with growth in the AFS.

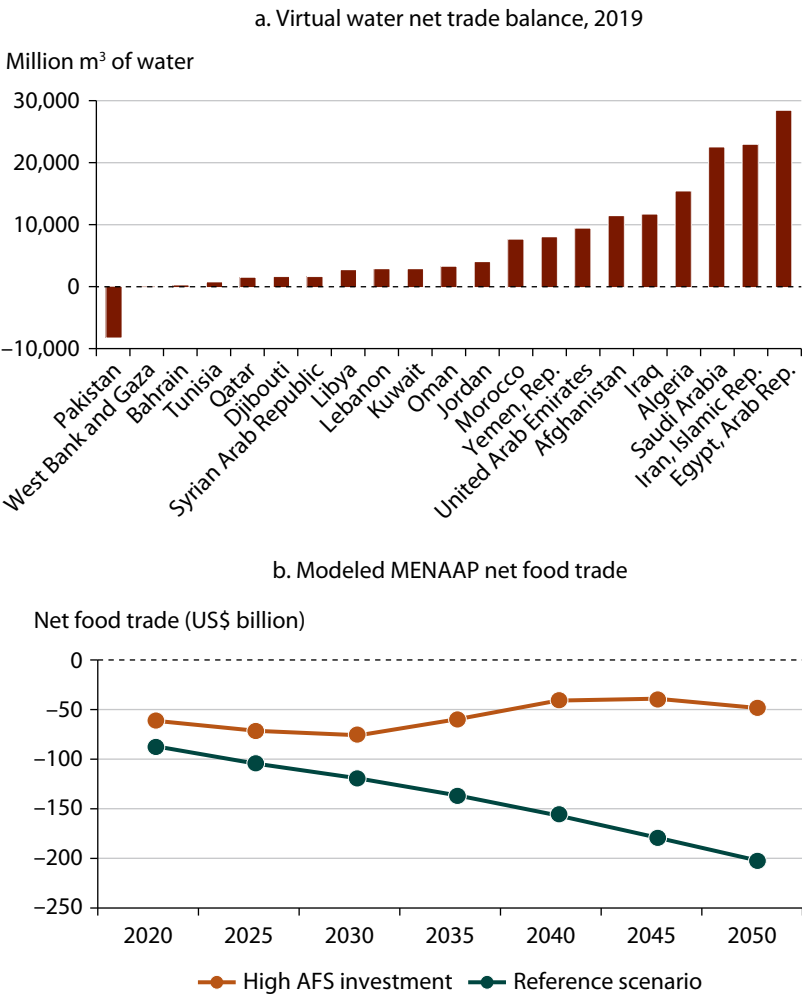
KEY MESSAGE 4: FOOD TRADE, CRITICAL FOR FOOD SECURITY, WATER SECURITY, AND AGRIFOOD JOBS, CAN BECOME MORE RESILIENT AND FISCALLY SUSTAINABLE

Food imports carry some supply and macro-fiscal risks, but the food trade also creates jobs and saves substantial water resources.

All MENAAP countries are net food importers, with imports supplying 39 percent of all calories and amounting to 4 percent of regional GDP, versus the global average of 0.5 percent (2019–22). Import reliance carries risks. Countries that rely heavily on imports for an important product (notably cereals) and depend upon a few suppliers or transport routes are at greater risk from geopolitical disruptions. Economies with high food import shares and large current account deficits may struggle to finance imports during price spikes. Yet imports also conserve enormous volumes of scarce water:

the “virtual water” embodied in staple food imports alone is equivalent to all irrigation water in Egypt and Iraq (refer to figure ES.4). In turn, these savings enable some water to be reallocated to support the growth of competitive products, such as fruit and vegetable (net) exports in MENA MICs, which grew from US\$2 billion to US\$9 billion per year (in real terms) over the past two decades.

FIGURE ES.4
Current Regional Virtual Water Net Trade Balance and Projected Net Food Trade



Sources: World Bank; data from Zhang et al. (2025) and FAOSTAT (<https://www.fao.org/faostat/en/>) (panel a); data from IMPACT modeling (panel b).
Note: AFS = agrifood system.

Even with ambitious investment and reform, imports will remain key to food security; however, strong export growth can deliver a much more favorable trade balance. Modeling shows that, even with high agrifood investment, the region will continue to rely on imports to complement domestic food production and limit water use, especially for cereals, oils, and sugars. Under current policies, the food trade deficit would remain roughly flat as a share of GDP—but would almost triple in absolute terms, reaching US\$204 billion by 2050. In contrast, ambitious investment could allow the region's agrifood sectors to leverage their comparative advantage and shrink the trade deficit by US\$153 billion to 0.2 percent of GDP, well below the current level. Countries can realize these savings by investing in production that plays to their strengths, notably fruit and vegetable exports for MENA's MICs, and by raising cereal and livestock production in Pakistan, with the goal of replacing some imports.

Improved policies can foster trade, build resilience, and provide protection against price shocks while reducing distortions and fiscal costs. No-regret policies to improve trade flows include investments in logistics capacity—where the region lags its peers—as well as reforms to lower nontariff barriers. Resilience hinges on diversified trade partnerships and transport corridors, along with financing instruments to ensure the macro-fiscal viability of imports during price hikes and sufficient, efficiently managed strategic storage. Substantial margins exist to improve the effectiveness and lower the cost of public food procurement. Subsidies and price controls are effective in cushioning price shocks: only about 40 percent of large wheat price hikes are passed on. However, governments should weigh their usefulness against fiscal costs and consider alternatives and complements, such as strategic grain reserves, which can help manage price volatility, and shock-responsive social safety nets, which can promote affordability. Both impose lower fiscal burdens without weakening incentives to the private sector.

KEY MESSAGE 5: WITH A BETTER BUSINESS CLIMATE, JOBS IN THE AGRIFOOD SYSTEM CAN GROW, ESPECIALLY OFF-FARM

The AFS provides nearly 3 in every 10 jobs in the region, with off-farm employment growing at twice the global rate. MENAAP's AFS today employs some 63 million people. Most of these jobs (79 percent) are still on-farm; however, globally, agricultural employment slowly shrinks in favor of more productive sectors as economies develop. In MENAAP,

off-farm jobs in the AFS have been growing particularly rapidly, at twice the global rate over the 2010–23 period. Both on-farm and off-farm jobs still pay less than they might. However, productivity is rising, with MICs in the MENA area leading the region, achieving a near-doubling in agricultural output per worker over the past decade.

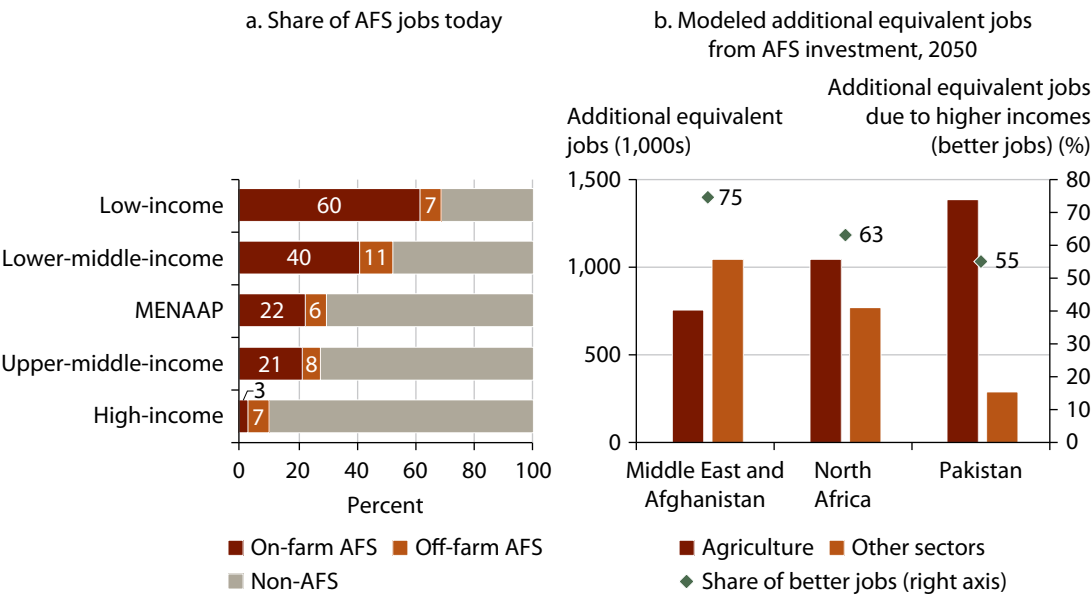
AFS jobs are more popular than is often assumed. New data collected for this report in six MENAAP countries show that large majorities of respondents believe that employment in the AFS offers opportunities to earn good money (72 percent for off-farm work and 76 percent for on-farm work) and good job prospects for youth (82 percent for off-farm work and 80 percent for on-farm work). In areas recently exposed to drought, optimism has been dampened. Interest in AFS jobs is higher among men, the unemployed, those with access to land, and those from poorer households. Importantly, young respondents show no less interest in AFS jobs than older workers.

The job stakes are high: ambitious investments and reforms to boost private sector engagement could create the equivalent of 5 million agrifood jobs in the region. Investment in the AFS creates jobs and raises incomes within the sector, as well as in other activities that benefit from rising AFS production. Modeling shows that ambitious AFS investment could create the equivalent of 5 million jobs, both on-farm and off-farm (refer to figure ES.5). Gains can come from higher earnings on-farm, if countries raise yields and shift into crops with export potential, and from more and better-paid jobs off-farm through stronger investment along the value chain from farm to table.

To crowd-in private investment, policies should foster growth-oriented businesses and help small producers connect to markets and raise incomes. A stronger private agrifood sector needs broad business climate reforms, notably action to reduce state-owned enterprises' market power, enhance transparency, overcome risk-aversion in financial markets, and boost transport infrastructure. AFS-specific opportunities encompass pro-business reforms to subsidies and investment in post-harvest logistics, storage, cold chain, quality standards, and digitalization. For individual producers, critical needs include access to finance, skills, and infrastructure and better gender equality in the labor market. Smallholders also require dedicated support, investments and regulatory reforms to facilitate access to land, reduce land fragmentation, aggregate production through cooperatives or producer organizations, de-risk investment, and build capacity for climate change adaptation.

FIGURE ES.5

Share of Agrifood System Employment Today and Modeled Additional Equivalent Jobs by 2050



Source: Panel a, World Bank calculations based on ILO data. Panel b, World Bank, results from IFPRI IMPACT model.
Note: AFS = agrifood system.

KEY MESSAGE 6: PRIVATE CAPITAL AND MORE EFFICIENT PUBLIC SPENDING CAN SHRINK THE INVESTMENT GAP

The estimated US\$12 billion in additional annual AFS financing needs is within reach but hinges on stronger mobilization of private capital. This needs estimate aligns with past assessments, which placed additional annual financing needs for a sustainable AFS in MENAAP between US\$12 billion (inferred from Sutton et al. 2024) and US\$17 billion (inferred from FAO 2024). These needs are modest compared to the estimated US\$48 billion hidden costs generated in the region by the current AFS (FAO 2024), underscoring the strong economic rationale for reform. Yet bridging the investment gap will require both higher private investment and more efficient public spending.

Food subsidies average 1 percent of GDP—but with food insecurity on the rise, more efficient systems are crucial. Despite fiscal pressures, seven MENAAP countries for which data are available spent US\$27.8 billion per year in 2022–23 on consumer subsidies.

This support limits the transmission of world price shocks, is important for the social contract, and is popular due to its simplicity, relative transparency, and familiarity. Yet food subsidies remain poorly targeted and skewed toward sugars, oils, and refined flour, contributing to malnutrition. The policy choice is not between maintaining the status quo and eliminating subsidies, but between inefficient spending and smarter systems that combine targeted e-vouchers, shock-responsive social safety nets, more efficient public procurement, and market-friendly instruments that protect affordability at lower fiscal cost.

Public agricultural spending amounts to 0.4 percent of GDP per year but could generate much higher value for the money spent.

This investment of US\$12.7 billion (in countries where data are available) is relatively modest by international comparison. It is largely absorbed by implicit irrigation subsidies and support for fertilizer and seeds, which distort market price signals, rather than by investments for productivity and resilience. Thus, value for money can rise by repurposing a share of current spending toward innovation, water efficiency, climate resilience, and public goods.

KEY MESSAGE 7: FCV ECONOMIES NEED NOT ONLY URGENT ACTION TO REDUCE HUNGER BUT ALSO INVESTMENT TO MAINTAIN AND REBUILD THEIR AGRIFOOD SYSTEMS

Conflict and fragility are the leading causes of escalating hunger in the region. Although food security concerns the entire region, emergencies are nearly synonymous with conflict. Of the 82 million people suffering crisis-level food insecurity or worse, more than four in five live in economies affected by FCV—including over 24 million in Afghanistan, Gaza, the Syrian Arab Republic, and the Republic of Yemen facing emergency conditions (IPC Phase 4 or above) (2023–25). Conflict causes damage to AFS through destruction, displacement, and disinvestment. For instance, AFS damages and losses reached over US\$2.1 billion in Gaza between October 2023 and October 2024, and over US\$800 million in Lebanon through December 2024. Conversely, food security is a precondition for stability and anchors the social contract.

Those living in FCV-affected areas also lose out dramatically on AFS opportunities. Since 1990, food production rose 150–200 percent in stable areas but stagnated in FCV-affected ones.

Fruit and vegetable production, including exports, more than doubled in Pakistan and MICs, but in FCV areas it grew by less than half that rate. Between 2010 and 2023, the region gained a net 3 million off-farm AFS jobs, whereas FCV economies lost 257,000. Beyond ensuring immediate access to food, policy makers need to look at how best to rebuild AFS systems.

Policy must first prevent acute food insecurity but also look for opportunities to preserve and rebuild the AFS. In emergencies, the focus needs to remain on making food available. Where feasible, proven models can preserve the institutions that support the AFS, help the private sector remain active, and reduce overuse of natural resources. Operational experience shows that simple support modalities, an emphasis on delivery capacity, and awareness of the conflict context can help supportive efforts succeed. Finally, stability matters enormously: modeling shows that, with steady economic recovery, FCV economies could achieve similar production growth and, by 2050, close half the food security gap that exists between them and MICs today.

An actionable roadmap toward food and nutrition security and more and better jobs

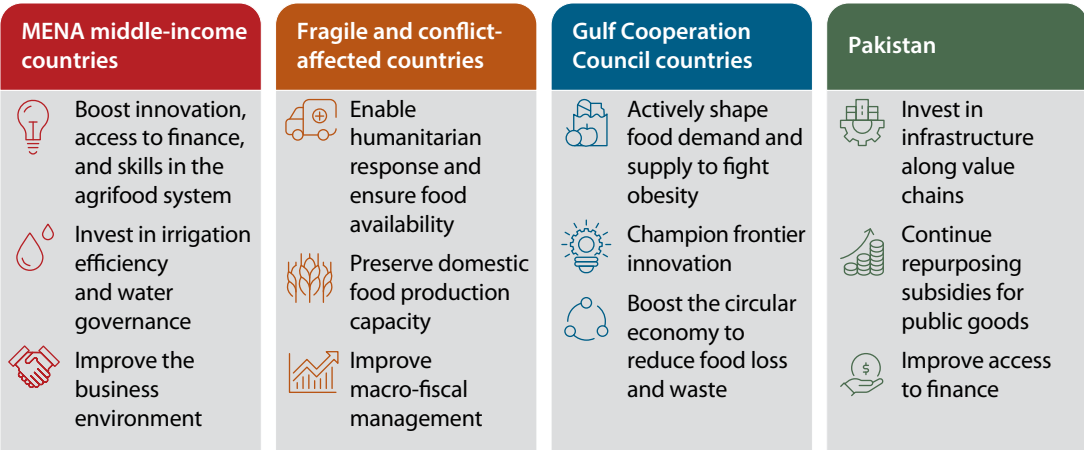
The central lesson of this report is the need for greater ambition in investment and policy making to strengthen food and nutrition security (FNS) and AFS jobs across MENAAP. While countries differ in priorities and contexts, the analysis points to a shared opportunity: substantial gains can be achieved by raising ambition and acting coherently across the food system.

Transformative progress will require moving beyond fragmented interventions toward integrated, sustained action that aligns policies, incentives, and programs across sectors and over time.

The World Bank's AgriConnect initiative provides a useful framework, highlighting three complementary pillars: strengthening foundations through investments in infrastructure and natural and human capital; policy reforms that improve the business climate, repurpose subsidies, and support market access; and mobilizing private capital through finance, risk-sharing instruments, and partnerships. Together, these policy and investment options enable ambitious, tailored pathways to improve FNS and create more and better jobs. The report concludes by detailing priority actions by country groups, with the top three priorities summarized in figure ES.6.

FIGURE ES.6

Top Three Priorities to Improve Food and Nutrition Security and Create More and Better Jobs Across MENAAP



Source: Original figure for this publication.

NOTE

1. The food security estimates presented in this report are based on the World Food Security Outlook (WFSO) database, version dated April 2025, available at <https://microdata.worldbank.org/index.php/catalog/6103>.

REFERENCES

FAO (Food and Agriculture Organization of the United Nations). 2024. *The State of Food and Agriculture 2024: Value-Driven Transformation of Agrifood Systems*. Rome: FAO. <https://doi.org/10.4060/cd2616en>.

Sutton, William R., Alexander Lotsch, and Ashesh Prasann. 2024. *Recipe for a Livable Planet: Achieving Net Zero Emissions in the Agrifood System*. Agriculture and Food Series. Washington, DC: World Bank.

Zhang, Fan, Christian Borja-Vega, Hrishikesh Arvind Chandanpurkar, James Famiglietti, Rick Hogeboom, Regassa Namara, Zarif Rasul, Pavel Luengas-Sierra, and Deyu Rao. 2025. *Continental Drying: A Threat to Our Common Future*. *Global Water Monitoring*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-2269-8>.

Abbreviations

AFD	French Development Agency
AFS	agrifood system
AICS	Italian Agency for Development Cooperation
CCDR	Country Climate and Development Report
DAEM	Digital Arabic Emergency Management
EBRD	European Bank for Reconstruction and Development
ESCWA	United Nations Economic and Social Commission for Western Asia
EU	European Union
FAO	Food and Agricultural Organization of the United Nations
FAOSTAT	Food and Agriculture Organization Statistics
FCV	fragility, conflict, and violence
FEWSNET	Famine Early Warning Systems Network
FNS	food and nutrition security
GCC	Gulf Cooperation Council
GEF	Global Environment Facility
HHI	Herfindahl-Hirschman Index
HICs	high-income countries
ICARDA	International Center for Agricultural Research in the Dry Areas
IFC	International Finance Corporation
IFPRI	International Food Policy Research Institute
IPC	Integrated Food Security Phase Classification
IPCC	Intergovernmental Panel on Climate Change
IMPACT	International Model for Policy Analysis of Agricultural Commodities and Trade

JICA	Japan International Cooperation Agency
MENA	Middle East and North Africa
MENAAP	Middle East, North Africa, Afghanistan, and Pakistan
MICs	middle-income countries
MIT	Massachusetts Institute of Technology
PPP	purchasing power parity
R&D	research and development
RCP	Representative Concentration Pathway
RDNA	Rapid Damage and Needs Assessment
SPEI	Standardized Precipitation-Evapotranspiration Index
SSB	sugar-sweetened beverage
SSP	Shared Socioeconomic Pathway
UNCCD	United Nations Convention to Combat Desertification
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WFP	World Food Programme
WFSO	World Food Security Outlook

Improving Food and Nutrition Security and Creating More and Better Jobs: From Shared Regional Challenge to Tailored Solutions

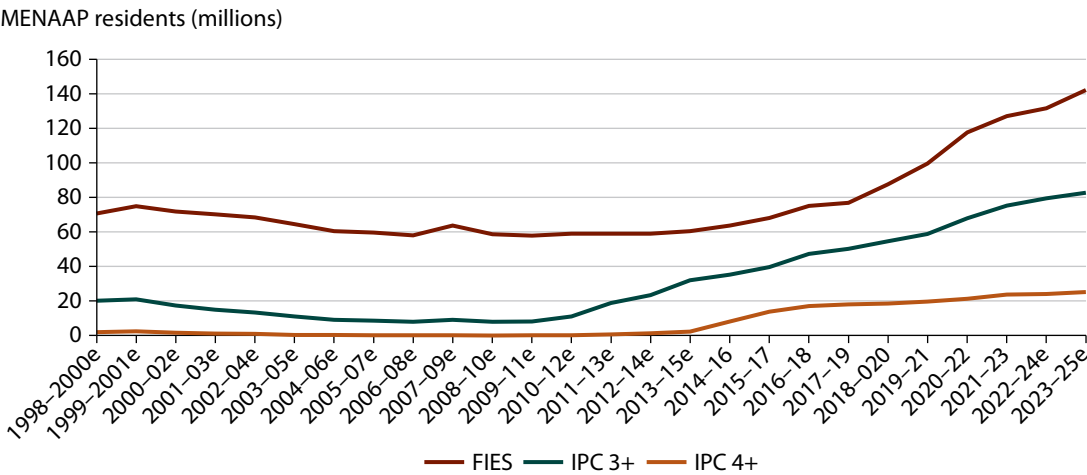
FOOD AND NUTRITION SECURITY HAS BEEN DETERIORATING ACROSS THE MIDDLE EAST, NORTH AFRICA, AFGHANISTAN, AND PAKISTAN OVER THE PAST DECADE

Food and nutrition insecurity (FNS) is at a historically high level in the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region. One in every 6 residents, or 142 million people, lack secure access to food (as measured by the Food Insecurity Experience Scale [FIES]); 1 in 10, or 82 million people, live in areas classified as experiencing crisis-level food insecurity (IPC Phase 3 or higher) (refer to figure 1.1).¹ Half of those lacking secure access to food live in fragility-, conflict-, and violence (FCV)-affected economies (50 percent), while 29 percent live in Pakistan and 20 percent in middle-income countries in the Middle East and North Africa subregion (MENA MICs). The situation is deteriorating, with the share of the population affected rising from 12 percent in 2003–05 to 18 percent in 2023–25. Also, more countries are facing crisis-level food insecurity or worse (refer to figure 1.2).

The scale of severe food insecurity now places the region second worldwide; its consequences may undermine political stability and span generations. Adverse food security trends in MENAAP contrast with

FIGURE 1.1

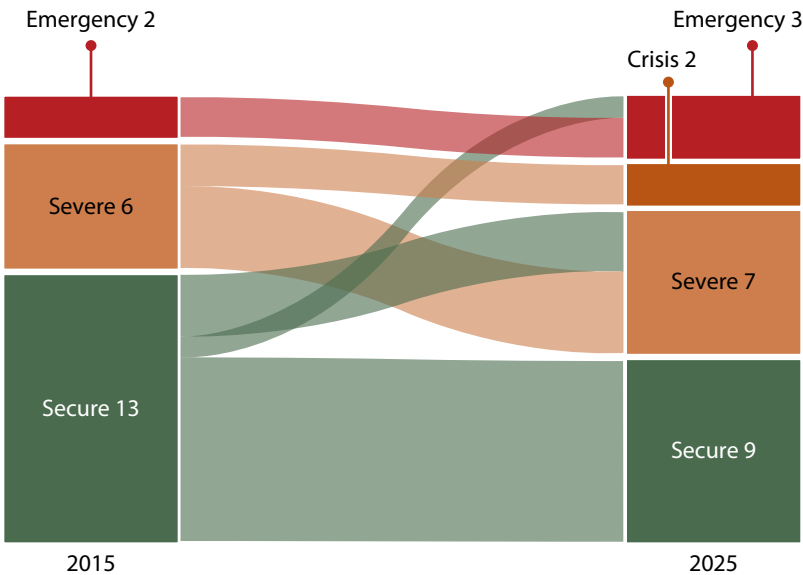
Regional Food Insecurity Levels



Source: World Food Security Outlook, April 2025 (<https://microdata.worldbank.org/index.php/catalog/6103>).
Note: e = estimated; FIES = Food Insecurity Experience Scale; IPC = Integrated Food Security Phase Classification.

FIGURE 1.2

Adverse Shifts in Food Security Categories in MENAAP, 2015–25



Source: World Food Security Outlook (<https://microdata.worldbank.org/index.php/catalog/6103>).
Note: The flows and associated numbers show how many of the MENAAP countries moved between categories over the decade.

notable improvements in Southeastern Asia, Southern Asia, and South America (FAO 2025). Access to food is a human right, and food insecurity intrinsically diminishes well-being. Indeed, the health impacts are dire: 15 percent of children under five in the region are stunted (FAOSTAT²). These health outcomes carry considerable economic costs, with attendant negative cross-generational consequences. In addition, regional FNS is viewed as integral to the social contract, and poor food security has been associated with weakened social stability (Ianchovichina 2018; Soffiantini 2020).

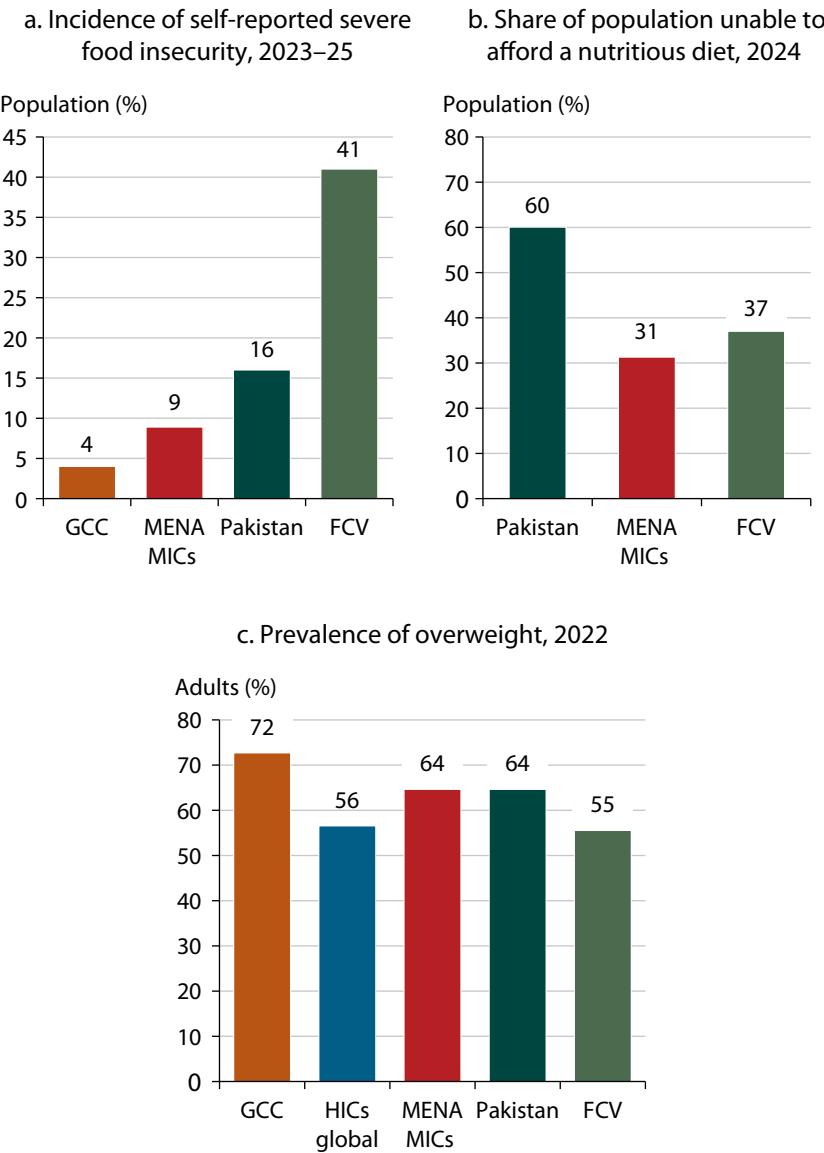
Access to sufficient, affordable, and nutritious food is a concern across the region's diverse economies. MENAAP countries differ widely in income levels, human development outcomes, and welfare outcomes—including food security. The region is home to some of the world's richest countries and low-income countries alike, with per capita GDP ranging from just over US\$400 in Afghanistan to US\$76,000 in Qatar. Yet, in different ways, food and nutrition security is a concern for all these diverse economies. In this context, MENAAP's agrifood systems have long-standing vulnerabilities, exacerbated by conflicts, economic slowdowns and downturns, climate shocks, and events such as pressures on global food trade during the 2008–11 food crisis, the COVID-19 pandemic, and disruptions following Russia's invasion of Ukraine.

Severe food insecurity mostly affects FCV economies. The steep rise in food insecurity over the past decade is linked to the enormous suffering caused by conflicts, insecurity, and violence in the region. Afghanistan, Iraq, Lebanon, Libya, Syria, the West Bank and Gaza, and the Republic of Yemen are home to virtually all of those suffering food insecurity emergencies in the region (IPC Phase 4), as well as more than four in every five of those living through a food insecurity crisis (IPC Phase 3), and half of all MENAAP residents facing some level of food insecurity. Prolonged insecurity erodes livelihoods, reduces incomes, and restricts social protection coverage, reducing both access to food and food quality, even when food becomes available. These pressures result in higher malnutrition risks and widening nutrition inequities, especially among children.

Food affordability is also a concern for the region's middle-income countries. Even outside of FCV economies, in countries where most residents do not consider themselves entirely food insecure, an increasing number of people struggle to afford a nutritious diet. In 2024, 42 percent of MENAAP residents could not afford a healthy diet, compared with 38 percent in 2017. In this context, the largest groups of people who are unable to afford a nutritious diet in MENAAP live in Pakistan (151 million) and Egypt (66 million) (refer to figure 1.3).

FIGURE 1.3

MENAAP Food and Nutrition Security: A Concern across Diverse Economies



Sources: Original figure for this publication based on data from multiple sources. Panel a: World Food Security Outlook April 2025 (<https://microdata.worldbank.org/index.php/catalog/6103>). Panel b: FAOSTAT (<https://www.fao.org/faostat/en/#data/CAHD>). Panel c: WHO Global Health Observatory (<https://www.who.int/data/gho/data/indicators>). Note: FCV = fragility, conflict, and violence; FIES = Food Insecurity Scale; GCC = Gulf Cooperation Council; HICs = high-income countries; MENA = Middle East and North Africa; MICs = middle-income countries.

Throughout the region, overweight, obesity, and other poor nutrition outcomes are pervasive. Nearly two-thirds of adults are overweight (62 percent) and face associated health risks (refer to figure 1.3), exceeding by far the average in high-income countries (56 percent). These elevated numbers cut across income levels, with overweight affecting 72 percent of adults in the Gulf Cooperation Council (GCC) countries and 55 percent in FCV economies (WHO data).³ The coexistence of food insecurity and obesity reflects multiple reinforcing mechanisms: (1) economic constraints that drive reliance on cheap, energy-dense foods; (2) cyclical feast–famine eating patterns linked to irregular food access; (3) stress-related metabolic and behavioral responses; and (4) early-life exposures to poor nutrition that predispose individuals to greater fat storage later in life (Maitra 2018).

THE FUTURE OF THE REGION'S FOOD AND NUTRITION SECURITY DEPENDS ON HOW ITS AGRIFOOD SYSTEMS PERFORM AND ON THE NUMBER OF JOBS THEY GENERATE

FNS is closely tied to a thriving agrifood system (AFS). As defined by the World Food Summit in 1996 and FAO in 2001, “food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.” Food security is undergirded by a strong AFS—including all economic activities tied to food value chains from farm to fork, whether in on-farm production or in off-farm activities ranging from transport and food processing to commerce and food services.

More and better AFS jobs are central to improving the region's FNS. On the supply side, productive employment along the entire food value chain can increase not only the availability of food but also its quality, safety, stability, and diversity. On the demand side, AFS jobs provide incomes, livelihoods, and resilience to shocks, thereby increasing purchasing power and the ability to afford adequate diets. In a region where affordability is a greater constraint than availability, more and better jobs can simultaneously enhance economic inclusion and improve nutrition and health outcomes.

Indeed, the AFS already provides jobs for some 63 million people in the region, that is, nearly three in every ten workers. More than three-quarters of these jobs (50 million) are on-farm in primary

production, though agroclimatic constraints mean that on-farm employment outside Pakistan is well below what is observed globally at comparable income levels. Off-farm AFS activities—for instance, in food manufacturing or hospitality—add 13 million jobs, or 6 percent of all employment (modeling based on ILO data; refer to appendix B for methods). Reflecting the region’s highly unequal labor market (Gatti et al. 2025), most of these jobs are held by men. Outside of Pakistan, women are estimated to hold 15 percent of on-farm jobs, the same as their share in overall employment (FAOSTAT); shares in off-farm activities are higher but still far from parity.

As is the case globally, the share of AFS jobs has declined, specifically from 35 percent in 2010 to 28 percent in 2023. The number of on-farm jobs also fell by about 1 million over the same period. At the same time, however, off-farm AFS jobs expanded by about 3 million, that is, at twice the global growth rate (28 percent in the region compared to 14 percent globally), more than offsetting on-farm declines. Off-farm employment remains far below that in countries with similar income levels, pointing to further substantial growth potential.

As productivity rises, AFS job quality can improve in the region. Globally, declining employment in on-farm production usually coincides with higher labor productivity: rising output per worker and rising incomes can facilitate structural transformation, as workers move to other activities. These productivity gains also create opportunities for better AFS jobs. This process is usually slow and often unfolds over generations. Mirroring this trend, productivity has essentially doubled in the MENA MICs and has grown in the GCC countries, even as the number of jobs has declined. In Pakistan, productivity has grown despite an increase in the number of farm workers.

AN AGRIFOOD SYSTEM APPROACH TO MOVE FROM REGIONAL CHALLENGES TO TAILORED SOLUTIONS

Improving FNS in the region requires an understanding of how demand, supply, markets, trade, jobs, and conflict interact within the AFS. Food and nutrition security is a complex concept, but it ultimately depends on the balance between food demand and supply from domestic production and trade, mediated by markets and business activity. Social stability and

the absence of conflict provide suitable conditions for the system to function. This report describes the evolution of each of these key ingredients of food security. Accordingly, it examines the current regional challenges and provides an overview of policy, investment, and private-sector-led solution pathways, recognizing that governments and markets jointly shape outcomes across the agrifood system. It concludes with a forward-looking section that describes how FNS and the AFS can evolve to create more and better jobs by adopting sound policies and making ambitious investments.

Although the region is a mosaic of diverse countries, its agrifood systems share several common vulnerabilities and constraints: exposure to water shocks, cereal-rich diets, high levels of food loss and waste, market-disruptive state interventions, and a weak business environment. Water-related risks range from acute scarcity in MENA—where renewable freshwater availability averages only 723 cubic meters per capita—to the rising frequency and severity of flooding in Pakistan. In water-scarce countries, limited resource endowments contribute to high reliance on food imports. At the same time, cereal-dominated diets, supported by widespread public food subsidies, distinguish the region's consumption patterns from global ones. Across countries, market interventions contribute to an overall weak business environment, with private investment and value added lagging those of comparable economies.

The types of policy and investment needed to address the shared FNS challenges vary widely across the region, but there are strong models for successful action. All countries in the region have important opportunities to improve FNS. However, policies and investments need to be tailored to specific needs and openings. For instance, trade facilitation is a shared opportunity for the region, but water scarcity and land availability determine the extent to which the production of export crops can be expanded. Similarly, business climate reforms can help increase the private sector's engagement in the AFS, but priority business obstacles vary, for instance, by income levels and political stability. To capture the region's diversity, this report examines what could shape FNS in different parts of the region, including the GCC countries, Pakistan, the MENA MICs, and FCV countries (refer to table 1.1). The World Bank's AgriConnect initiative (refer to box 1.1) is employed to frame tailored recommendations under a unified, action-oriented agenda in the concluding chapter of this report.

BOX 1.1**The AgriConnect Approach to Transforming Smallholder Farming, Creating Jobs, and Strengthening Food Security in MENAAP**

Food security and agrifood system (AFS) job creation cannot be achieved through a single policy or investment. Rather, they require a coherent approach that aligns investments, policy reform, and mobilization of private capital around clear goals. Given the scale of needs and opportunities, success also depends on mobilizing private sector capital and crowding-in investment both by leveraging government and partner financing and through pro-business reforms.

The World Bank Group's AgriConnect initiative, launched in 2025, puts this approach into action. It promotes investment in infrastructure, skills, digital tools, and strong farmer organizations to help producers connect to markets and access finance. It champions a stronger business environment and better-targeted public support, and it convenes governments, the private sector, and partners around shared priorities. With a global goal of scaling the World Bank Group's agribusiness commitments to US\$9 billion per year and mobilizing an additional US\$5 billion per year, AgriConnect aims to reach 300 million smallholder farmers worldwide by 2030, including 200 million through World Bank Group-supported activities and 100 million through partners.

In MENAAP, AgriConnect first-mover countries—Djibouti, Morocco, and

Pakistan—are advancing compacts that provide a framework for action. The goal is to balance government goals and private sector opportunities, identifying value chains with strong potential for food security and job creation. For instance, in Morocco, targeted efforts to strengthen the cereals, horticulture, and livestock value chains are envisaged for inclusion in an AgriConnect framework. These could include enabling policy reforms and structural investments such as climate-resilient production systems, aggregation mechanisms, digital aggregator-based financing, ag-tech solutions, and agrifood logistics upgrades. They should also reflect the current emphasis on climate-smart crops, water-saving irrigation, agri-insurance reform, product aggregation, mechanization, and access to finance and de-risking instruments. In turn, these priorities could be embedded in broader technical and financing partnerships that support complementary actions, from support to women's inclusion in job opportunities to water resource mobilization. Leveraging private sector investment is pivotal to AgriConnect: in Pakistan's Punjab province, the initiative is aligning International Development Association / World Bank support with the International Finance Corporation's planned warehouse finance engagement to modernize warehousing, operationalize electronic warehouse receipts, strengthen producer aggregation and market

(continued)

BOX 1.1 (continued)

linkages, and crowd-in private capital for agrifinance and value-chain modernization.

The AgriConnect initiative also presents opportunities for economies affected by FCV. In Afghanistan and the Republic of Yemen, discussions aim to align partners around investments suited to challenging contexts, including microfinance and MSME finance, cold chain investment and food safety systems. De-risking instruments have the potential to play a prominent role in mobilizing private capital, while careful sequencing could allow for quick wins to build confidence and enable additional investment.

TABLE 1.1
Typology of Economies Used in the Report

Group	Included economies
Economies affected by fragility, violence, and conflict (FCV)	Afghanistan; Iraq; Lebanon; Libya; Syrian Arab Republic; West Bank and Gaza; Yemen, Rep.
Gulf Cooperation Council countries (GCC)	Bahrain, Oman, Kuwait, Qatar, Saudi Arabia, United Arab Emirates
Middle-income countries (MIC)	Algeria; Djibouti; Egypt, Arab Rep.; Iran, Islamic Rep.; Jordan; Morocco; Tunisia
	Pakistan

Note: Results for Pakistan are shown separately, given Pakistan’s large population and agricultural food system.

Finally, this report combines policy and investment experience, modeling, and new data to propose pathways to improve FNS and agrifood jobs. It builds on a wealth of analytical knowledge and experience in working toward FNS as accumulated by the region’s governments, business communities, academia, partners, and the World Bank Group, and as collected through regional workshops. Appendix A details the conceptual framework, methodology, and stakeholder engagement that anchor the report. The report also synthesizes insights from a suite of background papers, including a forward-looking exercise carried out by IFPRI and the World Bank, with the goal of assessing how different policy choices would interact with socioeconomic and climate scenarios to shape food security. The report endeavors to use a broad range of published data as well as recent World Bank data regarding key issues including food water use and food subsidies, and newly collected data on AFS jobs. However, data gaps sometimes limit what can be done; for instance, there is limited information about the uses of public spending on the AFS, on groundwater availability and abstraction, on AFS wages, and other issues with important implications for policy proposals.

NOTES

1. The food security estimates presented in this chapter are based on the World Food Security Outlook (WFSO) database, version dated April 2025, available at <https://microdata.worldbank.org/index.php/catalog/6103>. The method can be found in Andrée (2022).
2. Food Security and Nutrition / Suite of Food Security Indicators data set from FAO, UNICEF, and WHO, accessed December 2025, available at <https://www.fao.org/faostat/en/#data/FS>.
3. World Bank Gender Data Portal, accessed December 2025; available at <https://genderdata.worldbank.org/en/indicator/sh-sta-owad-zs?gender=total>.

REFERENCES

- Andrée, B .P .J. 2022. “Machine Learning Guided Outlook of Global Food Insecurity Consistent with Macroeconomic Forecasts.” Policy Research Working Paper 10202. World Bank, Washington, DC: World Bank Group. <http://hdl.handle.net/10986/38139>.
- FAO (Food and Agricultural Organization of the United Nations). 2025. *Food Safety and Quality in the Near East and North Africa: Mapping Drivers, Challenges and Imperatives*. Cairo. <https://doi.org/10.4060/cd6725en>.
- Gatti, Roberta, Caglar Ozden, Jesica Torres, Leila Baghdadi, Ernest Sergenti, Asif, M. Islam, Isis Gaddis, Gianluca Mele, Sumin Chun, Francisco Parro, Mennatallah Emam Mousa, Angel Ramirez, Richard Newsome, and Ilias Suvanov. 2025. *Jobs and Women: Untapped Talent, Unrealized Growth*. Middle East, North Africa, Afghanistan, and Pakistan Economic Update (October). Washington, DC: World Bank. DOI: 10.1596/978-1-4648-2292-6.
- Ianchovichina, Elena. 2018. *Eruptions of Popular Anger: The Economics of the Arab Spring and Its Aftermath*. MENA Development Report. Washington, DC: World Bank. doi:10.1596/978-1-4648-1152-4.
- Maitra, C. 2018. “A Review of Studies Examining the Link Between Food Insecurity and Malnutrition.” Technical Paper. FAO, Rome.
- Soffiantini, G., 2020. “Food Insecurity and Political Instability during the Arab Spring.” *Global Food Security* 26, 100400.

The Future of Food Demand: MENAAP Needs More and Better Food

BEYOND FOOD AVAILABILITY, ACCESS TO SAFE AND HEALTHY FOOD MATTERS FOR FOOD AND NUTRITION SECURITY

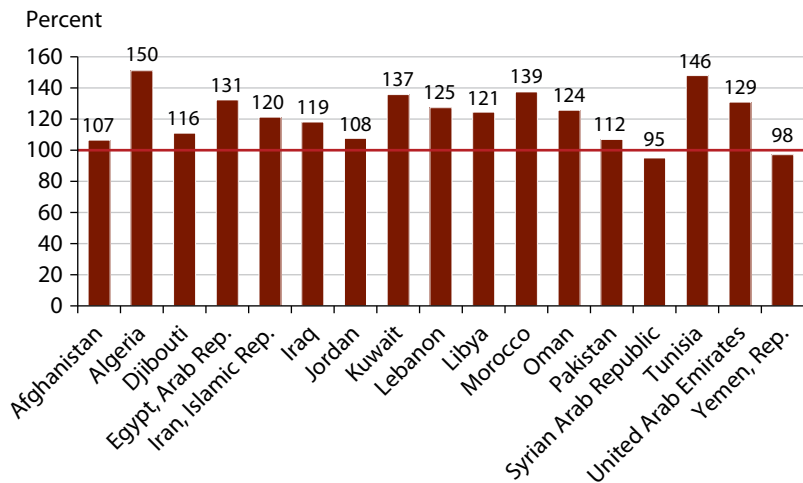
Many countries in the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region barely have sufficient food available at the national level to meet the caloric needs of their populations, particularly those affected by conflict. The average dietary energy supply adequacy measure expresses the dietary energy supply as a percentage of the average dietary energy requirement, thereby capturing food availability and correlating with undernourishment. In regional terms, it is below 100 percent in the Syrian Arab Republic and the Republic of Yemen, and barely above this threshold in Afghanistan, Jordan, and Pakistan (refer to figure 2.1).

However, these averages mask stark distributional issues in food access and stability within countries, with high variability across areas and households. A country that just reaches 100 percent of its supply would need to distribute food perfectly equally and without loss to ensure everyone is well nourished. However, in Afghanistan, for instance, 13.1 million people faced high levels of acute food insecurity in 2023 (IPC 2023), despite an average dietary energy supply adequacy of 107 percent (2022–24 data). Patterns of which groups face food insecurity are not always easy to predict. For Afghanistan, Hassanzoy, Petrick, and Teuber (2025) have shown that while chronic food insecurity is more prevalent in rural areas, undernourishment is more pronounced in urban

households, driven by the economic downturn in cities. Consequently, while rural food-insecure people were among the poorest quintiles nationally, counterintuitively, most food-insecure urban households were in the richest quintiles, given higher wealth levels in urban areas.

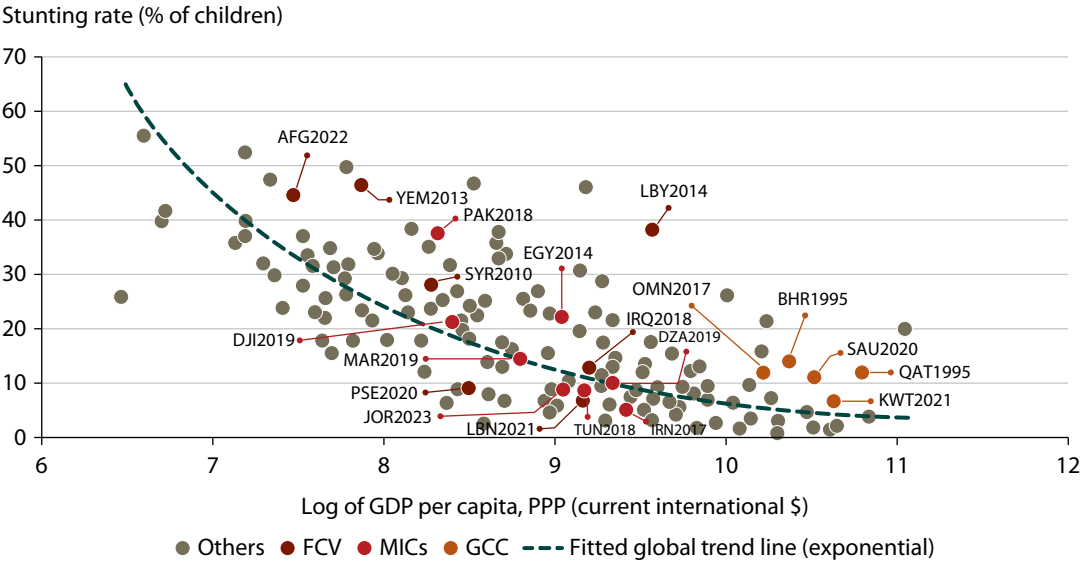
Malnutrition is higher in MENAAP than expected given the region’s income level. Stunting, a core indicator of cumulative deprivations from pregnancy through early childhood, remains alarmingly prevalent. Figure 2.2 illustrates the relationship between economic prosperity (measured by GDP per capita) and stunting prevalence (the percentage of children under 5 with low height for age) in MENAAP compared to the world. Many MENAAP countries experience higher stunting rates than expected for their income levels, reflecting underlying structural and nutritional challenges. Pakistan stands out among the MICs for its high level of stunting prevalence, which is on par with countries affected by fragility, conflict, and violence (FCV). This phenomenon is partly linked to widespread waterborne diseases that impair nutritional intake and to poor maternal health (Batoool et al. 2023; Khatoon 2025). Even Gulf Cooperation Council (GCC) countries have higher stunting levels than expected given their high per capita GDP, highlighting structural deficits in child nutrition. As illustrated in figure 2.2, a major impediment to addressing malnutrition is the lack of comprehensive and regularly updated data. For instance, data for Libya, Syria, and the Republic of Yemen predate the conflicts of the past decade.

FIGURE 2.1
Average Dietary Energy Supply Adequacy in MENAAP, 2022–24



Source: FAOSTAT (<https://www.fao.org/faostat/en/#data/FS>).
Note: Data for Yemen, Rep., are derived from the years 2020–22.

FIGURE 2.2
Prevalence of Stunting versus Economic Development (Log of GDP per Capita) in MENAAP and the Global Context



Sources: World Bank data from Joint Child Malnutrition Estimates (JME) database (<https://data.unicef.org/topic/nutrition/malnutrition/#data>) and World Bank World Development Indicators database (<https://databank.worldbank.org/source/world-development-indicators>).

Note: This figure is based on a sample of 159 countries, of which 126 are developing economies and 33 are advanced economies.

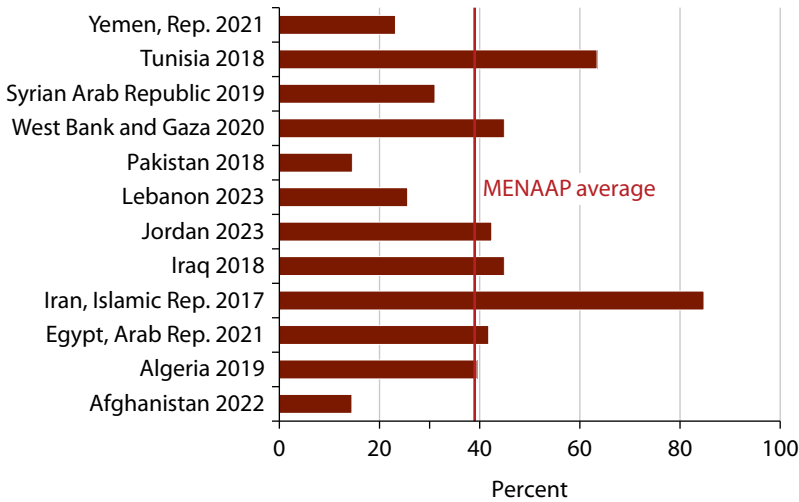
AFG = Afghanistan; BHR = Bahrain; JOR = Jordan; KWT = Kuwait; LBN = Lebanon; OMN = Oman; QAT = Qatar; SAU = Saudi Arabia; TUN = Tunisia; YEM = Yemen, Rep

In countries with available data, two of five young children enjoy minimum dietary diversity. Low dietary diversity is strongly associated with an increased risk of stunting, micronutrient deficiencies, and poor health outcomes in children and women. Among children age 6–23 months, only 39 percent consumed foods from at least 5 out of 8 specified food groups during the day preceding data collection. In Afghanistan and Pakistan, values are as low as 15 percent (refer to figure 2.3). Among women of reproductive age in the region, disparities are large: In Tunisia, as many as 92 percent attained minimum dietary diversity, but in Lebanon, the Republic of Yemen, and Pakistan, only around 50 percent, and in Afghanistan, a mere 30 percent.

Overweight and obesity impose a striking public health burden in the region, with many countries facing a double or triple burden of malnutrition. While energy supply is essential for food and nutrition

security (FNS), it is not sufficient. Undernutrition (which includes stunting, wasting, and micronutrient deficiencies such as anemia), as well as overweight and obesity, can impair physical and cognitive development and reduce life expectancy, and are among the leading factors for diet-related noncommunicable diseases. These forms of malnutrition are interrelated, as early life undernutrition increases the risk of obesity later in life. Malnutrition in all forms results in lost productivity and higher healthcare costs, and can undermine economic development. Figure 2.5 illustrates the severity of malnutrition across the region along these two dimensions. In every country, at least one-third of women are affected by overweight or obesity; in most countries, prevalence exceeds 50 percent, reaching over 80 percent in the Arab Republic of Egypt. At the same time, several countries face persistently high levels of child stunting, highlighting the double burden of malnutrition. In addition, most countries in the region have anemia rates above 50 percent in women of reproductive age (WHO, 2023 data), underscoring the presence of a triple burden of malnutrition in the region.

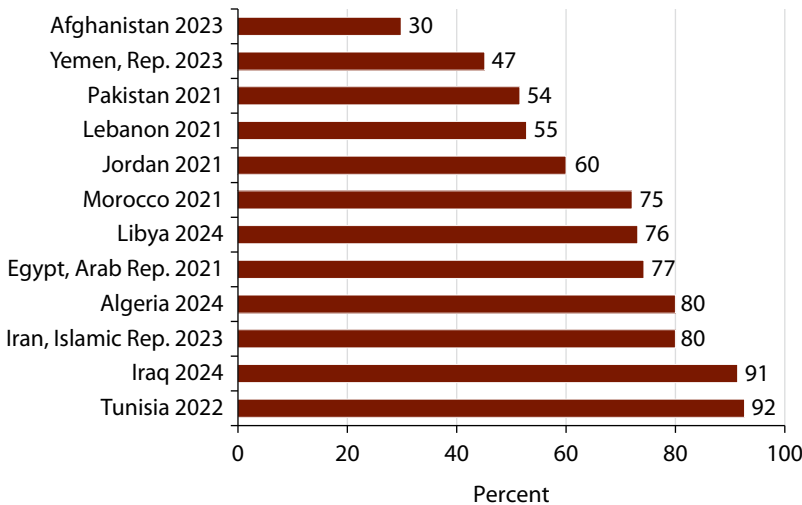
FIGURE 2.3
Minimum Dietary Diversity for Children in MENAAP, 2017–23



Source: UNICEF (<https://data.unicef.org/topic/nutrition/diets/#data>).

FIGURE 2.4

Minimum Dietary Diversity for Women in MENAAP, 2021–23

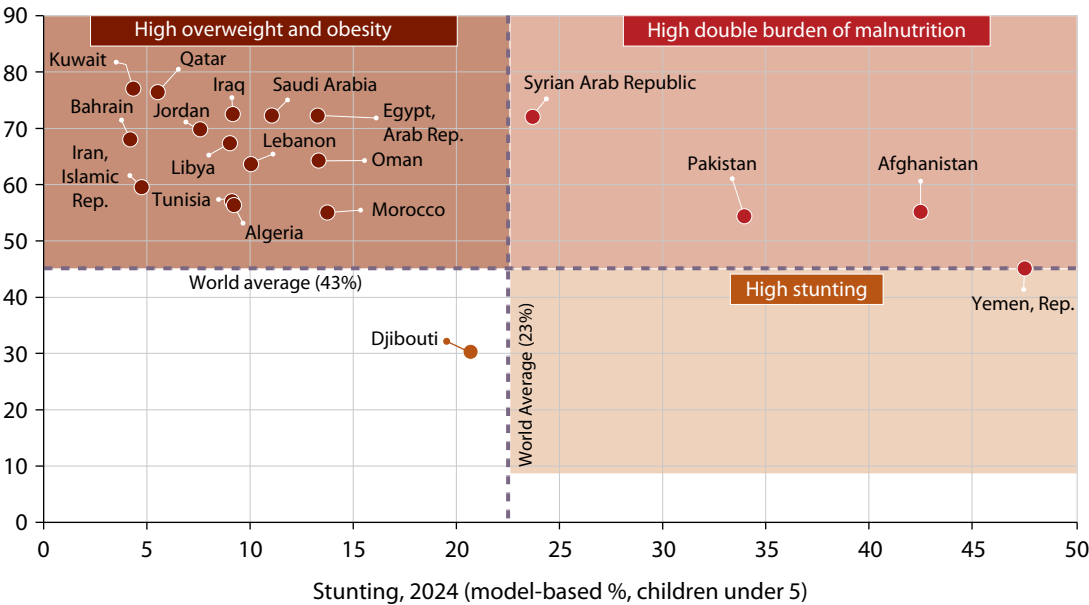


Source: Gallup World Poll, 2021–24, Global Diet Quality Project, 2024.

FIGURE 2.5

Double Burden Based on Overweight and Obesity and Stunting in MENAAP, 2019–22

Adult overweight and obesity, 2022 (%), all adults



Sources: Overweight and obesity in adult population: World Bank Gender Data Portal (<https://genderdata.worldbank.org/en/indicator/sh-sta-owad-zs?year=2022>); stunting: UNICEF/ WHO/ World Bank Joint Child Malnutrition Estimates—Country Estimates, 2025 edition (<https://www.fao.org/faostat/en/#data/FS>).

ECONOMIC ACCESS TO SAFE AND HEALTHY FOOD IS WORSENING IN MENAAP DUE TO FOOD PRICE INFLATION AND STRUCTURAL VULNERABILITIES

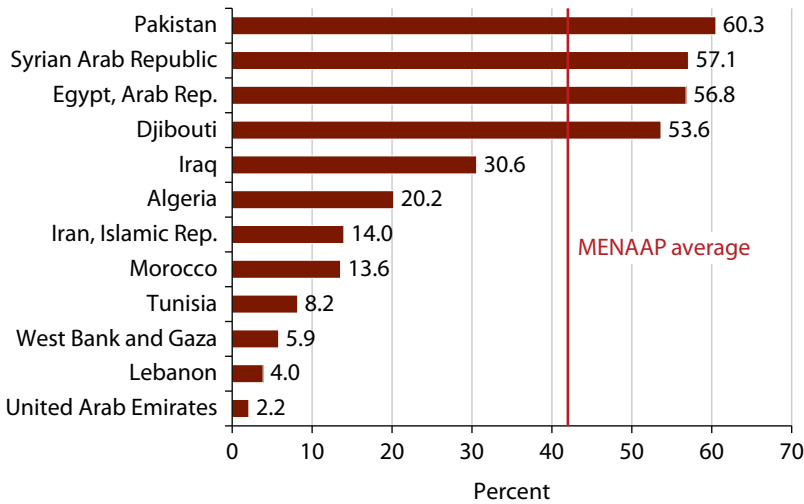
The availability of safe, nutritious foods does not guarantee that households can access these foods. Adequate consumption is contingent upon the structure and functionality of a complex food environment (Ashby et al. 2016) and interrelated factors: affordability (income), physical access (transport), dietary requirements, and food preferences, desirability, and convenience. Unpacking how these factors shape food demand reveals how consumer tastes and preferences, market conditions, and policies jointly influence behavior and expectations, prices, income levels, availability of substitutes and complements.

Affordability compounds economic access to sufficient, safe and nutritious food. High prices for healthy, nutrient-dense foods—such as fruits, vegetables, and animal-source proteins—often make balanced diets unattainable for low-income populations, leading to reliance on cheaper, less nutritious staples. For instance, in Pakistan, where inflation increased by 40 percent year on year in 2023, households overconsume wheat (cheapest in caloric terms), which accounts for over 40 percent of total caloric intake, and underconsume costlier, nutrient-dense items. When access to food is limited, women and girls are often disproportionately impacted as they tend to vastly deprioritize their food intake.

Between 2022 and 2024, many MENAAP economies experienced double-digit food inflation, pushing the share of residents unable to afford a healthy diet to 42 percent in 2024, up from 38 percent in 2017. Egypt, the Islamic Republic of Iran, and Lebanon saw extreme food price inflation, with Lebanon peaking at over 350 percent year-on-year in 2023 (WFP 2023). The cost of a healthy diet is the minimum cost required to meet recommended dietary guidelines using locally available foods. More than half the people in Pakistan, Syria, Djibouti, and Egypt cannot afford a healthy diet (refer to figure 2.6). In Egypt, the cost rose from US\$3.81 per person per day in 2017 to US\$6.42 in 2024 (2017 PPP), with the share of the population affected rising from 53 percent to 57 percent.

FIGURE 2.6

Share of Population Unable to Afford a Healthy Diet in MENAAP in 2024

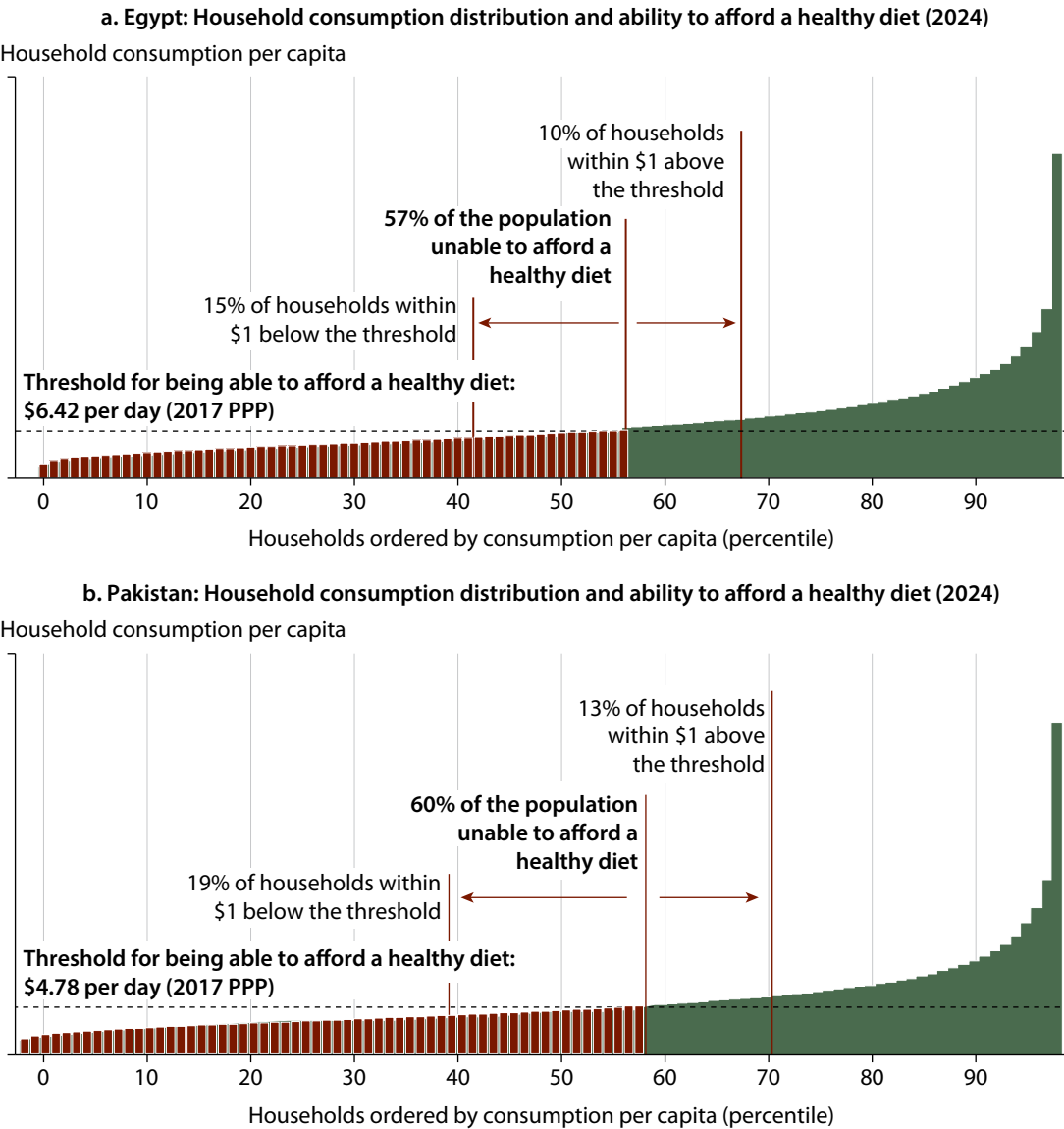


Source: Food Prices for Nutrition Datahub (<https://databank.worldbank.org/source/food-prices-for-nutrition>).

Many households cluster just around the affordability threshold for a healthy diet, highlighting both vulnerabilities and opportunities. Focusing on Egypt and Pakistan—the two countries with the largest numbers of people unable to afford a healthy diet—figure 2.7 illustrates how close households are to meeting nutrition requirements. A substantial share of households lie only marginally below or above the threshold: one in four residents in Egypt and one in three in Pakistan have consumption levels within \$1 (2017 purchasing power parity [PPP]) of the affordability cutoff. This underscores how sensitive access to a nutritious diet is to modest changes in consumption or food prices. One can read this pattern as a risk: an additional 13 percent of Pakistan’s population could become unable to afford a healthy diet with relatively small changes. However, one can also find an encouraging perspective: 19 percent of residents, or one in three of those today unable to afford a healthy diet, could cross the threshold with modest improvements in purchasing power.

FIGURE 2.7

Household Income Distribution and Ability to Afford a Healthy Diet, Arab Republic of Egypt and Pakistan, 2024



Source: Original figure for this report. Panel a: 2021–22 Egypt Household Income, Expenditure and Consumption Survey, Central Agency for Public Mobilization and Statistics; panel b: 2018–19 Pakistan Household Integrated Economic Survey, Pakistan Bureau of Statistics.

Note: Bars indicate mean household consumption per capita for each percentile of the consumption distribution, projected to 2024 assuming a 70 percent pass-through of GDP per capita growth. The threshold reflects affordability of a healthy diet line in 2024, expressed in 2017 PPP. Both surveys use the MNAPOV-Global Monitoring Database harmonization produced by the World Bank. PPP = purchasing power parity.

Most people in the region lacking access to food are rural poor. Poorer households devote a larger share of their budgets to food, making them disproportionately vulnerable to food price inflation. Even modest price increases can push large segments of the population below the poverty line, given the high concentration of people just above it in MENAAP (Gatti et al. 2023, 2024; World Bank 2025c). Across the region, rural areas continue to host the majority of the poor and the most food-insecure populations—a pattern well documented in the aftermath of the 2008 food price crisis (Lampietti, Michaels, and Magnan 2009). This remains the case today: poverty rates in rural versus urban areas stand at 55.1 percent versus 26.6 percent in Pakistan (with four in five poor people living in rural areas), 21.5 percent versus 2.1 percent in Egypt, and 30.0 percent versus 9.4 percent in Tunisia (World Bank 2025b, 2025c, 2025d).

At the same time, unplanned urbanization is creating a growing second front of vulnerability. Between 1970 and 2020, the Middle East and North Africa (MENA) subregion's urban population nearly quadrupled, outpacing the global average, driven by economic transformation, migration, drought, and conflict-induced displacement. Kuwait and Qatar are now fully urbanized. Cities across MENAAP are often ill-equipped to absorb rural and conflict-driven inflows, leading to the expansion of informal settlements where the urban poor face rising food prices, poor sanitation, and limited access to services (World Bank 2020). As illustrated by Afghanistan, urbanization does not provide protection against food insecurity during shocks: when livelihoods collapse, food production itself can become a last-resort coping strategy even in urban settings (Hassanzoy, Petrick, and Teuber 2025).

Food safety is another critical dimension of access to food, but does not receive sufficient attention, monitoring, and investment. Unsafe food globally causes 600 million cases of foodborne diseases and 420,000 deaths annually, with a third occurring among children under five (Havelaar et al. 2015). Foodborne diseases, caused by consuming contaminated food or water, harm individual health and undermine economic productivity, healthcare systems, and the stability of food supply. Jaffee et al. (2019) estimated the global economic loss from unsafe food at US\$95 billion per year, with losses on the order of US\$1 to 2 billion in each of the MENAAP countries included in the study, Algeria, Egypt, the Islamic Republic of Iran, Iraq, and Pakistan—most of which could be prevented. In addition, mycotoxins,

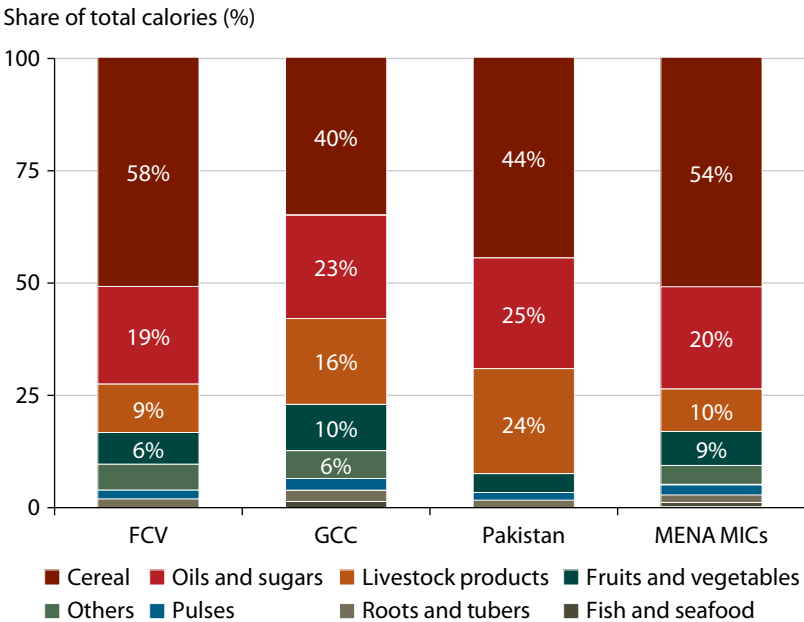
pesticides, and antimicrobial residues in food chains have emerged as pressing concerns in the region (FAO 2025), aggravated by poor practices regarding storage, misuse of antibiotics in livestock farming, excess and misuse of pesticides, lack of legislation, and weak policies. Despite these stakes, limited political attention and weak surveillance, monitoring, and reporting systems across much of MENAAP continue to constrain an accurate assessment of food safety risks and delay effective policy responses (FAO 2025).

BEYOND PRICES, LESS HEALTHY FOOD CHOICES FUEL MALNUTRITION AND OBESITY IN THE REGION

The diet consumed in the region is high in cereals, sugar, and oils and low in fruits, vegetables, legumes, and dairy. These averages mask large regional diversity (refer to figure 2.8). Overall, the dietary patterns are not aligned with global recommendations (refer to figure 2.9), which call for more vegetables, fruits, whole grains, nuts, seeds, legumes, and dairy, and less red meat, processed meat, and sugar-sweetened beverages. Despite increasing availability of fruits and vegetables across the region, intake remains below these recommendations, while sugar and sweetener availability tripled between 1961 and 2000 (Golzarand et al. 2012).

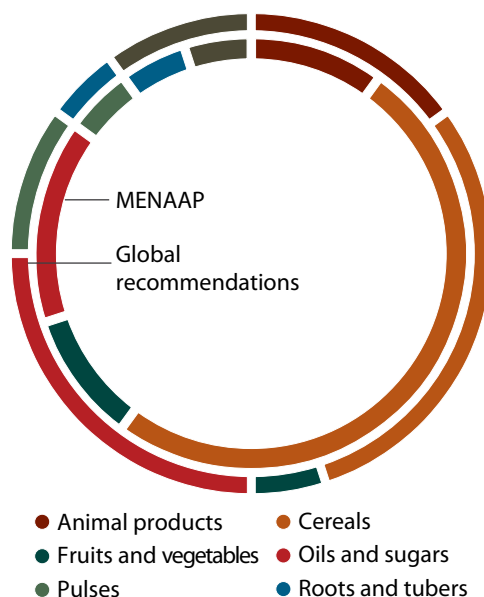
The region is undergoing a significant shift from traditional, cereal- and vegetable-based diets to more energy-dense foods rich in animal products, fats, processed items, and sugars. This change mirrors global trends and is driven by globalization, rising and unequal incomes, and lifestyle shifts. Accelerating urbanization has reshaped nutrition patterns, boosting access to convenience foods and altering household choices. Over 65 percent of the Middle East and North Africa's population lives in urban areas, compared to 27 percent in Afghanistan and 38 percent in Pakistan (World Bank 2021). Urbanization has driven demand for convenience foods, leading to growth in Western-style fast food chains and processed meals (Galal 2003; Hattingh et al. 2024).

FIGURE 2.8
Diversity of Diets Across MENAAP: Share of Food Groups in Total Calorie Consumption, 2021–23 Averages



Source: Original figure for this publication based on FAOSTAT (<https://www.fao.org/faostat/en/#data/FBS>).

Unhealthy food consumption, especially ultra-processed foods and sugar-sweetened beverages (SSBs), is high and rising among youth. In Saudi Arabia, the diet of only one-third of school-age children meets fruit and vegetable recommendations, while half of the children in the GCC countries consume SSBs or sweets daily (Al-Jawaldeh, Taktouk, and Nasreddine 2020). A global analysis found that children in the MENA subregion had the second-highest SSB intake worldwide in 2018, with a faster increase than among adults. Unlike other regions, SSB intake was not linked to higher income, but was higher among rural youth and those with less-educated parents (Lara-Castor et al. 2024).

FIGURE 2.9**Comparison of MENAAP Food Consumption to EAT-Lancet Recommendations per Food Category**

Sources: FAOSTAT (<https://www.fao.org/faostat/en/#data/FBS>) and EAT-Lancet (<https://eatforum.org/eat-lancet/>).

Note: MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

REDUCING FOOD LOSS AND WASTE IS A FAST, COST-EFFECTIVE LEVER TO IMPROVE FOOD AVAILABILITY, RESOURCE EFFICIENCY, AND FISCAL SUSTAINABILITY

Food loss during production, processing, and transport and waste at retail and consumer levels undermine FNS while imposing severe economic, fiscal, and environmental costs that extend far beyond the food itself. Losses across the supply chain reduce farmers' incomes—especially for smallholders—by lowering the quantity and quality of marketable produce, while driving up food prices and limiting availability for consumers. Beyond direct income losses, food loss and waste (FLW) represents the squandering of resources the region can least afford to waste: water extracted from already-overstressed aquifers, arable land used to cultivate food never consumed, and energy used to no productive end. Beyond missed meals, every ton of

food lost or wasted represents an environmental cost. The fiscal dimension is equally important. Where food losses occur in subsidized value chains or public procurement systems, they constitute direct fiscal waste, weakening the efficiency, credibility, and sustainability of food support policies.

About one-third of food is estimated to be lost or wasted in MENAAP, with households wasting over 95 million tons of food per year, two-thirds more than the global average. Despite large data gaps, existing evidence shows an alarming level of FLW in MENAAP, highlighting real opportunities to improve FNS by reducing it. Gustavsson et al. (2011) estimate that the UN's regions of North Africa and West and Central Asia, which partly overlap with MENAAP, lose or waste 30 percent of cereals, 55 percent of fruits and vegetables, and 20 percent of meat and dairy. Households in MENAAP waste on average 131 kg of food per year, compared with a world average of 79 (UNEP 2024). On average, food waste accounts for about 11 percent of municipal solid waste in MENA (World Bank 2025a), but in several countries it represents a much larger share—ranging from approximately 36 to 66 percent of total municipal solid waste in Qatar, the United Arab Emirates, Iraq, and Egypt (Hussein et al. 2022). Economic losses are staggering—Saudi Arabia loses up to US\$11 billion annually, while Egypt loses nearly US\$449 million from tomatoes alone (MEWA 2020; Ali et al. 2021). To put this in perspective, these amounts exceed the entire agricultural R&D budget of most countries in the region.

Reducing FLW in MENAAP is an imperative for both resource efficiency and fiscal responsibility that demands integrated action across policy, infrastructure, and behavioral change. While the United Arab Emirates and Saudi Arabia lead with initiatives like the Ne'ma Roadmap to halve FLW by 2030 and investments in advanced storage and redistribution systems, broader regional progress hinges on comprehensive strategies. Governments should prioritize national frameworks, invest in cold storage, transport, and processing technologies—leveraging digital tools for efficiency—and drive public awareness to shift consumer behavior. Circular economy solutions such as composting, waste-to-energy, and food redistribution programs can turn waste into value, while regional collaboration can harmonize standards and accelerate innovation.

Reducing food loss and waste is not only a policy and fiscal challenge but a business opportunity, with strong scope for private-sector-led solutions. Investments in storage, cold chains, logistics, processing, digital tracking, and circular-economy models are already improving profitability while reducing losses across value chains. Where policy provides clear incentives and predictable rules, private operators (from logistics firms to food processors and retailers) are well positioned to lead scaleup.

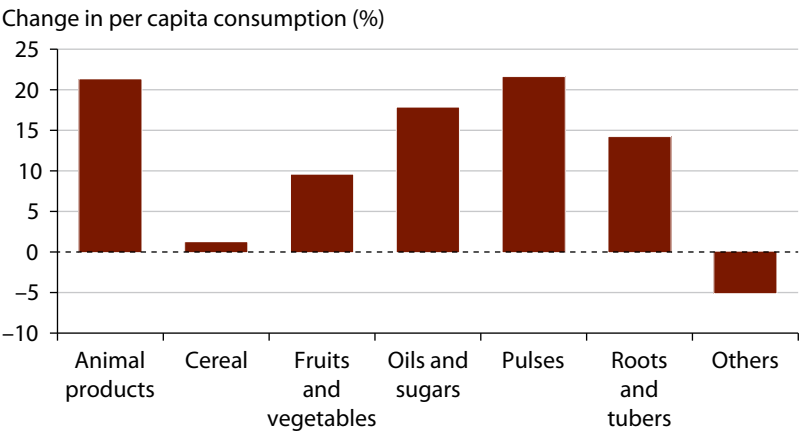
BY 2050, RISING POPULATION AND SHIFTING DIETARY PATTERNS WILL FURTHER INCREASE FOOD DEMAND BY TWO-THIRDS

Food consumption in MENAAP is projected to rise by 67 percent by 2050 in terms of total energy, as population is projected to increase by half and income to double. In the reference scenario used in modeling for this report (refer to chapter 7), over three-quarters of the projected increase in caloric consumption is due to population growth, the remainder reflecting changes in diets. The MENAAP population is expected to grow by 50 percent between 2020 and 2050 (an increase of 371 million people), with particularly high growth expected in Pakistan (64 percent, adding 145 million people), FCV countries (64 percent), and Egypt (52 percent). Projected demand rises fastest in today's FCV economies (79 percent), due to both higher population growth and projected economic recovery. However, in the GCC and MICs, consumption is also expected to grow by 44 percent and 45 percent, respectively.

GDP per capita is expected to double over the period, continuing to change diets with further consumption of oils, sugars, and animal-based foods (refer to figures 2.10 and 2.11). Without targeted and clear public interventions, current unhealthy trends are likely to deepen. On the bright side, a change in relative price levels could encourage higher demand for pulses (such as beans, chickpeas, or lentils), which are nutrient rich.

FIGURE 2.10

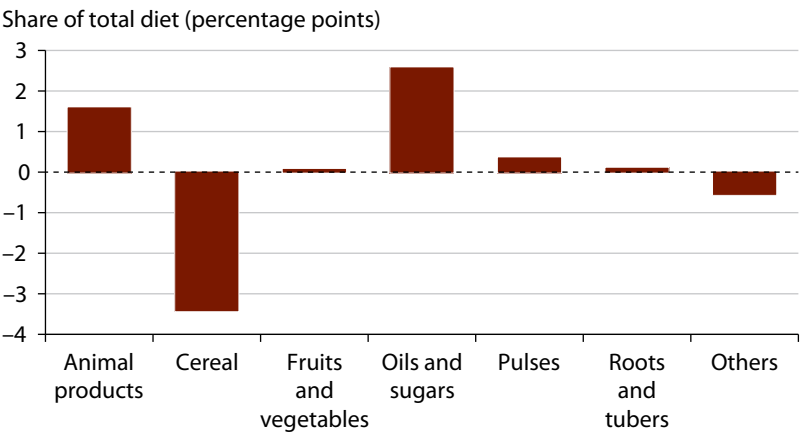
Projected Change in MENAAP’s per Capita Consumption per Food Category, 2020–50



Sources: World Bank, based on IFPRI IMPACT model results, Middle-of-the-Road scenario, Business-as-Usual pathway.

FIGURE 2.11

Projected Change in MENAAP’s Diet, 2020–50



Sources: World Bank, based on IFPRI IMPACT model results, Middle-of-the-Road scenario, Business-as-Usual pathway.

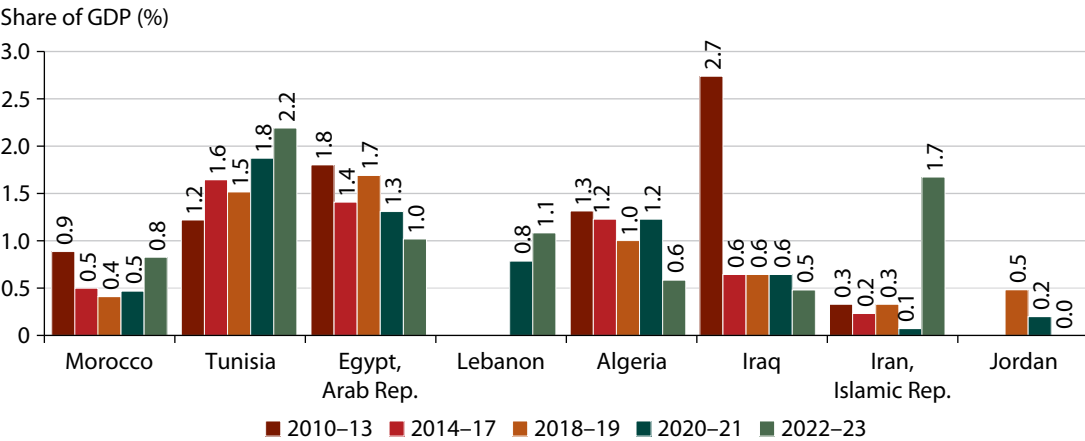
POLICIES SHAPE FOOD DEMAND AND CAN IMPROVE THE FUTURE FOOD ENVIRONMENT

Shaping future food demand in the region requires bold, coordinated fiscal, regulatory, and delivery reforms that protect FNS while steering

diets toward healthier and safer outcomes. Governments across the region can influence food demand through a mix of price policies, subsidies, cash transfers, and targeted regulations, but success hinges on careful targeting, political feasibility, and modern delivery systems that ensure equitable access and resilience over time.

Food demand is partly shaped in MENAAP by food subsidies, which dominate social protection and absorb substantial fiscal resources. MENA is the world’s largest spender on energy and food subsidies for consumers (Gentilini et al. 2025). In 2022–23, governments in the subregion spent on average 1.0 percent of their GDP on food subsidies, reaching about 344 million people in 2022 in the seven countries with available administrative data, at a cost of about US\$27.8 billion (Gentilini et al. 2025; Pinxten, Gentilini, and Jenzri 2025a, 2025b). Different trajectories are observed (refer to figure 2.12). Tunisia has been steadily increasing spending on food subsidies since the 2010s, peaking at 2.2 percent of GDP in 2022–23 before declining to 1.7 percent in 2023–24, covering staples such as durum wheat, milk, vegetable oil, sugar, pasta, and couscous. Morocco decreased this spending after 2013 and increased it again after COVID-19 to about 0.8 percent of GDP. Egypt has gradually decreased its spending on quasi-universal food subsidies, which include ration cards (covering over 60 percent of the population) and Baladi bread (nearly 80 percent of the population), from 1.8 percent of GDP in 2011–13 to just under 1 percent of GDP since 2022–23.

FIGURE 2.12
Food Subsidy Spending as Share of GDP, Middle East and North Africa, 2010–23



Source: Pinxten, Gentilini, and Jenzri 2025b.

Despite their scale and their social and political importance, universal food subsidies are an inefficient way to protect the poorest. The function of subsidies is to protect vulnerable people from rising prices. However, as they lower prices for all consumers, they are not a cost-effective instrument. Yet they are deeply embedded in social contracts across the region, and governments often view their removal as a risk to social stability. During periods of high inflation, subsidies do provide tangible protection by stabilizing staple prices for households, even as fiscal costs rise. Public support remains strong: in 2022, one-quarter of respondents to the Arab Barometer ranked subsidies as the top priority for government spending, on par with healthcare and above education (Gentilini et al. 2025).

Gradual, well-managed reform can improve efficiency and nutritional outcomes without undermining FNS or social stability. Replacing universal food subsidy schemes with targeted direct support can free fiscal space while protecting those most in need. Reforming food subsidies does not mean abolishing them: there are multiple middle options. Many countries have chosen to turn toward voucher systems (Indonesia), while others have combined instruments: for instance, India combines in-kind food transfers, cash transfers, and increased targeting and portability with digitalization (e.g., digital identity infrastructure). Egypt (2014), the Islamic Republic of Iran (2011), Jordan (2019), and Lebanon (2022) have demonstrated that steps toward reform are feasible when pursued gradually, tailored to context, and accompanied by compensation mechanisms such as evouchers, digital food support, or cash transfers. Box 2.1 shows how Tunisia is successfully undertaking a deep reform of its bread subsidies through technical, efficiency-increasing steps. Clear communication, scenario planning, and contingency frameworks, especially those that anticipate inflation or other shocks, are essential to manage risks and build public trust.

Beyond food subsidies, social protection is key to protecting FNS and requires modern, shock-responsive delivery systems. When delivered in a timely and targeted manner, social protection programs (including cash transfer initiatives and in-kind food assistance programs) safeguard human capital, promote dietary diversity, and improve FNS for the most vulnerable populations. In FCV contexts, they not only support food access but also contribute to social stability and recovery. They can also take on importance in facilitating fuel subsidy reforms. Such policy changes are critical in ensuring fiscal sustainability and the

BOX 2.1**How Gradual Reform Can Deliver Large Fiscal Gains: Evidence from Tunisia's Grain Sector**

Tunisia's recent grain sector reforms show that food subsidy reform is possible when approached through practical, incremental steps rather than abrupt system overhauls. Instead of removing subsidies upfront, the Government of Tunisia focused first on fixing concrete problems in how the system operated. Early measures corrected clear distortions, for instance, by adjusting subsidized barley prices that were fueling speculation, and by opening part of barley imports to private operators to reduce costs and ease the grain board's financing burden. These changes delivered quick, visible efficiency gains without reducing household's access to subsidized food.

Subsequent reforms narrowed the scope of subsidies by removing support where it was clearly mistargeted. Subsidies on pastry flour used by commercial and

industrial entities were eliminated through compensatory taxation, while subsidies for household consumption were maintained. More recent measures improved system efficiency and control, including increasing flour extraction rates to reduce wheat import needs and physically differentiating subsidized bakery flour from nonsubsidized flour to curb diversion and fraud.

Together, these incremental reforms have generated large fiscal and efficiency gains (estimated at over US\$400 million per year) without abrupt subsidy removal. They also reduced the grain board's financing needs and created space for greater private participation. Tunisia's experience illustrates that the key question is not whether food subsidies can be reformed, but how: through sequencing, focus on operational fixes, and gradual repurposing of public spending toward higher-value uses.

efficiency of public spending, but often entail food price increases; safety nets can guarantee continued affordability and help avoid implications for FNS. Well-designed, digitally enabled delivery systems play a critical role in reaching nutritionally vulnerable populations, particularly during climate- or conflict-related shocks that disrupt food systems. Integrated social registries, such as those being developed in Morocco and Jordan, or already implemented in Pakistan and Egypt, enhance the identification and targeting of poor and food-insecure households. In fragile settings, countries like the Republic of Yemen and Lebanon are

innovating to build anticipatory and crisis-responsive systems: the Republic of Yemen is investing in early-warning triggers to prevent nutritional deterioration, while Lebanon's Digital Arabic Emergency Management (DAEM) registry, covering 45 percent of the population, is evolving into a broader platform linking social protection and crisis response.

Repurposing subsidies toward the production and consumption of nutritious food offers an additional lever to improve diets. Oman stands out as the only MENAAP country to have announced a gradual reallocation of agrifood production subsidies away from sugar and unhealthy fats toward healthier foods. Bahrain is preparing to eliminate sugar consumer subsidies entirely, while Qatar and the United Arab Emirates have announced plans to phase out consumer subsidies for sugar-rich food items. Eight countries in the region have committed to eliminating sugar subsidies for industrial use, while maintaining them at the household level.

Regulatory and consumer-facing policies can further steer food demand toward healthier and safer choices. Front-of-package labeling and marketing restrictions help consumers make informed decisions and protect children, but implementation in MENAAP is limited—only the Islamic Republic of Iran and Abu Dhabi have mandatory labeling, and just seven mostly high-income countries restrict marketing to children. In Egypt, three-quarters of ads targeting children thus promote unhealthy foods (Rady 2016). Enforcement of the International Code on Marketing of Breast-Milk Substitutes is uneven, missing a key opportunity to support breastfeeding. Product reformulation, such as Saudi Arabia's transfat ban and sodium limits in bread, can reduce diet-related diseases. Food fortification with essential micronutrients is another cost-effective strategy to improve nutrition for large populations without major dietary changes. Another powerful tool to promote healthier dietary patterns are taxes, such as those implemented on sugar-sweetened beverages in eight MENAAP countries (Bahrain, Morocco, Oman, Pakistan, Saudi Arabia, Tunisia, the United Arab Emirates, and Qatar). Regarding food safety, regulatory gaps and weak enforcement and controls on supply chains need to be addressed. Improving access to safe food would require a holistic, risk-based control system and a solid commitment to integrating the principles of the One Health approach encompassing animals, humans, the environment, and agricultural sectors (FAO 2025).

REFERENCES

- Ali, Abdelrahman, Chunping Xia, Irfan Mahmood, and Muhammad Faisal. 2021. "Economic and Environmental Consequences of Postharvest Loss Across Food Supply Chain in the Developing Countries." *Journal of Cleaner Production* 323: 129146.
- Al-Jawaldeh, Ayoub, Mandy Taktouk, and Lara Nasreddine. 2020. "Food Consumption Patterns and Nutrient Intakes of Children and Adolescents in the Eastern Mediterranean Region: A Call for Policy Action." *Nutrients* 12 (11): 3345. <https://doi.org/10.3390/nu12113345>.
- Ashby, Stephanie, Suzanne Kleve, Rebecca McKechnie, and Claire Palermo. 2016. "Measurement of the Dimensions of Food Insecurity in Developed Countries: A Systematic Literature Review." *Public Health Nutrition* 19 (16): 2887–96. <https://doi.org/10.1017/s1368980016001166>.
- Batool, Munazza, Javeria Saleem, Rubeena Zakar, Muhammad Salman Butt, Sanaullah Iqbal, Shahroz Haider, and Florian Fischer. 2023. "Relationship of Stunting With Water, Sanitation, and Hygiene (WASH) Practices Among Children Under the Age of Five: A Cross-sectional Study in Southern Punjab, Pakistan." *BMC Public Health* 23 (1): 2153. <https://doi.org/10.1186/s12889-023-17135-z>.
- Borrowing Agency. 2025. "Stakeholder Engagement Plan (SEP) Support for Social Recovery Needs of Vulnerable Groups Phase II (P506127)." <https://documentsinternal.worldbank.org/search/40041473>.
- FAO. 2025. *Food Safety and Quality in the Near East and North Africa: Mapping Drivers, Challenges and Imperatives*. Cairo: FAO. <https://doi.org/10.4060/cd6725en>.
- Galal, O. 2003. "Nutrition-Related Health Patterns in the Middle East." *Asia Pacific J Clin Nutr* 2003;12 (3): 337–43.
- Gatti, Roberta, Daniel Lederman, Asif Islam, Federico Bennett, Hoda Assem. 2023. "How Is Food Price Inflation Going to Affect Children in MENA?" Arab Voices blog, World Bank. Accessed June 16, 2025, at <https://blogs.worldbank.org/en/arabvoices/how-food-price-inflation-going-affect-children-mena-0#>.
- Gatti, Roberta, Jesica Torres, Nelly Elmallakh, Gianluca Mele, Diego Faurès, Mennatallah Emam Mousa, and Ilias Suvanov. 2024. *Growth in the Middle East and North Africa: Middle East and North Africa Economic Update*. Washington, DC: World Bank.
- Gentilini, Ugo, Beenish Amjad, Evan Harold Blecher, Danielle Elena Bloom, Daniel Coppard, Amr Elshawarby, Katriel Friedman, Alan Fuchs Tarlovsky, Marelize Gorgens, Fatine Guedira, Duncan Knox, Diego Rodrigo Lopez, Arbind Modi, Matteo Morgandi, Dominik Naehrer, Mahesh Dinkar Nayak, Ceren Ozer, Montserrat Pallares-Miralles, Juul Pinxten, Dominique Claire Rouleau, Elisabeth Sedmik, Ellen Van De Poel, and Andrew Waddington. 2025. "Investing in People: Revisiting Fiscal Options to Finance Human Development in the MENA Region." World Bank, Washington, DC. <https://documents.worldbank.org/curated/en/099090925144023417>.

- Golzarand, Mahdiah, Parvin Mirmiran, Mahsa Jessri, Karamollah Toolabi, Mehdi Mojarad, and Fereidoun Azizi. 2012. "Dietary Trends in the Middle East and North Africa: An Ecological Study (1961 to 2007)." *Public Health Nutrition* 15 (10): 1835–44. <https://doi.org/10.1017/s1368980011003673>.
- Gustavsson, Jenny, Christel Cederberg, Ulf Sonesson, Robert van Otterdijk, and Alexandre Meybeck. 2011. *Global Food Losses and Food Waste: Extent, Causes and Prevention*. Rome: FAO.
- Hassanzoy, Najibullah, Martin Petrick, and Ramona Teuber. 2025. Patterns of Rural and Urban Food Insecurity in Afghanistan after August 2021. *Food Security* 17 (5): 1099–1117.
- Hattingh, Damian, Daniel Läubli, and Gokmen Ciger, with Oumaima Ayad. 2024. "A Growth Arena: State of Grocery Retail 2024 Middle East And North Africa." McKinsey & Company. Accessed June 10, 2025, at <https://www.mckinsey.com/industries/retail/our-insights/a-growth-arena-state-of-grocery-retail-2024-middle-east-and-north-africa>.
- Havelaar, Arie H., Martyn D. Kirk, Paul R. Torgerson, Herman J. Gibb, Tine Hald, Robin J. Lake, Nicolas Praet, et al. 2015. "World Health Organization Global Estimates and Regional Comparisons of the Burden of Foodborne Disease in 2010." *PLoS Medicine* 12 (12): e1001923. <https://doi.org/10.1371/journal.pmed.1001923>.
- Hussein, Lara, Ceylan Uren, Fatma Rekik, and Zied Hammami. 2021. "A Review on Waste Management and Compost Production in the Middle East–North Africa Region." *Waste Management & Research: the Journal for a Sustainable Circular Economy* 40 (8): 1110–28. <https://doi.org/10.1177/0734242x211068236>.
- IPC (Integrated Food Security Phase Classification). 2023. "Afghanistan: IPC Acute Food Insecurity Snapshot October 2023–March 2024." https://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_Afghanistan_Acute_Food_Insecurity_Oct2023_Mar2024_Snapshot.pdf.
- Jaffee, Steven, Spencer Henson, Laurian Unnevehr, Delia Grace, and Emilie Cassou. 2019. *The Safe Food Imperative: Accelerating Progress in Low- and Middle-Income Countries*. Agriculture and Food Series. Washington, DC: World Bank. <http://hdl.handle.net/10986/30568>.
- Khatoon, Aysha. 2025. "Assessing the Impact of Drinking Water Contamination on Stunting, Wasting and Underweight: Evidence from Children Under Five in Pakistan." *J. Sustain. Econ. Dev.* 3 (1): 69–81.
- Lampietti, Julian, Sean Michaels, and Nick Magnan. 2009. "Improving Food Security in Arab Countries." MENA Knowledge and Learning Quick Notes Series No. 3. World Bank, Washington, DC. <https://doi.org/10.1596/10992>.
- Lara-Castor, Laura, Renata Micha, Frederick Cudhea, Victoria Miller, Peilin Shi, Jianyi Zhang, Julia R Sharib, et al. 2024. "Intake of Sugar Sweetened Beverages Among Children and Adolescents in 185 Countries Between 1990 and 2018: Population Based Study." *BMJ* 386 (August): e079234. <https://doi.org/10.1136/bmj-2024-079234>.

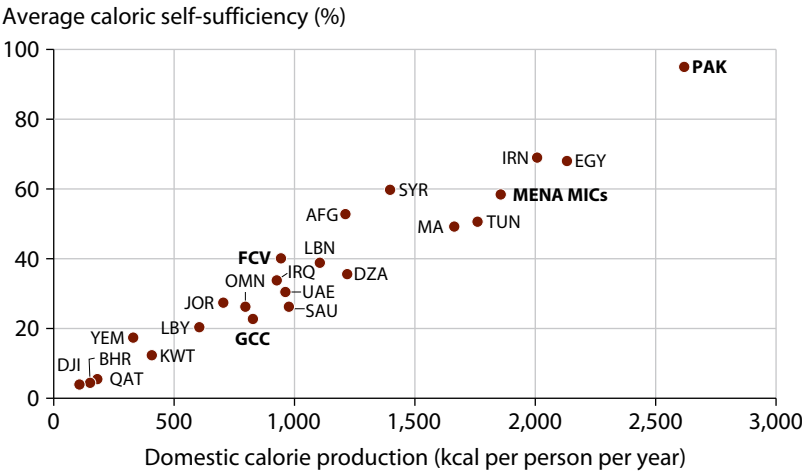
- MEWA (Ministry of Environment, Water, and Agriculture [Saudi Arabia]). 2020. "Food Waste Costs Saudi Arabia SR40 Billion Annually, Says Minister AlFadley." Ministry of Environment Water and Agriculture. <https://www.mewa.gov.sa/en/MediaCenter/News/Pages/News242020.aspx>. Accessed August 2025.
- Moradhvaj, KC Samir, Michaela Potancokova, Saroja Adhikari, Dilek Yildiz, Maria Mamolo, Tomas Sobotka, et al. 2024. "Wittgenstein Center (WIC) Population and Human Capital Projections—2023." Data set. Zenodo (CERN European Organization for Nuclear Research). <https://doi.org/10.5281/zenodo.10618931>.
- Pinxten, Juul, Ugo Gentilini, and Wiem Jenzri. 2025a. "Rekindling Food Subsidies in MENA." Background note for the MENAAP Food and Nutrition Security report. World Bank, Washington, DC.
- Pinxten, Juul, Ugo Gentilini, and Wiem Jenzri. 2025b. Food Subsidy Spending and Coverage in MENA, 2010–23. Data set. World Bank, Washington, DC.
- Rady, Mona. 2016. "Food & Beverages Advertising Viewed by Egyptian Children: A Content Analysis." Master's thesis. AUC Knowledge Fountain, American University in Cairo.
- UNEP (United Nations Environment Programme). 2024. *Food Waste Index Report 2024: Think Eat Save—Tracking Progress to Halve Global Food Waste*. Nairobi: UNEP.
- WFP (World Food Programme). 2023. "Lebanon Situation Report—July 2023." <https://reliefweb.int/report/lebanon/wfp-lebanon-situation-report-july2023>.
- World Bank. 2019. "Sustainable Land Management and Restoration in the Middle East and North Africa Region—Issues, Challenges, and Recommendations." World Bank, Washington, DC.
- World Bank. 2020. *Convergence: Five Critical Steps toward Integrating Lagging and Leading Areas in the Middle East and North Africa*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-1450-1>.
- World Bank. 2025a. "Waste Management in the Middle East and North Africa: Challenges and Opportunities." Report No. P501760. World Bank, Washington, DC.
- World Bank. 2025b. "Arab Republic of Egypt Poverty and Equity Brief: October 2025." World Bank, Washington, DC. <https://documents.worldbank.org/curated/en/099558104212527926>.
- World Bank. 2025c. "Pakistan Poverty and Equity Brief: October 2025." World Bank, Washington, DC. <https://documents.worldbank.org/curated/en/099255104222573036>.
- World Bank. 2025d. "Tunisia Poverty and Equity Brief: October 2025." World Bank, Washington, DC. <https://documents.worldbank.org/curated/en/099509004222555951>.

The Future of Agricultural Production: Producing More and Better Food with Less Water

MENAAP PRODUCES A LITTLE LESS THAN TWO-THIRDS OF ITS TOTAL CALORIE REQUIREMENTS DOMESTICALLY, BUT THIS SHARE IS DECLINING

While Pakistan is nearly food self-sufficient, most countries in the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region rely on imports to satisfy food demand. Both economies affected by fragility, conflict, and violence (FCV) and Gulf Cooperation Council (GCC) countries rely heavily on imports, with production limited by instability and agroclimatic conditions, respectively. Middle-income countries (MICs) in the Middle East and North Africa subregion (MENA) are largely self-sufficient in high-value crops such as fruits and vegetables. However, they remain highly dependent on imports to meet demand for cereals, which account for more than half of their total caloric supply, as well as demand for sugars and oils. By contrast, Pakistan stands out as the region's leading food producer, having achieved self-sufficiency in most food categories except for oils, sugar, and pulses (refer to figures 3.1 and 3.2).

FIGURE 3.1
Average Domestic Food Supply Across the Region, 2021–23



Sources: World Bank WDI (<https://data.worldbank.org/indicator/SP.POP.TOTL>), FAOSTAT (<https://www.fao.org/faostat/en/#data/QI>).

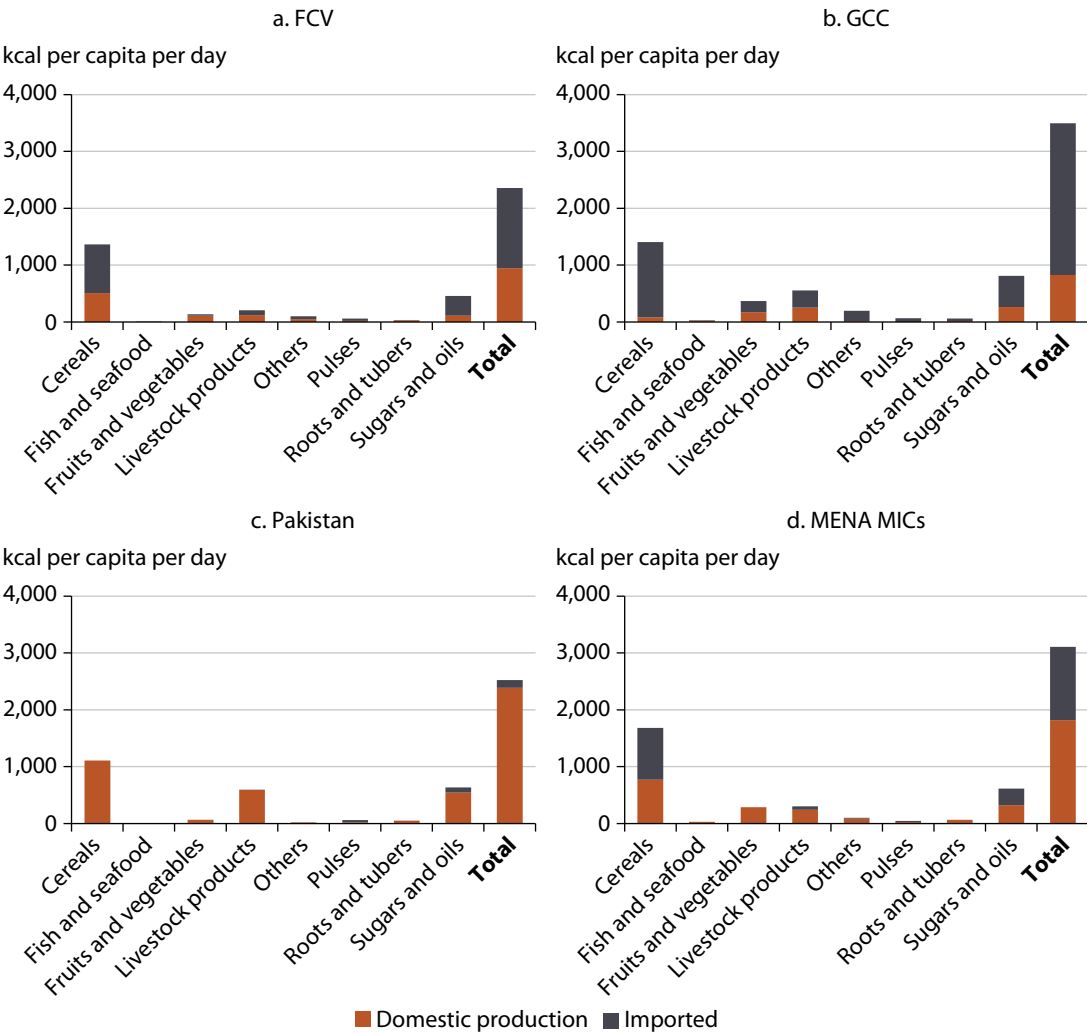
Note: For a list of country codes, go to <https://www.iso.org/obp/ui/#search/code>.

FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; kcal = kilocalorie; MENA = Middle East and North Africa; MICs = middle-income countries.

In MENA's MICs and the GCC, production has shifted away from cereals toward higher-value products since 1990, whereas in FCV economies, overall food production has declined. MICs in MENA have achieved significant growth in food production. However, with population growth, cereal demand has outpaced production growth, leading to a drop in the share of domestically produced cereals from 64 percent to 46 percent during the periods of 1990–92 and 2020–22. In other food categories, the share of domestically produced calories has remained approximately constant or has even risen slightly (refer to figure 3.3). In GCC countries, the drop in the share of calories produced domestically is about one-quarter of today's consumption, reflecting a deliberate policy to adapt to water scarcity and changing demand by shifting resources from cereal production to livestock, sugars, and oils—food groups for which self-sufficiency has increased considerably. By contrast, caloric self-sufficiency has declined nearly uniformly across the region's FCV economies, dropping from 54 percent to 40 percent of all calories.

FIGURE 3.2

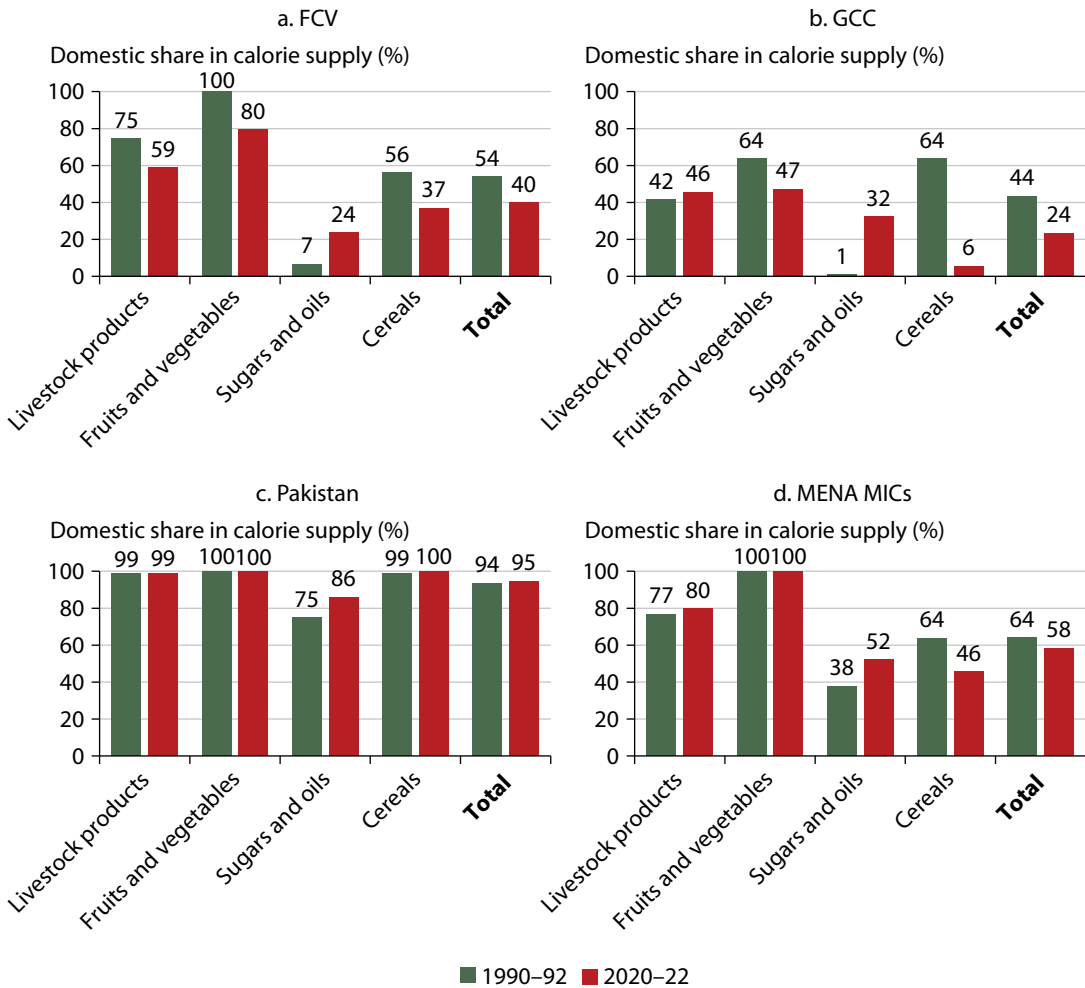
Food Supply by Origin, 2021–23



Sources: World Bank WDI (<https://data.worldbank.org/indicator/SP.POP.TOTL>), FAOSTAT (<https://www.fao.org/faostat/en/#data/TCL>).

Note: FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MICs = middle-income countries.

FIGURE 3.3
Declining Share of Domestically Produced Calories in MENAAP, except in Pakistan, 1990–92 versus 2020–22



Sources: World Bank WDI (<https://data.worldbank.org/indicator/SP.POP.TOTL>), FAOSTAT (<https://www.fao.org/faostat/en/#data/QI>).
Note: FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MICs = middle-income countries.

AGRICULTURAL PRODUCTION IS EXPANDING, BUT INVESTMENT AND STABILITY ARE NEEDED TO MAINTAIN MOMENTUM

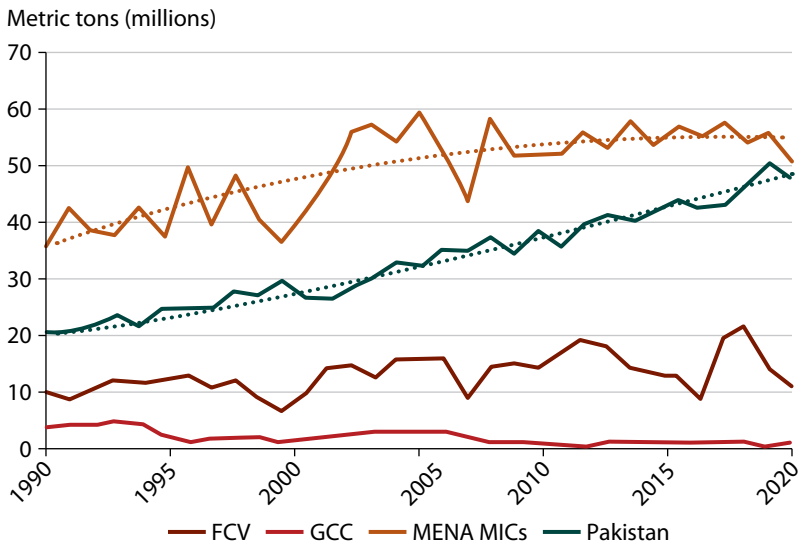
Cereal production has been rising in Pakistan and the MENA MICs; however, growth has slowed outside of Pakistan. From 1990 to 2022, cereal production in Pakistan more than doubled, driven by average annual yield growth of around 2 percent and a 20 percent increase in

cultivated area. Meanwhile, it increased by 36 percent in MENA MICs (refer to figure 3.4), despite shrinking cropped areas (–10 percent). However, annual cereal production growth slowed down from an average 1.9 percent over the 1990–2013 period to near stagnation (0.5 percent over 2013–22), particularly in rain-fed agriculture in Algeria, Morocco, and Tunisia. GCC countries have seen a two-thirds decline in cereal production since the 1990s, largely due to an 80 percent reduction in wheat cultivation following policy changes in Saudi Arabia aimed at conserving scarce water.

Fruit and vegetable production is a regional success story, with massively expanded production in MENA MICs and strong potential for further growth. Between 1990 and 2022, output more than doubled in MENA MICs and Pakistan. It increased by 75 percent in the GCC and by 42 percent in the region’s FCV economies (refer to figure 3.5). Growth has recently slowed in most MICs due to water constraints. However, investment in water-efficient technology has helped the GCC avoid a slowdown. Rising production in MENA MICs has fueled exports, supported by deeper EU trade ties and incentives. For example, export shares in Morocco, the Arabic Republic of Egypt, and the Islamic Republic of Iran have risen from 15 percent to 20 percent, 2 percent to 15 percent, and 2 percent to

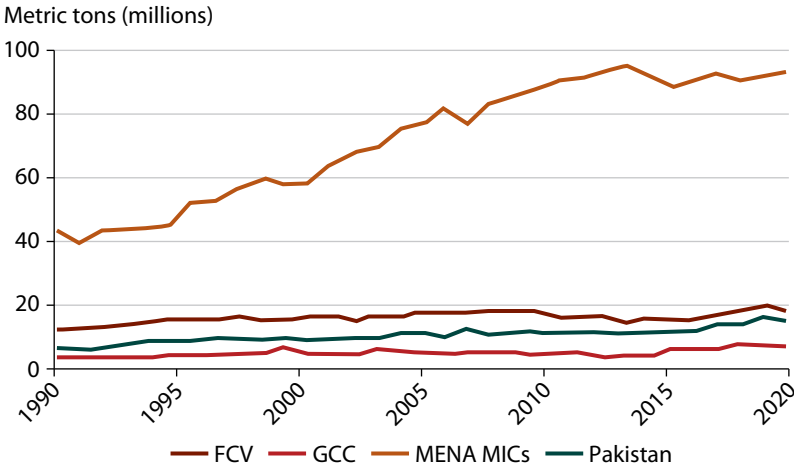
FIGURE 3.4

Rising Cereal Production in all MENAAP Countries, Except GCC



Source: World Bank, based on FAOSTAT.
Note: FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MICs = middle-income countries.

FIGURE 3.5
Strong Growth in Fruit and Vegetable Production in MENA MICs



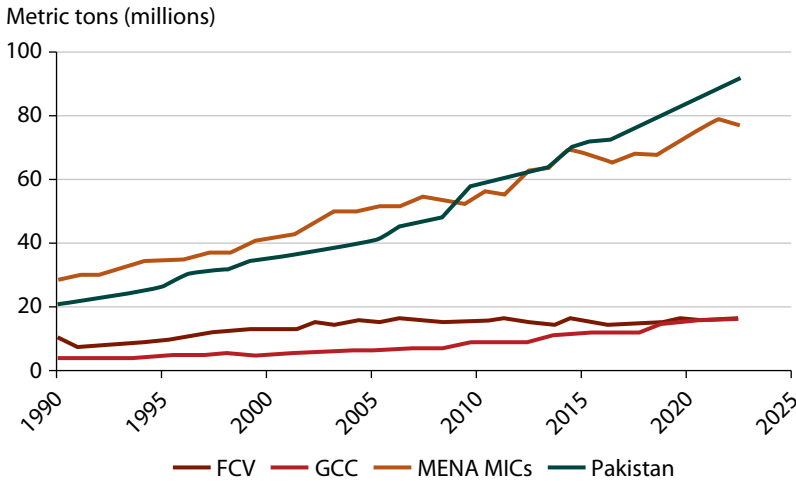
Sources: World Bank, based on FAOSTAT.
Note: FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MICs = middle-income countries.

10 percent, respectively. In Pakistan, despite strong potential, domestic production still lags demand, resulting in 3 percent of fruits and vegetables being imported in 2022.

Apart from FCV countries, livestock production has expanded drastically, making it the fastest-growing agricultural subsector. Since the 1990s, livestock production has tripled in the region’s MICs and quadrupled in the GCC (refer to figure 3.6). Thanks to this growth trajectory, the region is becoming increasingly self-sufficient in livestock products and is enjoying growing business opportunities for exports. By contrast, in FCV economies, production has stalled. Success in growing livestock production also brings some challenges that need to be managed. Across MENAAP, livestock emissions account for about 17 percent of total agrifood system emissions, though this share varies widely, reflecting differences in production systems and overall emissions profiles across countries. Specifically, it varies from less than 5 percent in several GCC countries to over 60 percent in FCV settings such as Afghanistan and Pakistan (FAOSTAT). Given that livestock is the largest contributor to agrifood system emissions globally, continued growth of the subsector in MENAAP must be paired with investments in climate-smart practices, such as restoring pastures to help manage this important externality (Sutton, Lotsch, and Prasann 2024). In addition, growing antimicrobial resistance in livestock due to the indiscriminate use of antibiotics in feed imposes important health risks (FAO 2025).

FIGURE 3.6

Livestock Production



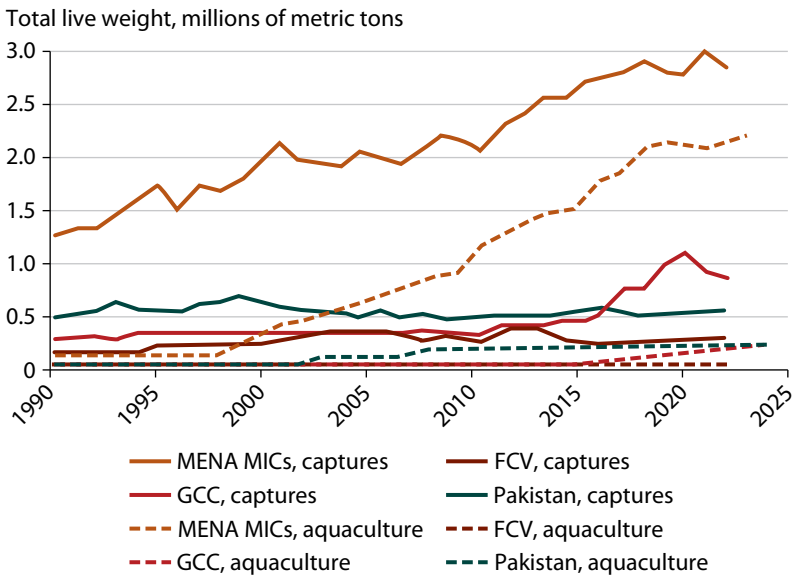
Source: World Bank, FAOSTAT (<https://www.fao.org/faostat/en/#data/QCL>).

Note: FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MICs = middle-income countries;

Fisheries and aquaculture are increasingly important contributors to food security and economic growth, though their development and potential vary across the region. Capture fisheries have been growing precipitously, reaching 4.4 million tons in 2023, with Morocco leading at 1.4 million tons, followed by the Islamic Republic of Iran, Oman, and Pakistan. Although most capture fisheries are marine-based, Egypt stands out for its significant freshwater catch, accounting for 60 percent of its national total. The sector includes artisanal fisheries, an important source of jobs in countries like the Republic of Yemen, as well as commercially important operations, with Morocco recognized as a top seafood exporter, generating over US\$2.3 billion in revenue in 2020 (refer to figure 3.7). Aquaculture has expanded rapidly, growing from 18,900 tons in 1970 to 2.6 million tons in 2023. Egypt (1.5 million tons) and the Islamic Republic of Iran represent about 85 percent of production today, but countries such as Algeria, Bahrain, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, and the United Arab Emirates are also investing in aquaculture. Aquatic plant production, although still marginal and concentrated in Morocco and Tunisia, has grown to over 43,000 tons by 2023, presenting opportunities for sustainable food systems and environmental benefits, such as carbon sequestration.

FIGURE 3.7

Production from Capture Fisheries and Aquaculture



Source: World Bank, FishStat (<https://www.fao.org/fishery/fishstat/en>).
Note: FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MICs = middle-income countries.

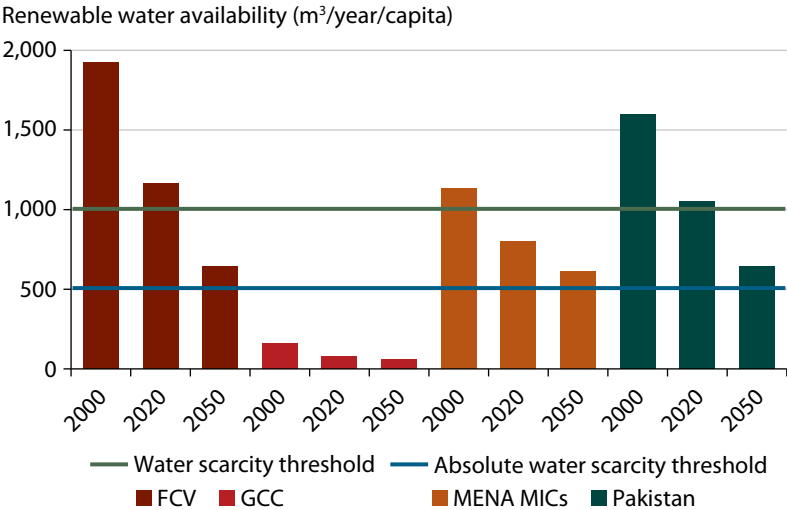
Forests are an underacknowledged resource for food security and nutrition, especially for rural and food-insecure populations. Ecosystem services, such as the protective role of forests against droughts, have been estimated at US\$4.1 billion per year for the MENA subregion (Damania et al. 2025). Although forests provide limited calories, they offer nutrient-rich wild foods and help support the livelihoods of 36 million residents living near forests (Newton et al. 2020). Forests contribute to food security through three pathways: (1) direct provision of food (fruits, nuts, game, honey); (2) ecosystem services (water regulation, soil fertility); and (3) income from timber, firewood, and nonwood products (for example, gum arabic, oils, medicinal plants). Nonwood forest products—such as dates, honey, mushrooms, pistachios, and truffles—offer livelihood opportunities, with Morocco and the Islamic Republic of Iran estimated to have produced approximately US\$117 million and US\$55 million, respectively, in 2020.

WATER IS THE MOST CRITICAL CONSTRAINT ON AGRICULTURAL PRODUCTION

The MENAAP region has the lowest renewable freshwater resources globally and faces rising water stress due to limited resources, rapid population growth, and climate change. Most countries in the region are today well below the water-scarcity threshold of 1,000 cubic meters per person per year. Projections indicate that by 2050, nearly all countries will fall below the absolute scarcity threshold (refer to figure 3.8). Water stress is compounded by declining inflows from transboundary rivers and aquifers. Furthermore, climate trends are expected to further constrain supply in much of the region. Due to arid climates and a reliance on irrigation, agriculture dominates water use in the region, accounting for 87 percent of total withdrawals as of 2020, with the majority of MENAAP countries dedicating at least 70 percent of their water resources to agriculture (Aquastat).

FIGURE 3.8

Renewable Water Availability per Capita, 2000–50



Source: World Bank, FAOSTAT.

Note: Projections for 2050 are based on expected demographic growth. FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MICs = middle-income countries.

Irrigated land is critical for agricultural production but is highly vulnerable to water shortages. Across the MENA subregion, about half of the cultivated land is equipped for irrigation. In this context, irrigated areas contribute nearly twice as much to agricultural value added as rainfed areas (De Waal et al. 2023). Irrigation supports nearly all agricultural value-added products in Egypt and the GCC, and 80 percent in Pakistan. In Morocco, irrigated land accounts for 20 percent of the cultivated area but generates more than half of the sector's value added, rising to 75 percent during droughts. Because of the economic importance of irrigated production, water shortages have direct socioeconomic impacts: in Tunisia, severe droughts have reduced agricultural employment by 8 to 10 percent (Alfani et al. 2024), and in Morocco, multiyear droughts from 2016 to 2023 shrank cereal yields by 40 percent and cultivated areas by 44 percent, increasing wheat imports by 30 percent (World Bank 2024a).

Overexploitation of surface and groundwater is widespread, resulting in ecological harm and increased vulnerability to shocks. Some estimates suggest that about 50 percent of the region's water withdrawals are unsustainable, with many countries extracting more water annually than is naturally replenished (World Bank 2018). There is a significant range of estimates for additional water requirements, ranging from 24.8 billion cubic meters (Borgomeo et al. 2018) to 199 billion cubic meters (Mualla 2018). Unsustainable groundwater withdrawals deplete resources and drive a decline in water quality. The overuse of rivers, such as the Tigris-Euphrates, has reduced downstream flows by up to 45 percent, harming ecosystems and livelihoods (Shamout Nouar 2015). Groundwater depletion is accelerating, especially in the Arab Peninsula and Mashreq (Hssaisoune et al. 2020; Lezzaik and Mileswski 2018), with satellite data showing a 95 percent increase in areas with falling water tables between 2002 and 2019 (ESCWA 2022).

Agricultural water use is plateauing, while climate trends, groundwater depletion, and competition from other sectors threaten the long-term supply. Agricultural water withdrawals more than doubled to 455 billion cubic meters between 1980 and the early 2000s (Aquastat). However, with near-full allocation of available resources, rising costs, and growing competition from households, tourism, and industry, water use in agriculture and the expansion of irrigated areas have plateaued. During droughts,

household and industrial needs are prioritized, often at the expense of agriculture. With increasing population, urbanization, and water scarcity, the agriculture sector is expected to face ongoing pressure to decrease its water use. For instance, in Pakistan, residential water demand grew by 66 percent between 2000 and 2020 and is expected to double again by 2050 (World Bank 2021). Modeling done for this report shows that without policy changes, the water supply gap for agriculture could increase by a further 12 billion m³.

Regionally, crop water productivity—defined as the volume of water required to produce a metric ton of output—is estimated to have improved by approximately 20 percent between 2000–04 and 2015–19. A 2025 World Bank flagship study estimated recent crop water productivity trends using yield data and simulated water requirements, considering local environmental conditions and farming practices. It indicates that crop water productivity has increased in the region, largely driven by efficiency gains rather than changes in crop composition (Zhang et al. 2025). Water productivity increases were estimated at 16 percent in MENA MICs, 17 percent in FCV countries, and 46 percent in the GCC, respectively. Estimates for Pakistan point to crop water productivity gains of 25 percent over the same period; however, the country requires almost 70 percent more water per metric ton of crop output than other MICs (that is, 919 m³/mt versus 543 m³/mt). From 2015 to 2019, GCC countries were modeled to be over 14 percent more water efficient than MICs, excluding Pakistan (that is, 468 m³/mt versus 543 m³/mt), thus indicating significant potential for further efficiency elsewhere in the region.

CLIMATE CHANGE IS THE MAIN THREAT TO AGRICULTURE GROWTH, AMPLIFIED BY ALREADY-FRAGILE, UNSUSTAINABLY MANAGED WATER AND LAND RESOURCES

The region faces acute climate risks, with temperatures rising at twice the global average in the Middle East and North Africa, as well as increasingly severe droughts, heatwaves, erratic rainfall, and land salinization. By 2050, much of the region—including Afghanistan and Pakistan—could experience a warming of 2.5–4.0°C, with the GCC likely to have recurring days above 50°C. North Africa is projected to

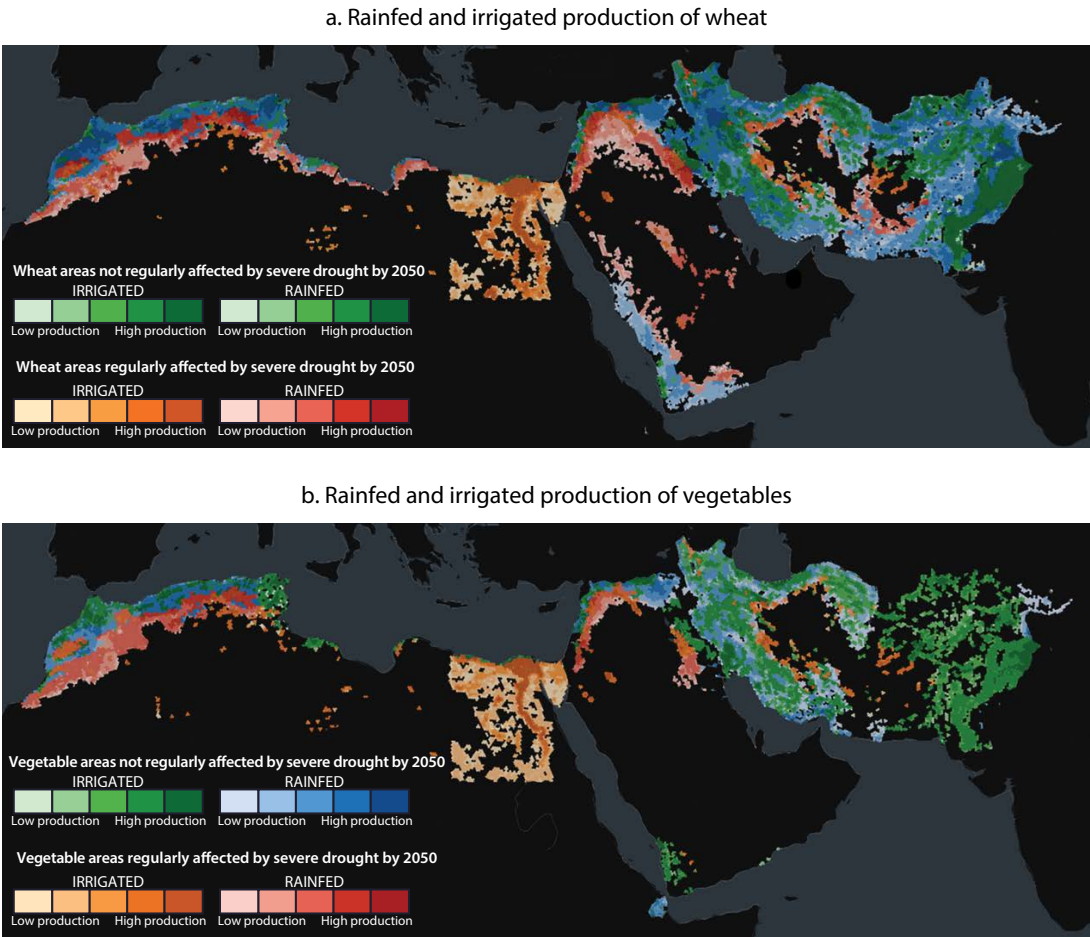
become drier on average, with more frequent droughts and flash floods. The Middle East is expected to experience decreased precipitation and increased evapotranspiration, thereby intensifying droughts (Zittis et al. 2022).

In Afghanistan and Pakistan, the South Asian monsoon is growing more variable, increasing the risk of both severe floods and seasonal droughts. Coastal zones such as Egypt's Nile Delta, Tunisia's plains, and low-lying areas in Morocco and Algeria are at particular risk from sea-level rise and groundwater salinization, processes that can contaminate irrigation water and reduce soil fertility.

Heat and strong drying trends pose a major threat to agriculture, endangering rainfed production and increasing demands on irrigation. Across the region, drought is projected to become much more common with climate change, often to the extent that conditions currently classified as severe drought become the average by midcentury. Figure 3.9 shows rainfed and irrigated production of wheat and vegetables in areas that are projected to be drier in 2050 than conditions considered today exceptionally dry today—conditions that in today's climate can be expected to occur only once every 15 years (SPEI drought index equal to -1.5 or below, SSP3-7.0 scenario).

In the MENA subregion, areas that today account for 32 percent of all wheat production are projected to experience average conditions of severe drought by mid-century, along with areas that account for 40 to 50 percent of all production of citrus, tomatoes, other vegetables, olives, and some other oil crops. Most of the production in these areas is irrigated: region-wide, rainfed areas projected to have average conditions of severe drought account for 3 percent of all wheat production, 8 percent of citrus production, and 27 percent of the production of oils, including olives. This highlights the future importance of sustainable irrigation under increasingly dry conditions. At the same time, rainfed areas where severe drought is expected to become the new normal do account for a large share of production in some countries. For instance, they account for 50 percent of wheat production in Jordan and 37 percent in Algeria, as well as more than a third of citrus production in Tunisia and the Syrian Arab Republic.

FIGURE 3.9
Rainfed and Irrigated Production of Wheat and Vegetables in Areas Projected to Experience Mean Conditions Drier Than SPEI –1.5 (Severe Drought) by Mid-Century



Sources: World Bank Geolab for this report, based on IFPRI (2024) and World Bank data.
Note: The image illustrates IFPRI's MapSPAM modeled gridded production data with base year 2020 to mean annual SPEI drought index projections for 2050 under SSP3-7.0 at the median of a model ensemble, as obtained from the World Bank's Climate Change Knowledge Portal. Areas are shown as irrigated or rainfed depending on the greater share of production. SPEI = Standardized Precipitation Evapotranspiration Index; SSP3 = Shared Socioeconomic Pathway 3.

Shifting humidity and temperature patterns also expand the window for pest and disease outbreaks. These involve desert locusts and other invasive pests that cause rapid, high-impact crop losses, as well as animal diseases that adversely affect livestock production. Combined with demographic and livestock trends, climate change is likely to increase foodborne and zoonotic diseases, a risk that remains under-assessed across the region (Rushton et al. 2025).

Climate change exacerbates land degradation caused by decades of unsustainable agricultural practices, which already costs the MENA subregion around 1 percent of GDP annually. Salinity, nutrient depletion, soil biodiversity collapse, and erosion affect 45 percent of agricultural land, including 68 percent of rainfed land, one-third of irrigated cropland, and 85 percent of rangeland. Thus, arable land has declined by about 20 percent since the mid-1990s. Drivers include excessive use of agrochemicals, mechanized monocultures, tree removal, abandonment of crop rotations, overgrazing, and salinization from irrigation (World Bank 2019). Weak land tenure and governance also exacerbate degradation, whereas conflict worsens resource mismanagement (Ziadat et al. 2025). For instance, Afghanistan faces unprecedented soil erosion after decades of overgrazing and deforestation (FAO and GEF 2021). Economic losses range from 0.4 to 2.5 percent of GDP, primarily because of reduced yields (World Bank 2019).

Irrigation-induced salinization accelerates land degradation, with between 25 and 50 percent of irrigated areas affected in major producer countries. Over one million hectares are salinized in Iraq (50 percent of irrigated area), the Islamic Republic of Iran (30 percent), and Egypt (25 percent). Syria has over 40 percent of irrigated land affected, resulting in a 37 percent yield decline for major crops. Iraq loses around 250 km² of arable land annually due to salinization (World Bank 2019). In Pakistan, 6.67 million hectares—about 30 percent of farmland—are salt-affected, with about 40,000 hectares lost each year. Climate change could further accelerate annual losses by 10 percent annually (FAO 2024a).

The long-term consequences of these trends include declining crop yields and desertification, thus jeopardizing livelihoods. The World Bank (2019) has estimated that, over the past 20 years, the value of agricultural land (measured by net primary productivity) in the Middle East and North Africa has declined by about 50 percent due to desertification. In Iraq, 39 percent of land is already desertified, with another 54 percent at risk. Desertification also causes increased dust storms, lost agro-pastoral livelihoods, and rural land abandonment (World Bank 2019).

Recognizing the urgency, the United Nations Convention to Combat Desertification (UNCCD) COP16 meeting in Riyadh (2024) emphasized land restoration and regional initiatives, such as the Middle East Green Initiative which aims to rehabilitate 200 million hectares, including planting billions of trees.

Fisheries are strained by overexploitation, post-harvest losses, and environmental degradation. Around 60 percent of fish stocks in the Mediterranean Sea are overexploited, and 73 percent of commercial

stocks are fished beyond sustainable levels, thereby putting incomes in the growing blue economy at risk. Illegal, unreported, and unregulated fishing is widespread, while limited stock assessment in the Red Sea and Gulf increases risks (FAO 2023). Losses are significant: bycatch and discards account for 28 to 80 percent of industrial trawler catches, and in Egypt's Gulf of Suez, transport losses reach 18 percent due to poor cold chains (FAO 2016). Conflicts and instability, such as the Red Sea crisis, disrupt fishing, threaten safety, and impact trade, while oil spills further degrade marine environments. Aquaculture also faces many challenges, including water scarcity, pollution, climate change, rising costs, and market access issues, thus threatening its sustainability.

SOLUTIONS TO PRODUCE MORE WITHIN ECOLOGICAL BOUNDARIES EXIST, BUT INNOVATION NEEDS TO BE SUSTAINED AND SCALED UP

Solutions to produce more within ecological boundaries exist in MENAAP. At the farm level, a wide array of technologies and practices has proven effective and affordable. Innovations currently available can reshape sustainable agrifood systems (Sutton, Lotsch, and Prasann 2024). Table 5.1 offers a few MENAAP field examples. They include climate-smart agriculture, conservation agriculture, regenerative agriculture, agroecology, nature-based solutions, sustainable intensification, etc. Some optimize the efficiency of specific inputs (climate-smart crops or breeds, smart water management, fertigation, and so on), whereas others rebuild agroecosystem capacity, often starting with soil health. While these proven tools deserve rapid upscaling, the region must simultaneously invest in the research pipeline that will produce the next generation of solutions.

This dual agenda—scaling up what works today while investing in what will work tomorrow—requires the private sector to be engaged as a co-designer from the outset. National agricultural research systems and international research institutions, such as the International Center for Agricultural Research in the Dry Areas (ICARDA), play a central role in advancing research and generating new knowledge. Yet private firms, agri-entrepreneurs, and start-ups are increasingly driving the development, testing, and deployment of innovations, often translating research into practical, scalable solutions (refer also to chapter 5). A key constraint they face is access to appropriate financing at early stages. Box 5.1 illustrates a financing model in India that is helping promising agrifood innovations absorb early-stage risk and reach scale.

TABLE 3.1**Producing More with Less at the Farm Level: Existing Innovations in MENAAP Fields**

Technology	Potential	Examples
Climate-resilient crops (new varieties)	New crop varieties incorporate drought, heat or even salinity tolerance traits (often present in ancient-/wild-related crops) to withstand increasing climate stresses.	Barley varieties, such as Rihane and Arta (barley), or durum wheat such as Jabal, deliver higher yields under water stress.
Conservation agriculture	Utilization of an integrated approach to sustainable intensification through minimal soil disturbance, zero tillage, permanent soil cover, and crop diversification, restoring organic matter to soil, reducing erosion, and improving water efficiency.	Evidence from Morocco and Tunisia shows that 20 percent yield gains are possible, alongside reduced labor and fuel costs due to lower tillage intensity. Morocco aims to achieve 1 million hectares under zero tillage by 2030.
Drip irrigation and “fertigation”	Drip irrigation delivers water directly to the rootzone, reducing losses through seepage and evapotranspiration. “Fertigation,” as the name implies, combines irrigation and fertilization through drip irrigation systems, improves improving water-use efficiency and nutrient uptake.	Field trials in Punjab demonstrate that low-cost drip irrigation systems can reduce irrigation expenses by 50 percent, increase boost yields by 20 percent, and boost net revenues (Aziz et al. 2021).
Agroforestry	Intentional integration of trees and shrubs into crop and livestock systems with environmental (soil health, carbon sequestration, water management, and biodiversity) and economic (diversified income, risk reduction) benefits.	In Afghanistan, the FAO provided 2,341 beneficiaries with 118,800 apple, sweet orange, persimmon, almond, and orange saplings, providing alternative livelihood options, thus reducing pressure on rangelands and forests and fighting soil erosion (FAO 2023).
Digital and precision agriculture	Technologies such as drones, satellite imagery, Internet of Things (IoT) sensors, and GPS-enabled machinery enable site-specific crop management, thereby ensuring that seeds, fertilizers, and pesticides are applied only where and when needed.	AI-powered irrigation advisory platforms provide farmers with real-time water management and agronomic recommendations. Early deployment of such tools in Tunisia have demonstrated reductions in water consumption by an average of 30 percent while increasing crop yields by 20 percent (Water Unite 2024).
Controlled environment agriculture	This includes systems that optimize production in enclosed or semi-enclosed spaces (hydroponics, aquaponics, vertical farming systems).	Expanding in Jordan, Saudi Arabia, and the United Arab Emirates, delivering up to 90 percent in water savings and pesticide-free produce.

Source: Original table for this report.

BOX 3.1**Blended Finance to Unlock Agrifood Innovation—IFC’s Inclusive Agritech Facility in India**

AgriTech firms that take innovations from the lab to the field play a critical role in developing solutions that improve productivity, resource efficiency, and climate resilience. Yet many such firms face a persistent financing gap. High perceived risk, long development periods, and unproven business models limit access to commercial equity, even where potential development impact is strong, resulting in underinvestment in innovation precisely where it is most needed.

To address this constraint, the International Finance Corporation (IFC) and the Gates Foundation established the Inclusive Agritech Facility to deploy blended finance in support of early-stage agritech innovation. The facility uses concessional capital to de-risk equity investments and catalyze private venture capital, working through specialized fund

managers such as Omnivore. Investments span innovations across the agrifood value chain, including digital advisory platforms, agrifintech solutions, solar-powered irrigation and cold storage, and waste-to-value technologies.

IFC’s role is not to replace commercial finance but to use targeted risk-sharing to validate business models, crowd in follow-on private investment, and help build a viable agritech ecosystem. These investments have contributed to productivity gains among smallholders, greater resilience to climate shocks, and job creation along rural value chains. The experience illustrates how well-designed blended finance can help sustain the innovation pipeline needed for long-term agrifood system transformation, bridging the gap between invention and scalable impact.

Smart water management and wastewater reuse are core innovation areas in MENAAP; however, they must be paired with improved governance and policies. Innovation can improve both water supply and demand. ICARDA, Morocco’s National Institute of Agricultural Research, and the Massachusetts Institute of Technology (MIT) developed ultra-low-energy drippers achieving 90 percent water efficiency, 70 percent lower energy use, and up to a 31 percent lower capital cost (ICARDA 2023). On the supply side, wastewater treatment supports circular agriculture: Jordan’s As-Samra plant treats up to 840,000 m³/day, reuses over 80 percent for irrigation, serves 2.2 million people, and generates 13 MW from biogas and hydropower—covering 80 percent of its own needs (Sutton, Lotsch, and Prasann 2024). Yet better water systems alone do not ease water stress. Evidence suggests

that higher productivity often leads to greater production and total water use—a phenomenon known as the *Jevons Paradox* (World Bank 2024). Therefore, water governance, regulations, and adequate pricing must accompany these innovations to more effectively manage the resource (Zhang et al. 2025).

Beyond the farmgate, private entrepreneurs and agribusinesses are already deploying innovation to cut losses and add value in handling, storage, processing, and distribution. Reducing food loss and waste can ease pressure on scarce water resources as effectively as supply-side efficiency gains, by lowering the volume of water embedded in food that never reaches consumption. Post-harvest and processing technologies (for example, hermetic storage bags, mobile processing units) reduce losses while adding value. In Tunisia, solar dryers are being successfully deployed to cut spoilage and raise incomes through the sales of dried fruits and vegetables (Khelifi et al. 2025). Cold chains also matter in hot climates. In Egypt, the private sector is investing in expanding cold storage capacity to cut perishable losses and facilitate exports (Al Helou 2025). Circular economy solutions, such as the production of organic fertilizer from household waste, also hold significant potential (World Bank 2026a). These are not isolated pilots but represent a model in which private actors drive value-chain innovation when business conditions and public infrastructure support them.

Digitalization, increasingly powered by artificial intelligence, is transforming the food supply through timely information and services. Digital advisory systems and early warning systems can build resilience to shocks and improve on-farm decision-making. For instance, under the Sindh Agricultural Growth Project, 47,000 farmers benefited from digital extension messaging, contributing to increased productivity (World Bank 2022). In Egypt, a smartphone app introduced through an ICARDA-supported project has improved farm productivity and resource efficiency by integrating geospatial technologies with agricultural management practices, providing a platform for data collection and analysis to support farmer decision-making (ICARDA 2024). World Bank (2025b) details how the Digital Agriculture RoadMap can leverage digital solutions to overcome production challenges. Finally, the World Bank (2025c) details global AI for agriculture case studies, emphasizing the importance of public-private partnerships for scalable innovation.

Awareness, capacity, access to finance, and policy bottlenecks constrain the adoption of effective technologies. Common bottlenecks

limit the dissemination and adoption of many new practices and technologies. Farmer awareness is often low, extension services are fragmented, and risk aversion among smallholders slows adoption, especially when short-term yield variability is likely or perceived. Financing challenges are pervasive: high upfront costs and scarce affordable credit affect many investments, particularly for those involving large infrastructure such as drip irrigation, agri-voltaics, controlled-environment agriculture, cold chain or processing. Policy and regulatory hurdles (for example, e-commerce), fragmented governance (for example, seeds) and misaligned incentive frameworks (for example, water and farm subsidies, land property) further slow uptake. Capacity gaps are also widespread, with limited technical skills, training, and maintenance support hindering many innovations, particularly for infrastructure and digital technologies. Most innovation must be paired with business models—such as shared processing centers and cooperatives—that enable economies of scale and reduce individual risks. Finally, some frontier innovations require citizen engagement and careful consideration of local cultural and religious values; for example, practices like farm use of recycled wastewater or insect farming for poultry or fish feed may encounter resistance in certain communities.

REPURPOSING PRODUCER AND CONSUMER SUBSIDIES IS NEEDED FOR BETTER DOMESTIC FOOD SUPPLY

Farm support is critical to food security and rural livelihoods; however, its current worldwide structure incentivizes unsustainable production patterns. Global farm subsidies total about US\$640 billion annually, with roughly 70 percent tied to production and input use (World Bank 2024b). There is a broad consensus that their current design incentivizes a food production system that undermines resilience, accelerates climate change, depletes soils and water, drives deforestation and biodiversity loss, distorts food prices, and promotes unhealthy diets (Damania et al. 2023, 2025; FAO 2024c; FAO, UNDP, and UNEP 2021; Sutton, Lotsch, and Prasann 2024; World Bank 2024b).

The hidden costs of the MENAAP agrifood system are estimated at US\$48 billion and are largely health-related (computed from FAO 2024c). Globally, they amount to US\$11.6 trillion, with 70 percent being health-related, stemming from productivity losses due to non-communicable diseases resulting from unhealthy dietary patterns, and protein-energy malnutrition (FAO 2024c). These hidden costs also

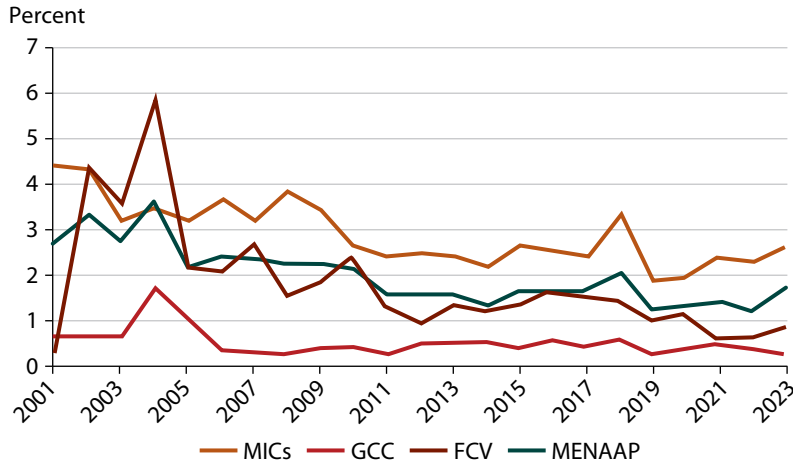
include environmental external costs from greenhouse gas and nitrogen emissions, as well as land-use transitions.

On average, MENAAP countries for which data were available spent US\$12.7 billion¹ annually on agriculture in 2022 and 2023. Reliable data on regional agricultural public spending remains limited beyond FAO's FAOSTAT database. Recent detailed, disaggregated analyses are available only for Egypt, Morocco, Saudi Arabia, Tunisia, the United Arab Emirates (FAO 2024b), and Jordan (World Bank 2025a). In 2022–23, agriculture support accounted for about 0.4 percent of GDP, or about 1.6 percent of total public spending, in MENAAP countries where data are available (FAOSTAT)—well below the global average of 2 percent of public spending in 2023 (FAO 2024d). By comparison, Europe and the Americas allocated 0.6 percent, Africa 2.8 percent, and Asia 4.6 percent of total public expenditures to agriculture in 2023 (FAO 2024d). In terms of the share of the sector's value added, agricultural spending represents 6.9 percent (World Bank calculations; FAOSTAT and WDI averages 2021–23). These relatively low shares of spending partly reflect agriculture's smaller role in the region's economy.

Spending varies widely across MENAAP countries, not always in keeping with agriculture's economic weight or investment needs. Between 2021 and 2023, agriculture absorbed 2.7 percent of total public spending in MICs compared to 0.4 percent in the GCC and 0.9 percent in FCVs (refer to figure 3.10). Four MICs—Algeria (27 percent), Pakistan (22 percent), Morocco (18 percent), and Egypt (11 percent)—accounted for nearly three-quarters of the region's agricultural spending (2022–23 data, current US\$). Yet, when measured against the sector's value added, striking contrasts emerge. For example, Pakistan spent only 3.0 percent of agriculture's value added on the sector in 2022–23, despite its critical role in food security and rural livelihoods. At the other end of the spectrum, Tunisia spends about a fifth of its agricultural value added in public agricultural spending (refer to figure 3.11).

Where detailed data exist, MENAAP agricultural budgets are dominated by irrigation investments and producer subsidies. Reflecting acute water scarcity, the largest shares go to collective water mobilization and irrigation infrastructure. In addition, several countries subsidize fuel, which is not accounted for in agricultural subsidies, but indirectly supports the sector (e.g., pumping for irrigation). Producer subsidies also absorb significant resources, including low water fees, input subsidies, support for fixed capital formation, and export incentives. In Morocco, producer support represents about one-quarter

FIGURE 3.10
Agriculture, Forestry, and Fishing Expenditures as Share of Total Expenditures in MENAAP

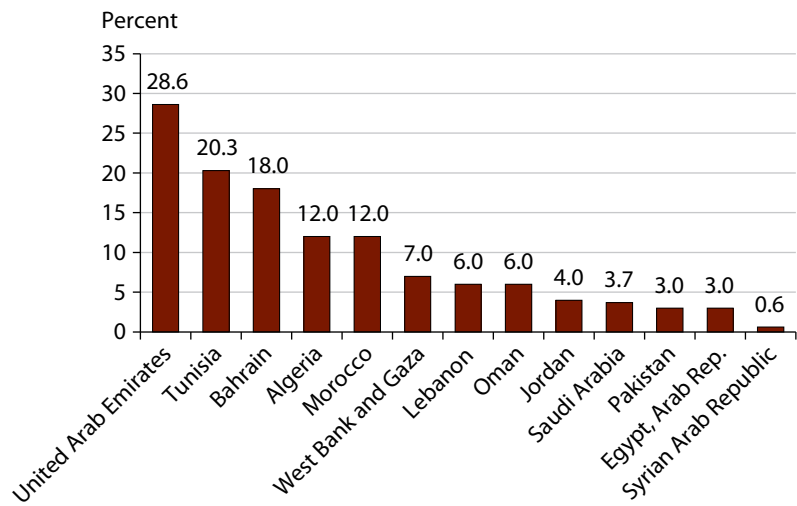


Source: World Bank, based on FAOSTAT.
Note: FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; MICs = middle-income countries.

of agricultural spending, covering seed subsidies for strategic crops, cost-sharing for processing equipment, and export subsidies for high-value products such as citrus. Pakistan allocates roughly US\$2 billion annually to producer subsidies, whereas Egypt spent US\$650 million between 2021 and 2023 on fertilizer and other input subsidies (FAO 2024b; World Bank 2023). Saudi Arabia has expanded output subsidies for livestock. Although less common than in past decades, some countries still set administrative prices for strategic commodities—Egypt, for example, procures wheat above import parity. Finally, investment in agricultural R&D remains modest, averaging 0.5 percent of agricultural GDP (FAO 2024c; Fuglie et al. 2019).

A sustainable and resilient food supply in MENAAP requires a fundamental shift toward investments in public goods. Extensive evidence shows that spending on agricultural R&D, rural infrastructure, and extension services delivers high returns across regions and time (Damania et al. 2023b; FAO, UNDP, and UNEP 2021; Gautam et al. 2022; Goyal and Nash 2016; López and Galinato 2007). By contrast, input subsidies and coupled payments often yield low or negative returns, distort production choices, and reduce technical efficiency—particularly when combined with consumer

FIGURE 3.11
Average Annual Agriculture Expenditures as Share of the Sector Value Added, 2022–23



Sources: World Bank, based on FAOSTAT.

subsidies, as is the case in many MENAAP countries. While input subsidies can boost short-term productivity (Nguyen, Russ, and Triyana 2023), long-term costs—including environmental externalities—outweigh benefits. Digital tools like e-vouchers can improve their targeting and efficiency (World Bank 2021). Market price support further exacerbates inefficiencies and water overuse. Decoupled payments offer a less distortionary alternative: they include, for instance, direct transfers based on farmed areas instead of outputs; or a wide range of supports to sustainable practices, including crop diversification and positive environmental externalities (such as soil and biodiversity protection).

Global studies suggest that transforming MENAAP’s domestic food supply will also require a substantial scale-up of public and private investment of US\$12 billion to US\$17 billion. Transforming the global agrifood system to address its current negative externalities is estimated to require US\$300 billion to US\$350 billion per year (United Nations, Food and Land Use Coalition, and World Bank 2023), with other global estimates ranging from US\$260 billion (Sutton, Lotsch, and Prasann 2024) to US\$1.1 trillion (CPI and FAO 2025) to align with a 1.5°C climate pathway. Based on these global assessments, achieving a sustainable agrifood system in MENAAP would require additional financing ranging from US\$12 billion (inferred from Sutton, Lotsch, and Prasann 2024) to US\$17 billion

(inferred from United Nations, Food and Land Use Coalition, and the World Bank 2023). This compares to hidden costs of US\$48 billion, underscoring the economic rationale for reform.

Closing the financing gap is within reach, but it demands policy repurposing, innovative financing mechanisms, stronger mobilization of private capital, and treating the private sector as a co-architect of agrifood transformation. On average over 2022–23, agricultural public spending amounted to about US\$12.7 billion (in 13 countries) and food subsidies exceeded US\$27.8 billion (in just seven countries). Repurposing these public expenditures within the sector toward public good and better value-for-money spending could partly bridge this gap (for instance, refer to FAO et al. 2024 and World Bank 2024b, 2024c).

The scale and pace of investment needed to upscale domestic food supply cannot be met through public channels alone—nor should it be. Private firms bring not only capital but market knowledge, management capacity, and a sustained incentive to innovate. This makes the business environment as central to the financing agenda as any financial instrument. Where business conditions are right, private capital follows: a combination of private investment, concessional public financing to mitigate perceived risks, and innovative financing mechanisms can together close the gap. This includes, for instance, capital guarantees, results-based financing, climate finance, debt swaps, advance market commitments, and innovation incubators (FAO et al. 2024). Such tools work best when designed in partnership with the private sector, rather than for it.

THE MID- TO LONG-TERM DOMESTIC FOOD SUPPLY DEPENDS ON RETHINKING HOW NATURAL RESOURCES ARE MANAGED

Securing the mid- to long-term domestic food supply in MENAAP hinges on rethinking natural resource management, starting with water. For decades, governments prioritized supply-side solutions—dams, bulk water transfers, and large-scale irrigation—while increasingly relying on nonconventional sources, such as desalination and wastewater reuse. These investments expanded availability but often neglected maintenance, causing inefficiencies and losses. Sedimentation has reduced dam storage, and only three-quarters of irrigated areas function effectively due to scarcity and poor water quality. Thus, water remains undervalued across sectors, discouraging conservation and cost recovery.

Demand-side measures must complement supply-side investments. Agricultural water productivity rose significantly but remains far below potential. Modernization efforts—such as drip irrigation and crop diversification—have improved efficiency. However, the Jevons Paradox shows that infrastructure upgrades alone cannot curb stress, as improved availability drives higher consumption (Di Baldassarre et al. 2018; Damania et al. 2017). Therefore, enforcing groundwater caps, adjusting tariffs, and introducing tradable quotas are essential to signal scarcity and reduce overuse.

The undervaluation of water perpetuates inefficiency. Around 30 percent of water produced by utilities is lost through leaks, faulty meters, and illegal connections (De Waal et al. 2023). Tariffs far below true costs prevent utilities from covering expenses, leading to poor maintenance and overexploitation. Irrigation systems face chronic underfunding, forcing governments to finance costly rehabilitation. Thus, cost recovery mechanisms and pricing reforms are critical to ensure sustainability.

Groundwater governance requires urgent reform. Without hard limits on withdrawals, falling water tables will trigger seawater intrusion near coastal aquifers, land salinization, rising withdrawal costs, and increasing water treatment costs due to decreasing water quality (Zhang et al. 2025). Combined with declining rainfall and rising demand, unsustainable abstraction risks severe externalities. While it is challenging to predict at what point further exploitation becomes unviable due to large uncertainties in total groundwater storage (Richey et al. 2015), adopting a precautionary approach demands reducing groundwater abstraction closer to natural recharge levels.

Beyond water, sound stewardship of other natural resources, including forests and fisheries, is required to sustain these pillars of domestic food supply. Forests provide not only nutritious foods and employment opportunities, but they also support ecosystem services that sustain food production. Safeguarding forests requires addressing the drivers of degradation through the systematic strengthening of forest governance. The same applies to aquaculture and fisheries. Overfishing needs to be curbed by enforcing fishing quotas grounded in natural replenishment rates. This will require enhanced monitoring and control through regular stock assessments and the monitoring of fishing activities. It will also require that marine and coastal ecosystems all support science-based and adaptive fisheries management. In general, governments should adopt an ecosystem approach to fisheries to ensure the long-term sustainability of the sector. This approach

promotes the integration of sector activities within a broader ecosystem. As such, it is a holistic and systemic approach that takes into consideration environmental, social, and economic aspects.

NOTE

1. This includes Algeria, Bahrain, the Arab Republic of Egypt, the Islamic Republic of Iran, Jordan, Lebanon, Morocco, Oman, Pakistan, Saudi Arabia, the Syrian Arab Republic, Tunisia, the United Arab Emirates, and the West Bank and Gaza. The data are only for central governments, except for Egypt, Kuwait, Oman, Pakistan, Qatar, and the United Arab Emirates, or for which general government data are available (World Bank calculations based on FAOSTAT data, average 2022–23, current US\$).

REFERENCES

- Alfani, Federica, Giacomo Pallante, Alessandro Palma, and Abdelkader Talhaoui. 2024. “When the Rain Stops Falling: Effects of Droughts on the Tunisian Labor Market. World Bank Policy Research Working Paper.” <https://doi.org/10.1596/1813-9450-10766>.
- Al Helou, Elias. 2025. “DP World to Launch \$29 Million Cold Storage Facility in Egypt to Boost Agricultural Exports and Reduce Food Waste.” *Economy Middle East*, October 7. <https://economymiddleeast.com/news/dp-world-to-launch-29-million-cold-storage-facility-in-egypt-to-boost-agricultural-exports-reduce-food-waste/> (retrieved May 28, 2026).
- Aziz, Marjan, Sultan Ahmad Rizvi, Muhammad Azhar Iqbal, Sairah Syed, Muhammad Ashraf, Saira Anwer, Muhammad Usman, et al. 2021. “A Sustainable Irrigation System for Small Landholdings of Rainfed Punjab, Pakistan.” *Sustainability* 13, 20: 11178. <https://doi.org/10.3390/SU132011178>.
- Borgomeo, E., A. Jägerskog, A. Talbi, M. Wijnen, M. Hejazi, and F. Miralles-Wilhelm. 2018. “The Water-Energy-Food Nexus in the Middle East and North Africa: Scenarios for a Sustainable Future.” World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/29957>.
- CPI (Climate Policy Initiative) and FAO (Food and Agriculture Organization of the United Nations). 2025. *The Triple Gap in Finance for Agrifood Systems*. Revised. Rome. <https://doi.org/10.4060/cd3611en>.
- Damania, Richard, Sébastien Desbureaux, Marie Hyland, Asif Islam, Scott Moore, Aude-Sophie Rodella, Jason Russ, and Esha Zaveri. 2017. *Uncharted Waters: The New Economics of Water Scarcity and Variability*. Washington, DC: World Bank.
- Damania, Richard, Esteban Balseca, Charlotte De Fontaubert, Joshua Gill, Kichan Kim, Jun Rentschler, Jason Russ, and Esha Zaveri. 2023. *Detox Development*. Washington, DC: World Bank. <http://hdl.handle.net/10986/39423>.

- Damania, Richard, Ebad Ebadi, Kentaro Mayr, Jason Russ, and Esha Zaveri. 2025. *Reboot Development: The Economics of a Livable Planet*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-2271-1>.
- De Waal, Dominick, Stuti Khemani, Andrea Barone, and Edoardo Borgomeo. 2023. *The Economics of Water Scarcity in the Middle East and North Africa: Institutional Solutions*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-1739-7>.
- Di Baldassarre, Giuliano, Niko Wanders, Amir AghaKouchak, Linda Kuil, Sally Rangelcroft, Ted I. E. Veldkamp, Margaret Garcia, Pieter R. Van Oel, Korbinian Breinl, and Anne F. Van Loon. 2018. “Water Shortages Worsened by Reservoir Effects.” *Nature Sustainability* 1 (11): 617–22. <https://doi.org/10.1038/s41893-018-0159-0>.
- ESCWA (United Nations Economic and Social Commission for Western Asia). 2022. *ESCWA Water Development Report 9: Groundwater in the Arab Region*. E/ESCWA/CL1.CCS/2021/2. Beirut, Lebanon.
- FAO. 2016. “Peace Conflict and Food Security: What Do We Know About the Linkages?” Technical Note. Rome.
- FAO. 2023b. *The State of Mediterranean and Black Sea Fisheries 2023—Special Edition*. General Fisheries Commission for the Mediterranean. Rome. <https://doi.org/10.4060/cc8888en>.
- FAO. 2024a. *Global Status of Salt-Affected Soils*. Rome. <https://openknowledge.fao.org/handle/20.500.14283/cd3044en>.
- FAO. 2024b. *Repurposing Agricultural Subsidies for Sustainable and Resilient Agrifood Systems in the Near East and North Africa Region: Key Issues and Future Agenda*. Cairo. <https://doi.org/10.4060/cd3613en>.
- FAO. 2024c. *In Brief to the State of Food and Agriculture 2024: Value-driven Transformation of Agrifood Systems*. Rome. <https://doi.org/10.4060/cd2637en>.
- FAO. 2024d. “Government Expenditures in Agriculture 2001–2023: Global and Regional Trends.” FAOSTAT Analytical Brief 100. Rome. <https://openknowledge.fao.org/server/api/core/bitstreams/265380d6-afce-43ba-a8a7-262097723abc/content>.
- FAO. 2025. *Food Safety and Quality in the Near East and North Africa: Mapping Drivers, Challenges and Imperatives*. Cairo. <https://doi.org/10.4060/cd6725en>.
- FAO and GEF (Global Environment Facility). 2021. “Combating Land Degradation and Biodiversity Loss by Promoting Sustainable Rangeland Management and Biodiversity Conservation in Afghanistan.” Project document. <https://openknowledge.fao.org/server/api/core/bitstreams/699891ef-b05f-4f6a-bfa1-39718f73392f/content>.
- FAO, IFAD (International Fund for Agricultural Development), UNICEF, WFP (World Food Programme), WHO (World Health Organization), and ESCWA. 2024. *Near East and North Africa—Regional Overview of Food Security and Nutrition 2024: Financing the Transformation of Agrifood Systems*. Cairo. <https://doi.org/10.4060/cd3550en>.
- FAO, UNDP (United Nations Development Programme), and UNEP (United Nations Environment Programme). 2021. *A Multi-billion-dollar Opportunity: Repurposing Agricultural Support to Transform Food Systems*. Rome.

- Fuglie, K., M. Gautam, A. Goyal, and W. F. Maloney. 2019. *Harvesting prosperity: Technology and Productivity Growth in Agriculture*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-1393-1>.
- Goyal, Aparajita, and John Nash. 2017. *Reaping Richer Returns: Public Spending Priorities for African Agriculture Productivity Growth*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-0937-8>.
- Gautam, Madhur, David Laborde, Abdullah Mamun, Valeria Piñeiro, Will Martin, and Rob Vos. 2022. “Repurposing Agricultural Policies and Support: Options to Transform Agriculture and Food Systems to Better Serve the Health of People, Economies, and the Planet.” World Bank and IFPRI (International Food Policy Research Institute), Washington, DC. <http://hdl.handle.net/10986/36875>.
- Hssaisoune, M., L. Bouchaou, A. Sifeddine, I. Bouimetarhan, and A. Chehbouni. 2020. “Moroccan Groundwater, Resources and Evolution with Global Climate Changes.” *Geosciences* 10 (2): 81. <https://doi.org/10.3390/geosciences10020081>.
- ICARDA (International Center for Agricultural Research in the Dry Areas). 2023. “Annual Report 2023: Partnerships for Development—Rooted Alliances for Climate Innovation.” <https://annual-report.icarda.org/2023/putting-healthy-soil-and-efficient-water-management-in-expert-community-hands/>.
- ICARDA (International Center for Agricultural Research in the Dry Areas). 2024. “GeoAgro MiSR: Digital Application Training in Egypt.” June 2. <https://icarda.org/media/news/geoagro-misr-digital-application-training-egypt>.
- IFPRI (International Food Policy Research Institute). 2024. Global Spatially-Disaggregated Crop Production Statistics Data for 2020, Version 2.0, Harvard Dataverse, V4. <https://doi.org/10.7910/DVN/SWPENT>.
- Khelifi, Takwa, Hazar Abdelkafi, Mouhanned Jemli, and Mahmoud Hammemi. 2025. “From Sun to Shelf: Empowering Tunisian Women Through Solar Food Drying.” United Nations World Food Programme Innovation Accelerator. <https://innovation.wfp.org/blog/sun-shelf-empowering-tunisian-women-through-solar-food-drying> (retrieved May 28, 2026).
- Lezzaik, Khalil, and Adam Milewski. “A Quantitative Assessment of Groundwater Resources in the Middle East and North Africa Region.” *Hydrogeology Journal* 26.1 (2018): 251–66.
- López, Ramón, and Gregmar I. Galinato. 2006. “Should Governments Stop Subsidies to Private Goods? Evidence From Rural Latin America.” *Journal of Public Economics* 91 (5–6): 1071–94. <https://doi.org/10.1016/j.jpubeco.2006.10.004>.
- Mualla, W. 2018. “Water Demand Management Is a Must in MENAAP Countries... But Is It Enough?” *Journal of Geological Resource and Engineering* 6 (2). <https://doi.org/10.17265/2328-2193/2018.02.002>.
- Nguyen, Linh, Jason Russ, and Margaret Triyana. 2023. “The Effect of Agricultural Input Subsidies on Productivity: A Meta-Analysis.” World Policy Research Working Paper 10399. World Bank, Washington, DC.

- Richey, Alexandra S., Brian F. Thomas, Min-Hui Lo, James S. Famiglietti, Sean Swenson, and Matthew Rodell. 2015. "Uncertainty in Global Groundwater Storage Estimates in a Total Groundwater Stress Framework." *Water Resources Research* 51 (7): 5198–5216. <https://doi.org/10.1002/2015wr017351>.
- Rushton, J., M. Eltholth, B. Devleesschauwer, C. di Bari, S. Srairi, L. Robin, B. Huntington, and S. Babo Martins. 2025. "Comprehensive Situational Analysis of Zoonotic and Foodborne Diseases Burden from Animal Sources." MENA Regional One Health Initiative. Working paper of the World Bank and the University of Liverpool.
- Shamout Nouar, M. 2015. "The Euphrates in Crisis: Channels of Cooperation for a Threatened River." Research Paper, Chatham House, Royal Institute of International Affairs, London.
- Sutton, William R., Alexander Lotsch, and Ashesh Prasann. 2024. *Recipe for a Livable Planet: Achieving Net Zero Emissions in the Agrifood System*. Agriculture and Food Series. Washington, DC: World Bank.
- United Nations, Food and Land Use Coalition, and the World Bank. 2023. "Food Finance Architecture Executive Summary: Financing a Healthy, Equitable and Sustainable Food System." Food System Summit 2023. [https://www.unfoodsystemshub.org/docs/unfoodsystemslibraries/fss-community/chapter-2/food-finance-architecture-\(1\).pdf?sfvrsn=ae768a97_1](https://www.unfoodsystemshub.org/docs/unfoodsystemslibraries/fss-community/chapter-2/food-finance-architecture-(1).pdf?sfvrsn=ae768a97_1).
- Water Unite. 2024. *Water Unite Annual Report 2024*. London. https://www.waterunite.org/site_files/7323/upload_files/Water%20Unite%20Annual%20Report%20-%202024.pdf (retrieved May 28, 2026).
- World Bank. 2019. *Sustainable Land Management and Restoration in the Middle East and North Africa Region—Issues, Challenges, and Recommendations*. Washington, DC: World Bank.
- World Bank. 2021. "MENA Cities at the Forefront of Climate Action: The Time is Now." Blog accessed June 16, 2025 at <https://www.worldbank.org/en/events/2021/09/22/mena-cities-at-the-forefront-of-climate-action-the-time-is-now>.
- World Bank. 2022. "Pakistan: Sindh Agricultural Growth Project — Implementation Completion and Results Report." Report No. P128307. World Bank, Washington, DC.
- World Bank. 2023. "West Bank and Gaza Country Climate and Development Report." World Bank, Washington, DC.
- World Bank. 2024a. *Maghreb PASA Synthesis Policy Note—Maghreb Policy Engagement for Resilience and Inclusive Agrifood Systems*. P179965. World Bank, Washington, DC. <http://documents.worldbank.org/curated/en/099062724124512633>.
- World Bank. 2024b. *The World Bank's Support for Repurposing of Agrifood Public Policies and Programs: Moving from Advocacy to Action*. Washington, DC: World Bank.
- World Bank. 2024c. *Repurposing Agricultural Support Policies for Sustainable Food Systems—Toolkit*. Washington, DC: World Bank. <http://hdl.handle.net/10986/41648>.

- World Bank. 2025a. Improving Public Support for Sustainable Transformation of Jordan's Agrifood System. Internal document under the Mashreq Policy Dialogue on Food Security (P181294).
- World Bank. 2025b. *Harnessing Artificial Intelligence for Agricultural Transformation*. Washington, DC: World Bank. <https://doi.org/10.1596/43990>.
- World Bank. 2025c. "Digital Agriculture Roadmap Playbook." World Bank, Washington, DC. <https://documentsinternal.worldbank.org/search/40017758>.
- World Bank. 2026a. "Waste Management in the Middle East and North Africa." World Bank, Washington, DC. <http://hdl.handle.net/10986/44214>.
- World Bank 2026b. "Hooked on Subsidies: The Case for Reform." World Bank, Washington, DC. <http://documents.worldbank.org/curated/en/099032626103039700>.
- Zhang, Fan, Christian Borja-Vega, Hrishikesh Arvind Chandanpurkar, James Famiglietti, Rick Hogeboom, Regassa Namara, Zarif Rasul, Pavel Luengas-Sierra, and Deyu Rao. 2025. *Continental Drying: A Threat to Our Common Future. Global Water Monitoring*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-2269-8>.
- Ziadat, Feras, Giulia Conchedda, Fidaa Haddad, Jeremiah Njeru, Aurélie Brès, Mona Dawelbait, and Lifeng Li. 2025. "Desertification and Agrifood Systems: Restoration of Degraded Agricultural Lands in the Arab Region." *Agriculture* 15 (12): 1249. <https://doi.org/10.3390/agriculture15121249>.
- Zittis, G., M. Almazroui, P. Alpert, P. Ciais, W. Cramer, Y. Dahdal, M. Fnais, et al. 2022. "Climate Change and Weather Extremes in the Eastern Mediterranean and Middle East." *Reviews of Geophysics* 60 (3). <https://doi.org/10.1029/2021rg000762>.

Trade Will Remain Central to Food and Nutrition Security and Agrifood Sector Job Opportunities

MENAAP COUNTRIES ARE AND WILL REMAIN NET FOOD IMPORTERS

With constraints on domestic production, all countries in the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region are net food importers; indeed, imports are important economically and central to meeting food demand. While some MENAAP countries have important export-oriented food production, the value of the food products exported is below the value of imports in all countries. On average across the region, the share of net food imports is 4 percent of GDP. It ranges between 0.8 and 8.8 percent—but remains higher than the global average of 0.5 percent in every country. On another measure, the median country in the region satisfies 35 percent of food consumption (by value, compared to 39 percent in terms of calories) through imports, with nearly all consumption needs met by imports in the Gulf Cooperation Council (GCC) countries and some economies affected by fragility, conflict, and violence (FCV). Relative to the level of economic output, net imports are highest in some of the region's FCV-affected economies, where output has declined due to conflict (for instance, in Afghanistan and the Syrian Arab Republic, where they account for 9 and 8 percent of GDP, respectively), as well as in some middle-income countries (MICs) with limited domestic production capacity (for instance, Jordan and Algeria, with 7 and 5 percent, respectively).

Imports are growing in importance, rising nearly everywhere since the 2010–11 Arab Spring. In nearly all of the region’s economies for which data are available for long-term comparisons, net food imports have grown by about 1 percentage point as a share of GDP at the median between 2007–10 and 2019–22 (refer to figure 4.1). The exceptions are Jordan and Morocco, which have experienced rapid growth in domestic agriculture, with agriculture value added roughly doubling over the same period.¹

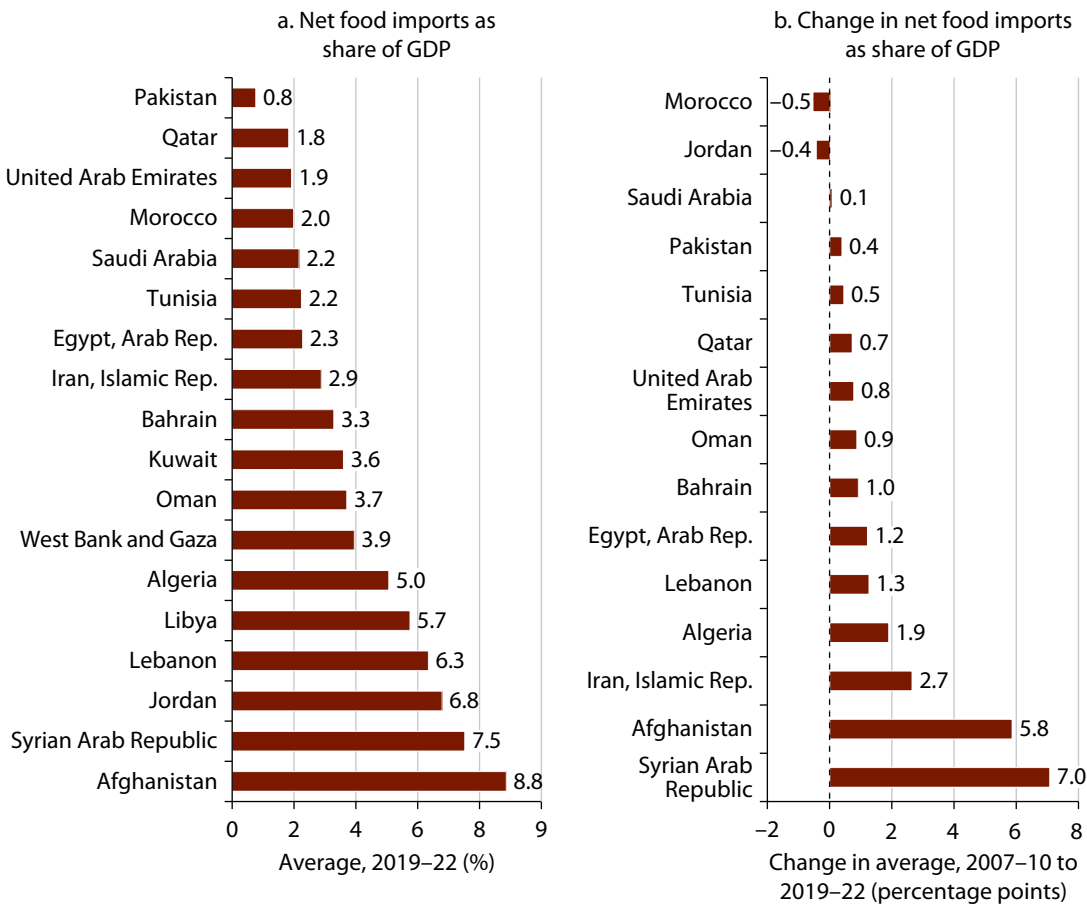
Fruit and vegetable exports have become an important source of opportunity for the region. While food imports play an essential part in ensuring food security, some countries have also begun to seize opportunities for export production, benefiting livelihoods in the agrifood system. Notably, exports of fruits and vegetables have become an extraordinary success for Middle East and North Africa (MENA) region MICs. In real terms, these (net) exports have risen over time, from US\$1.9 billion per year on average in 2002–04 to US\$9.3 billion per year in 2022–24. This reflects sustained growth over two decades at an average annual rate of 7.7 percent. With water resources highly constrained, it is worth noting that imports of cereals and other staples, which embody substantial volumes of “virtual water” (discussed later in the chapter), have enabled domestic water to be used for export crops, helping to facilitate this success story.

While the region imports a variety of foodstuffs, cereals account for up to one-third of food import values. At the median, wheat, maize, and rice together account for 13 percent of MENAAP imports in terms of value. In some of the region’s MICs, the share is closer to one-third, reaching 35 and 36 percent in the Arab Republic of Egypt and Tunisia, respectively.

Income levels, subsidies, and conflict are associated with higher food imports in the region, whereas weaknesses in logistics and nontariff regulatory measures are associated with lower imports. Cross-country empirical estimates prepared for this report suggest that consumer subsidies increase food imports in the region by keeping food prices below world market levels. A doubling of subsidies is associated with a 7 percent increase in food imports. Similarly, conflict raises demand for imports due to declines in domestic production. Conversely, the region’s relatively weak logistics reduce the volume of food imports by increasing the cost of trading: the region’s average logistics performance index value was 10 percentage points below the global average. Finally, the use of nontariff measures reduces demand for food imports, though the estimated effect is small.

FIGURE 4.1

Average Regional Net Food Imports as Share of GDP, 2019–22, and Changes between 2007–10 and 2019–22

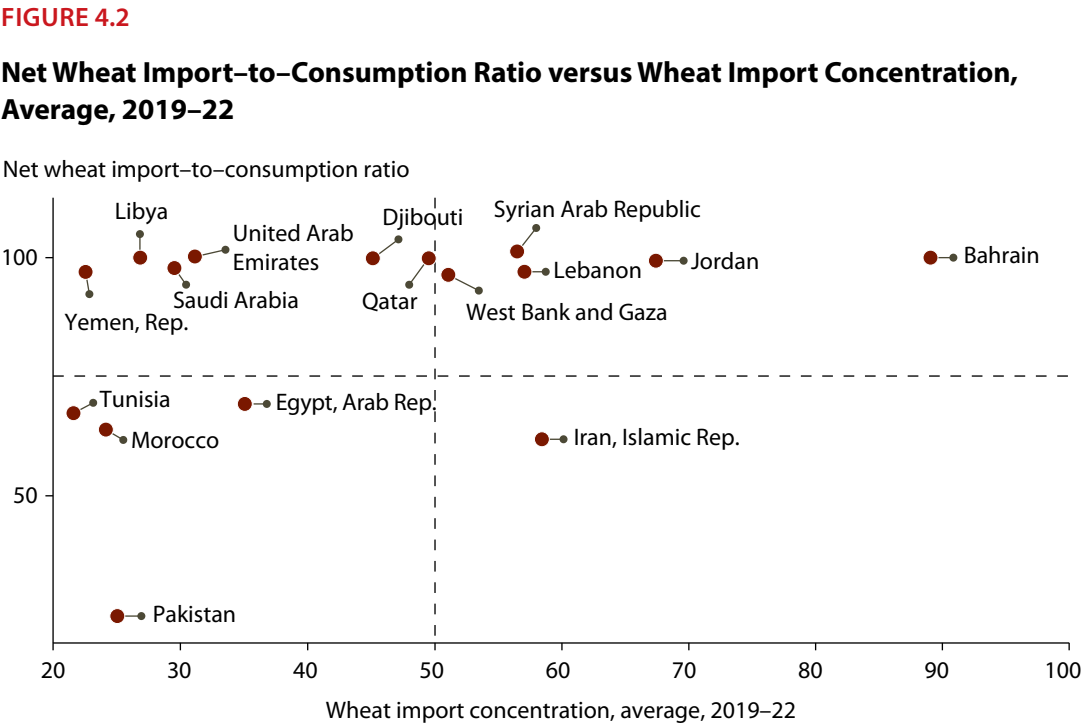


Sources: Original figure for this report, based on data from FAOSTAT (<https://www.fao.org/faostat/en/#data/TMWBDI>) and World Bank World Development Indicators (WDI) (<https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>).

HIGH RELIANCE ON IMPORTS BRINGS SOME RISKS BUT ALSO EASES WATER CONSTRAINTS, ALLOWING FOR GREATER FOCUS ON COMPETITIVE VALUE CHAINS

A strong reliance on imports goes hand in hand with supply risk, especially in countries that import a high share of an important commodity, such as wheat, and do not diversify the countries from which they import. Historical trade ties as well as advantages in transport costs can contribute to a lack of diversity in sourcing. In such

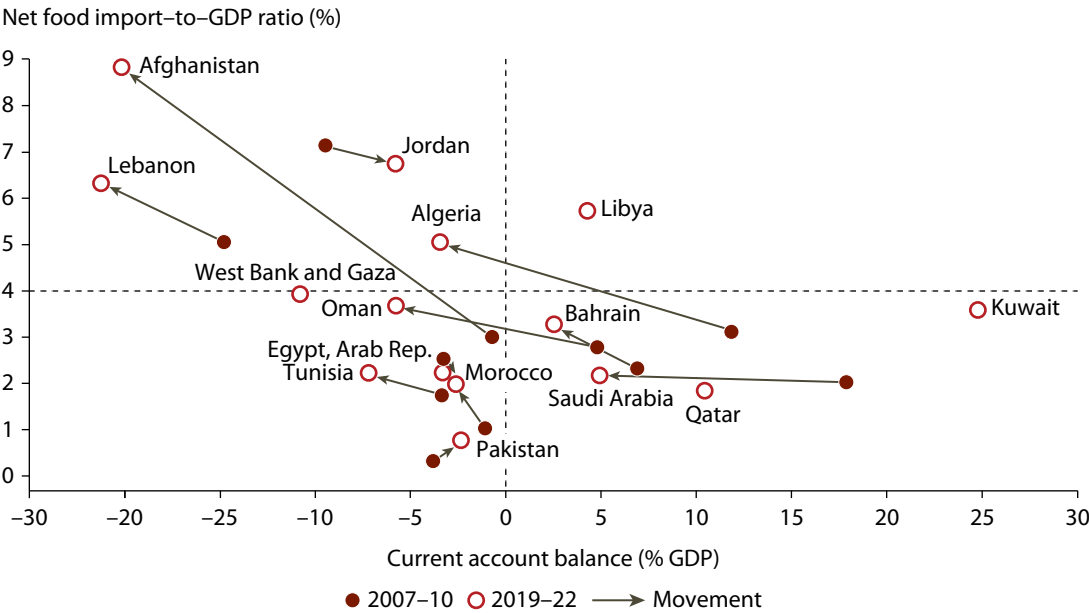
situations, disruptions to trade due to geopolitical shifts or climate shocks in the export partner’s agrifood system can make it challenging to procure sufficient food imports at an affordable price. Figure 4.2 uses a common index of trade concentration to map countries by the extent to which they satisfy demand for wheat through imports and by the degree to which they rely on a limited number of trade partners.² Using an import share of 75 percent as the threshold for high import reliance and a concentration of 50 percent as the threshold for a high focus on certain exporters, the analysis shows that supply risk is an important consideration for a number of countries, regardless of income level and stability—including, for instance, war-torn Syria, as well as middle-income Jordan and high-income Bahrain. For countries in this situation, clear policy options are available to promote diversification and reduce risk. Dependence on a few suppliers for nonstaples does not carry the same risk of failing to meet basic food needs but does introduce the risk of price volatility.



Sources: World Bank, based on data from FAOSTAT (<https://www.fao.org/faostat/en/#data/TCLI> and <https://www.fao.org/faostat/en/#data/TM>) and WDI (<https://databank.worldbank.org/source/world-development-indicators/>).

High food imports can pose macroeconomic risks, with the region demonstrating a tendency toward increasing exposure. Apart from supply disruptions, a pronounced reliance on imports can pose risks if funding needs are high relative to the size of the economy and the economy has a low current account balance, that is, limited income from abroad through sales of other goods and services, earnings on investments abroad, or transfers. Where this is the case, price shocks can make it increasingly difficult to meet payment needs. Figure 4.3 shows that exposure to such risk has been rising across much of the region, relative to the period before the Arab Spring. Risk is higher in countries with a negative current account balance and net food imports that comprise a larger share of GDP than is typical in the region. Most of those at higher risk are FCV economies. However, exposure is also a relevant consideration for some MICs. As figure 4.3 also shows, exposure has increased for most economies, in some cases considerably. The MENAAP economies facing such risk can look to financial instruments to manage price shocks and should also consider policies to strengthen competitiveness.

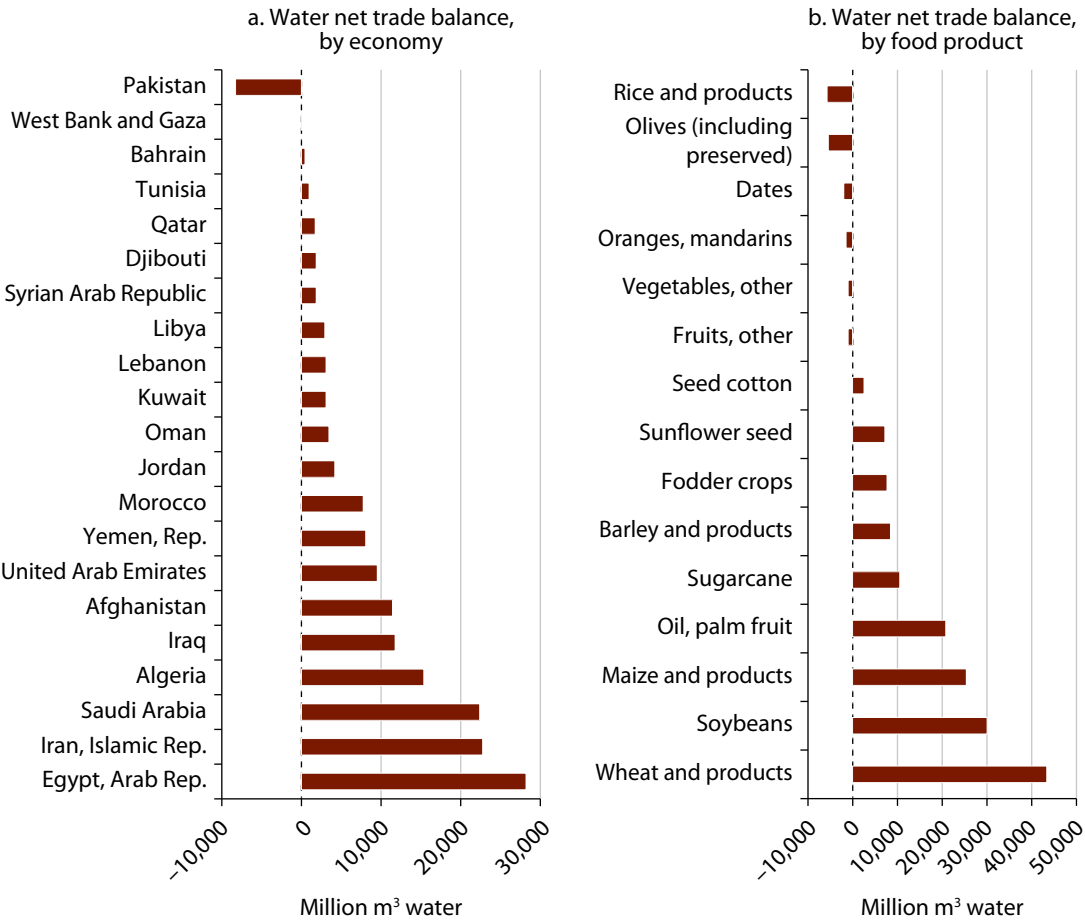
FIGURE 4.3
Net Food Imports-to-GDP Ratio versus Current Account Balance: Movement between 2007–10 and 2019–22



Sources: World Bank, based on data from FAOSTAT (<https://www.fao.org/faostat/en/#data/TI>) and WDI (<https://data.worldbank.org/indicator/NY.GDP.MKTP.CD> and <https://data.worldbank.org/indicator/BN.CAB.XOKA.GD.ZS>).

Food imports significantly ease water scarcity, with MENAAP countries importing about 153 billion cubic meters of virtual water. Importing food saves freshwater resources: the water needed to grow the imported foodstuffs is abstracted outside of the importing country. Most MENAAP countries face acute water scarcity, and the volumes of “virtual” freshwater embodied in food imports make a substantial contribution to easing pressure on this scarce resource. A World Bank data set published alongside Zhang et al. (2025) enables analysis of these important flows. Among the countries in the region, Pakistan, with its abundant freshwater reserves, is the only exporter of virtual water. Specifically, Pakistan is the only country to use more water to produce the foodstuffs it exports than its trading partners use to produce the food it imports (refer to figure 4.4).

FIGURE 4.4
Virtual Water Net Trade Balance, by Economy and by Food Product, 2019



Sources: World Bank, based on data from Zhang et al. (2025) and FAOSTAT (<https://www.fao.org/faostat/en/#data/TI>).
Note: m³ = cubic meter.

In other countries, the volume of net virtual water imports is high compared to domestic water use for agriculture. Thus, the regionwide net import of virtual water is equivalent to 42 percent of all irrigation water use and 33 percent of all agricultural water use (in 2020), as recorded in Aquastat. The respective proportions for the MENA subregion are 93 percent and 57 percent.

As noted, cereals account for an important share of food imports in the region. Hence, imports of wheat and maize provide some of the largest water savings, along with imports of soybeans—a notably “thirsty” crop that requires substantial amounts of water. Imports of wheat and maize alone are equivalent to all irrigation water use in Egypt and Iraq.

CURRENT TRADE POLICIES LIMIT THE EXPOSURE OF CONSUMERS TO PRICE SHOCKS BUT ALSO LIMIT THE EFFICIENCY OF PRICE SIGNAL TRANSMISSION TO PRODUCERS AND BUSINESSES

Countries in the region use a variety of policies to insulate consumers from the volatility of international food markets, such as public procurement, strategic food reserves, and subsidies. The analysis conducted for this report focused on subsidies, in line with data availability constraints and given the high level of public spending still dedicated to subsidies. It is estimated that a doubling of subsidies reduces the transmission of changes in the global wheat price to domestic wheat prices by 21 percent relative to the average within the region. These estimates suggest that subsidies may account for up to one-third of the lower price transmission in the region compared to the global average.

Policy interventions limit the transmission of world price changes, even in the long run. For instance, for every 10 percent change in the world price, domestic wheat and rice prices change by 6 percent and 4 percent, respectively (refer to table 4.1). Price transmission occurs gradually: for wheat, on average, it takes an estimated three to four months for world price changes to be (partially) reflected in domestic markets, whereas changes in the price of rice are only reflected after eight months.

MENAAP countries limit pass-through more strongly when there are large world price shocks, such as the rice-price spike during the global food price crisis of 2008, or the wheat price shock following Russia’s

invasion of Ukraine, when global prices rose from US\$300 per metric ton in February 2022 to over US\$450 by mid-March 2022 (US soft red winter wheat). When data analysis considers only these and other steep world price increases (focusing on changes greater than the 75th percentile of all shifts), the estimated average changes in the domestic wheat and rice prices are 4 percent and 2 percent, respectively, for a 10 percent global price change. This is a high degree of price insulation, with pass-through at the lower end of the 40–70 percent pass-through rates estimated for a global sample of countries (Hoffmann et al. 2024).

Policies to limit price transmission shield consumers from budget pressures; however, they weaken price signals that should guide domestic production and consumption. Policies to soften the impact of global price changes have an important social function: they protect household purchasing power when prices surge, thus contributing to poverty reduction and, ultimately, to social stability. However, there is a trade-off to be considered. By limiting the alignment of domestic and global prices, these policies also weaken the price signals to producers. For instance, limiting price signals can weaken producer incentives to invest and expand output while encouraging consumers to overconsume staples. At the same time, policy measures to manage prices are costly and can divert fiscal resources from alternative opportunities, such as investment in agricultural productivity, the business environment, or social safety nets that can provide more targeted support.

TABLE 4.1
Adjustment of Average MENAAP Domestic Prices in Response to a 10 Percent Shift in Global Prices

Adjustment	Percent	
	Wheat	Rice
Long-run domestic price adjustment	6.2	4.1
Domestic price adjustment after one month	3.2	2.2
Long-run domestic price adjustment after large price spike	4.1	1.9
Long-run domestic price adjustment in countries with high subsidies (greater than 2 standard deviations above the mean)	3.2	2.3

Source: Cali, Presidente, and Elbeltagy 2026.
Note: Methods described in Cali, Presidente, and Elbeltagy 2026. All coefficients reported are significant at the 1 percent level.

GOOD POLICY CAN FOSTER FOOD TRADE WITHOUT DISTORTIONS, LEVERAGE STRATEGIC GRAIN RESERVES, AND CAREFULLY BALANCE TRADE-OFFS IN OFFERING SUBSIDIES

Improved logistics and lower nontariff barriers can facilitate trade flows without unsustainably favoring particular products or producers. Nontariff barriers often act as hidden trade restrictions; for instance, when there are complex importing licensing processes, cumbersome sanitary and phytosanitary processes, or burdensome customs regulations. Such nontariff barriers can delay shipments, increase costs, and ultimately limit the availability of food imports. Similarly, many regional economies remain far from the logistics efficiency frontier. Constraints can include limited or inadequate capacity at seaports or land border-crossing facilities, and inefficient land transport (for instance, excessive reliance on trucks using costly diesel fuel). Costs can add up and are ultimately borne by consumers. In addition, losses during storage, transport, and handling also raise the effective cost of food imports, increasing foreign exchange needs without improving food consumption outcomes. In poorly integrated markets, supply chains can become extended, with higher risks of disruptions due to weather events, security risks, and shipping companies' management or performance risks. Consequently, in contexts with poor access, such as in the Republic of Yemen, transport and logistics costs can account for up to 50 percent of the final price, raising the price of essential crops to an unaffordable level for many households. Thus, reforms and investments aimed at greater efficiency and improved logistical performance can promote food trade and improve access to food without creating distortions.

Food subsidies are effective at cushioning price shocks, but their usefulness should be weighed against costs and assessed against alternatives. Subsidies play an important role in reducing the impact of price hikes. However, they come with a fiscal cost, as well as more subtle, longer-term costs arising from distorted incentives for production decisions and consumer demand. Alternative policies may be more attractive. Notably, strategic reserves provide an alternative tool for managing price swings, while safety nets can offer more targeted and, hence, less costly support for a desired welfare impact (as discussed in chapter 2).

Efficiency gains in public food procurement represent an underutilized lever for strengthening food security while easing fiscal pressure. During 2021–23, the value of wheat imported by MENA countries averaged US\$67 billion per year, with wheat purchases through tenders amounting

to US\$23 billion in 2023 (World Bank, FAO, and WFP 2025). Even marginal efficiency gains in this space can therefore yield significant fiscal savings. More competitive, transparent, and market-based procurement, with greater private sector participation, can lower import costs, reduce leakage, and improve targeting without undermining price stabilization objectives. Evidence points to several concrete measures: allowing flexibility in the country of origin while maintaining quality standards, sourcing from reliable grain traders to reduce the risk of contract nonfulfillment, fostering regional cooperation, and using physical hedging contracts and financial derivatives to manage price shocks (World Bank and FAO 2012). Tender design itself offers further savings through attention to wheat protein content specifications, average tender volumes, urgency windows, and delivery windows (World Bank, FAO, and WFP 2025).

Well-managed strategic grain reserves are a market-friendly and sustainable tool for reducing price volatility. Regional and global experience shows that strategic grain reserves can help mitigate price swings in a more market-friendly and less fiscally costly way than subsidy programs. Management principles include keeping reserves small, simple, and smart, thereby limiting costs by focusing on moderate stock size and well-timed procurement and release (World Bank, FAO, and WFP 2025). Reserves in several countries in the region, such as Lebanon, have successfully begun involving the private sector in the management of stocks. In addition to sound management, transparent governance of reserves is critical. Procurement needs to be transparent, market-based, and open to small producers wherever possible. Releases are best made through market mechanisms, such as auctions or commodity exchanges.

NOTES

1. GDP grew by 2.8 and 3.2 percent annually on average in Jordan and Morocco, respectively, compared to a 2.4 percent MENAAP average, except in high-income countries (HICs). Both countries also recorded higher GDP growth than the regional average (excluding HICs). Agriculture value added grew by an average of 5.5 and 5.3 percent, respectively. Although there is no aggregate available for the region, growth rates in some of the largest agricultural sectors in the region were 2.3 percent in both Pakistan and Iraq, and 3.2 percent in the Arab Republic of Egypt (World Bank, World Development Indicators [WDI]).
2. The Herfindahl-Hirschman Index (HHI) sums the squared shares of imports obtained from different partners. If a country trades only with one partner, the index is equal to 100 percent; a country that relies equally on two partners has an HHI value of 50 percent, while a country that imports half from one partner and one-quarter from each of two other partners has an index value of 38 percent.

REFERENCES

- Calì, Massimiliano, Giorgio Presidente, and Zeinab Elbeltagy. 2026. "Food Trade in MENAAP." Background paper for this report. World Bank, Washington, DC.
- Hoffmann, Clemens, Lina Kastens, Alberto VPortugal-Perez, and Von Cramon-Taubadel Stephan. 2024. "Trade Policies and the Transmission of International to Domestic Prices." *AgEcon Search*, January. <https://doi.org/10.22004/ag.econ.344313>.
- World Bank and FAO (Food and Agriculture Organization of the United Nations). 2012. "The Grain Chain. Food Security and Managing Wheat Imports in Arab Countries." World Bank, Washington, DC.
- World Bank, FAO, and WFP (World Food Programme). 2025. "Strengthening Strategic Grain Reserves to Enhance Food Security." World Bank, Washington, DC.
- Zhang, Fan, Christian Borja-Vega, Hrishikesh Arvind Chandanpurkar, James Famiglietti, Rick Hogeboom, Regassa Namara, Zarif Rasul, Pavel Luengas-Sierra, and Deyu Rao. 2025. *Continental Drying: A Threat to Our Common Future. Global Water Monitoring*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-2269-8>.

Agribusiness for Jobs and Food and Nutrition Security

Agribusiness includes firms in the agrifood system (AFS) that invest, strive to raise productivity, and compete for export markets, thus becoming the sources of tomorrow's good jobs. However, agribusiness also includes the market-oriented activities of individual workers in the AFS, such as smallholders adding cash crops or animal products to subsistence production, or a new generation of rural workers moving from on-farm work to off-farm AFS activities. An effective jobs policy should therefore promote both the growth of firms that push the region's AFS performance forward as well as the ability of individual workers and household enterprises to raise their productivity.

THE AFS REMAINS A KEY EMPLOYER IN THE REGION, WITH JOB GROWTH STRONGEST IN OFF-FARM JOBS AND GOOD EXAMPLES OF RISING PRODUCTIVITY IN ON-FARM JOBS

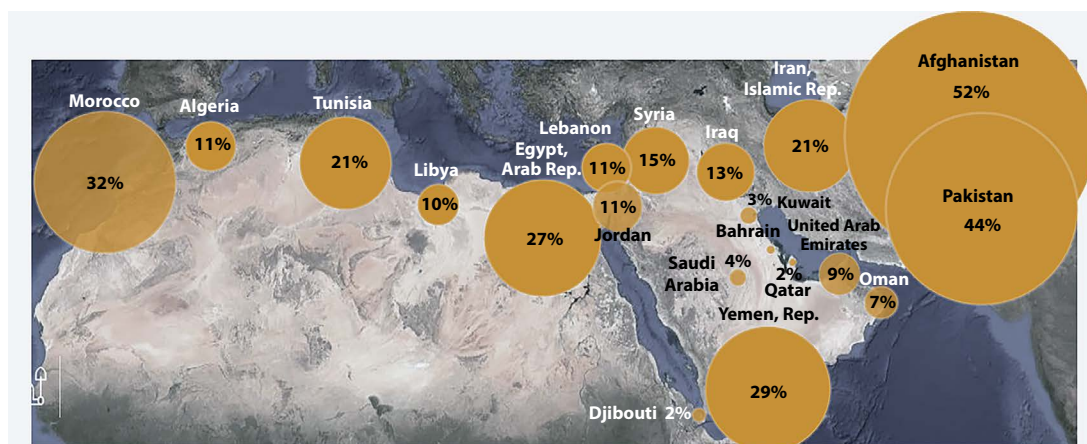
The AFS provides nearly 3 in every 10 jobs in the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region. This report uses estimates of on-farm employment provided by the International Labour Organization (ILO) and conservatively estimates off-farm employment from the same data (refer to appendix B). The data reflect

the ongoing importance of the AFS as an employer: an estimated 63 million people, or 28 percent, work in the sector. They also show significant variation in the sector's role across the region. Within the region, Pakistan stands out among MICs for its high AFS employment rate of 44 percent, especially given the size of its labor force. Indeed, Pakistan's 34 million AFS workers represent half of all agrifood employment in the region. The share of AFS employment is also high in Afghanistan and the Republic of Yemen, consistent with their comparatively low income levels (figure 5.1). The sector provides up to 1 in every 3 jobs in MICs in the Middle East and North Africa (MENA) subregion, such as Morocco, with dynamic agricultural sectors. However, it accounts for 10 to 21 percent of jobs in other MENA MICs, and less than 1 in 10 jobs in the GCC.

While off-farm AFS jobs have grown strongly in the region, the majority of AFS jobs remain in on-farm activities (79 percent). Yet, in most countries in the region, employment in primary food production is also below the global norm, consistent with the challenging agroclimatic conditions in much of the region. In many instances, the gaps are large—for example, between 11 and 13 percentage points across most of the GCC—and they illustrate fundamental constraints to creating additional on-farm jobs.

FIGURE 5.1

Regional Overview of the Importance of Agrifood as a Share of Total Employment in 2023



Sources: World Bank calculations based on 2025 ILO data (<https://ilostat.ilo.org/topics/employment/>).

Off-farm AFS employment in the region is growing strongly but is still well below potential. Between 2010 and 2023, the region added 2.9 million off-farm jobs in the AFS, a growth rate of 28 percent. This is well above the global average growth of 14 percent.¹ Growth rates were high both in the GCC, with a net increase of 208,000 jobs (43 percent), and in the MENA MICs, which added nearly 2 million jobs (53 percent). In the GCC, these growth dynamics reflect high demand in the food service industry (restaurants, catering), in keeping with higher incomes and tourism. In the MENA MICs, they are driven by successful downstream investment. For example, Morocco has developed a vibrant food export processing sector (fruits, olives, fish canning) and agribusiness clusters, thus generating substantial job growth. Pakistan saw more modest growth (22 percent), whereas economies affected by fragility, conflict, and violence (FCV) experienced a net loss of 257,000 AFS jobs (a 19 percent decline)—a consequence of conflict and instability, but also a pattern that reflects the prospects for more jobs in off-farm activities if and when stability takes hold. For the region as a whole, off-farm AFS employment remains substantially below what is the global norm at comparable income levels, by 4 percentage points of all economy-wide employment at the median, suggesting significant growth potential.

Women face limited opportunities in on-farm work, with better access in Pakistan. Gender-disaggregated ILO data prepared by FAOSTAT show that, while women account for an estimated 41 percent of those active in on-farm jobs in Pakistan, in the rest of the region, the average share of on-farm jobs held by women is merely 15 percent (refer to table 5.1).² The comparison with women's share in all employment is instructive: women's participation is far higher in agriculture than in the economy at large in Pakistan, and far lower in the GCC—but it is comparable in the region's MICs and FCV economies, highlighting that in their on-farm activities, women face some of the same hurdles that heavily constrain their participation economy-wide.

At the same time, the harmonized data also vividly reflect the difficulties in making women's contributions to on-farm production visible. For instance, it records women's share of agriculture employment in Afghanistan as 6 percent, a value unlikely to reflect the real extent of women's family labor in Afghanistan's agriculture-dominated economy. It is noteworthy that a 2022 household survey recorded women's contribution to agriculture in Afghanistan at 34 percent.

TABLE 5.1**Women's Employment Shares in On-Farm, Off-Farm AFS, and All Employment**

Region, group, or country	Share of jobs held by women (%)		
	On-farm activities	Off-farm activities	All jobs (ILO modeled data)
MENAAP	29	–	19
GCC	2	–	19
MENA MICs	19	32	18
Pakistan	41	–	22
FCV	9	–	12

Sources: Data for on-farm activities from FAOSTAT, for off-farm activities from data collected for this report, and on all jobs from ILO.

Note: Data for off-farm activities were collected in the Arab Republic of Egypt, Iraq, Jordan, Lebanon, Morocco, and Tunisia; statistics shown relate to workers who currently or previously have worked in a relevant activity, and to respondents who have only worked in off-farm jobs but not in on-farm activities. – = not available; FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; MICs = middle-income countries.

Women's participation in off-farm activities is higher, but gender income gaps remain. Data collected for this report suggest that 1 in 3 workers with current or prior experience in off-farm AFS activities is a woman (32 percent).³ That is to say, off-farm AFS jobs are more open to women than jobs economy-wide, but women's share is still far from parity. Large gender differentials in earnings persist but vary across countries. In data collected for this report, women in Tunisia earn 29 and 24 percent less than men, respectively, in on- and off-farm activities, and women in the Arab Republic of Egypt face gender pay differentials of 50 and 49 percent on-farm and off-farm. The duration of work, type of activities, and education levels explain some of the differential; that is, the gender pay gap is in part due to differences in access to better-paid work and training.

FORMAL AGRIBUSINESS PROVIDES 3 MILLION OFF-FARM JOBS IN THE REGION, BUT HOUSEHOLD ENTERPRISES AND SELF-EMPLOYMENT ARE EVEN LARGER SOURCES OF SUCH JOBS

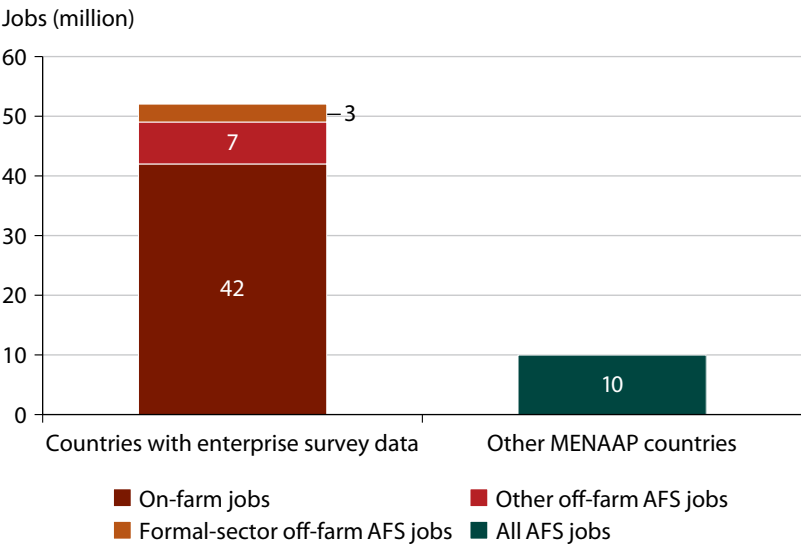
In countries where data are available, firms active in the AFS account for about one in five of all formal businesses, with about half of formal

AFS businesses engaged in food manufacturing. The AFS firms surveyed in the region's Enterprise Surveys represent an estimated 113,000 businesses, or about 21 percent of all formal businesses.⁴ Food manufacturing is the most common AFS business activity, accounting for 47 percent of all AFS firms. Hospitality and food commerce make up 21 percent and 24 percent, respectively. Notably, the regional Enterprise Surveys cover formal businesses only and do not include on-farm production. Therefore, with high levels of informality and self-employment in the AFS and beyond, they capture only a limited part of AFS business activities and off-farm jobs. They are best interpreted as pertaining to the more productive and growth-oriented agribusiness activities, if perhaps also the less accessible and broad-based ones.

Across the countries where data are available, formal AFS businesses are estimated to provide about 3 million off-farm jobs, or about 1 in every 6 jobs in formal businesses (17 percent). Among formal businesses, the share of AFS jobs is by far the highest in FCV economies, where AFS businesses account for one in every three formal-sector jobs (32 percent), keeping in line with the stronger orientation of these economies toward the AFS. Formal AFS businesses are of similar size to other regional firms: at the median, firms engaged in both types of activity employ 14 workers. Two-thirds of formal-sector AFS firms are small firms with fewer than 20 employees.

For each off-farm job in formal businesses, household enterprises and self-employment provide more than 2 additional jobs in countries where data are available. The region's business ecosystem goes beyond formal firms surveyed in the Enterprise Surveys. These other business activities range from informal firms to casual or household business activities, as well as self-employment. They are less organized and well-documented, and usually, far less productive than formal firms. However, they are an important source of jobs and an essential starting point for policies aimed at linking agrifood workers to the market. Thus, in countries for which Enterprise Survey data are available, the ILO-harmonized data suggest that there are 10 million off-farm AFS jobs in total. Subtracting the estimated employment in formal AFS businesses from this number, as represented by the Enterprise Survey sample, suggests that activities outside the formal organized sector provide 7 million jobs off-farm AFS jobs, or more than 2 in every 3 (refer to figure 5.2).

FIGURE 5.2
Regional Composition of AFS Employment



Sources: World Bank, ILO, and World Bank Enterprise Surveys (<https://www.enterprisesurveys.org/en/enterprisesurveys>).
Note: AFS = agrifood system; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

ON-FARM JOBS REMAIN POORLY PAID, THOUGH PRODUCTIVITY IS RISING; OFF-FARM AFS JOBS ARE COMPETITIVE WITH OTHER WAGE JOBS

Many on-farm jobs continue to be characterized by low incomes. Region-wide, on-farm productivity remains low. On average, a farm worker produces around US\$6,375 of value added annually as of 2024. Value added per worker is about three times as high in the region’s services sector when the GCC countries are included, and twice as high without them; in industry, it is about four times as high with the GCC countries, and twice as high without. It is worth noting that employment in agriculture is more often part-time or seasonal than in other economic activities. Therefore, the differential in value added per worker partially reflects the fact that agricultural workers spend less time on their activity, rather than the productivity of the time they do spend working. However, the difference in value added speaks to a real gap in job quality. Thus, in 2022, farm wage workers in Egypt could expect to be paid US\$3.70 per day, and those in Pakistan in 2020, US\$4.50 (refer to table 5.2). In each case, these wages are roughly half the prevailing wage for activities outside of the AFS.

TABLE 5.2**Mean Daily Wages at Market Rates, Various Sectors, 2025**

Sector	Market rates (2025 US\$)	
	Egypt, Arab Rep., 2023	Pakistan, 2020
Farming	3.70	4.50
Fishing	5.60	7.70
Manufacture of food products	8.30	10.00
Manufacture of beverages	7.20	6.60
Food and beverage service activities	7.40	7.60
Wholesale of food, beverages and tobacco	8.60	6.10
Retail sale of food, beverages and tobacco	7.00	6.90
Non-AFS	6.60	8.90
All workers	6.30	8.40

Sources: World Bank, based on the following sources: Egypt: CAPMAS 2023; OAMDI 2025. Pakistan: PBS 2022.

Note: Inflation adjustment based on beginning of survey year.

Rising output per worker provides the basis for gradually increasing on-farm job quality—though not currently in FCV economies. Higher output per worker does not necessarily translate into better earnings: land and capital rents absorb some of the additional value added. However, rising production creates conditions for improvements in job quality. MENA MICs have achieved very high productivity growth, essentially doubling output per on-farm worker between 2004 and 2024 (105 percent, three-year averages). As is often the case globally, this increase resulted from both high output growth and a 23 percent decline in on-farm employment. Both the GCC and Pakistan recorded more modest growth in value added per worker over the same period (45 and 23 percent, respectively), with a slight increase in on-farm employment in each case. The FCV-affected economies experienced a sharp 48 percent contraction in productivity.

Labor-cost data per worker in formal businesses, as well as wage data from Egypt and Pakistan, suggest that off-farm AFS jobs are about as well paid as jobs outside the AFS. Formal AFS businesses report a median annual labor cost of US\$3,845, which is very similar to the median of US\$4,210 in non-AFS activities. Labor costs are not the same as wage payments because they also include salaries and bonus payments for higher-earning employees, as well as social security costs. However, they correlate with wages. Furthermore, if the payments going to salaries and other nonwage costs are similar in AFS and non-AFS businesses, the comparison suggests that the typical AFS job in MENAAP pays about as well as the typical non-AFS job.

Labor expenses are particularly closely aligned in manufacturing, where AFS and non-AFS activities are most comparable. Income data from surveys in Egypt and Pakistan confirm this picture, with daily wages in common off-farm activities largely aligned with non-AFS wage rates (refer to table 5.2). This pattern is particularly encouraging in that it suggests that off-farm job quality remains largely aligned with nonfarm activities, even while off-farm AFS employment is steeply rising.

Sales data suggest that food and beverage manufacturers face similar productivity constraints as other manufacturing businesses. Sales per worker are a simple correlate of productivity. By this measure, formal-sector AFS manufacturers in the region perform similarly to other formal manufacturing businesses, registering median annual sales of about US\$19,000 and US\$18,000, respectively. (The gap varies substantially across subregions, perhaps due to differences in formality rates). Similar sales levels suggest that AFS manufacturers are not lagging behind others in productivity. They also suggest that they are no more successful than others in overcoming the productivity constraints common within the region. At the same time, in one important dimension of productivity, food and beverage manufacturers lag others: only 12 percent of AFS manufacturers have access to export markets (15 percent, if indirect exports are included), which is half the 24 percent rate among other manufacturers.

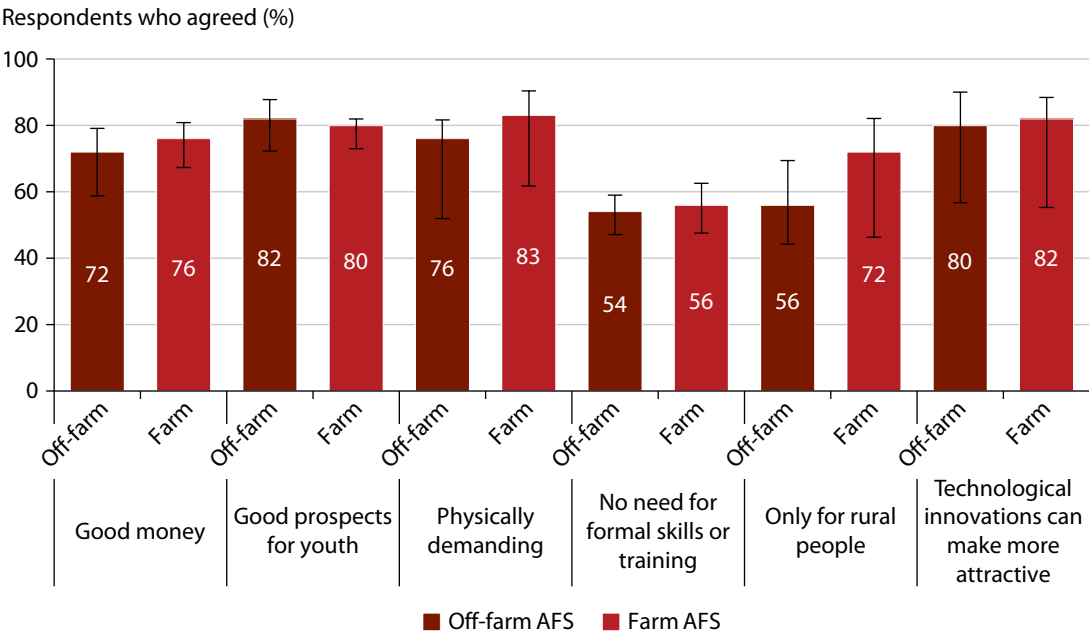
POPULAR VIEWS OF AFS JOBS ARE MORE POSITIVE THAN IS OFTEN ASSUMED

Residents of the region regard AFS jobs more favorably than is sometimes assumed and hold nuanced views of what work in the sector entails. This report collected data regarding perceptions of AFS jobs in six MENAAP countries. Across the region, large majorities agreed that employment in the sector offered opportunities to earn good money, and even more so, good prospects for youth (refer to figure 5.3).

Respondents' understanding of the advantages and disadvantages of AFS jobs is nuanced: most agree that work in the sector, and especially on-farm work, is exacting; however, respondents were split on the notion that AFS jobs require low skills. While 72 percent felt that on-farm jobs are only for those living in rural areas, barely half of the respondents agreed that this was true for off-farm AFS jobs. Finally, technology is widely viewed as a means of making AFS jobs more appealing.

Respondents in Morocco were significantly less optimistic about the earnings potential (68 and 59 percent, respectively, for on-farm and off-farm activities) and prospects for youth (73 percent for both types of activities) in the AFS, but this difference is driven by areas that were affected by drought over the past three years.

FIGURE 5.3
Perceptions of AFS Jobs in the Arab Republic of Egypt, Iraq, Jordan, Lebanon, Morocco, and Tunisia

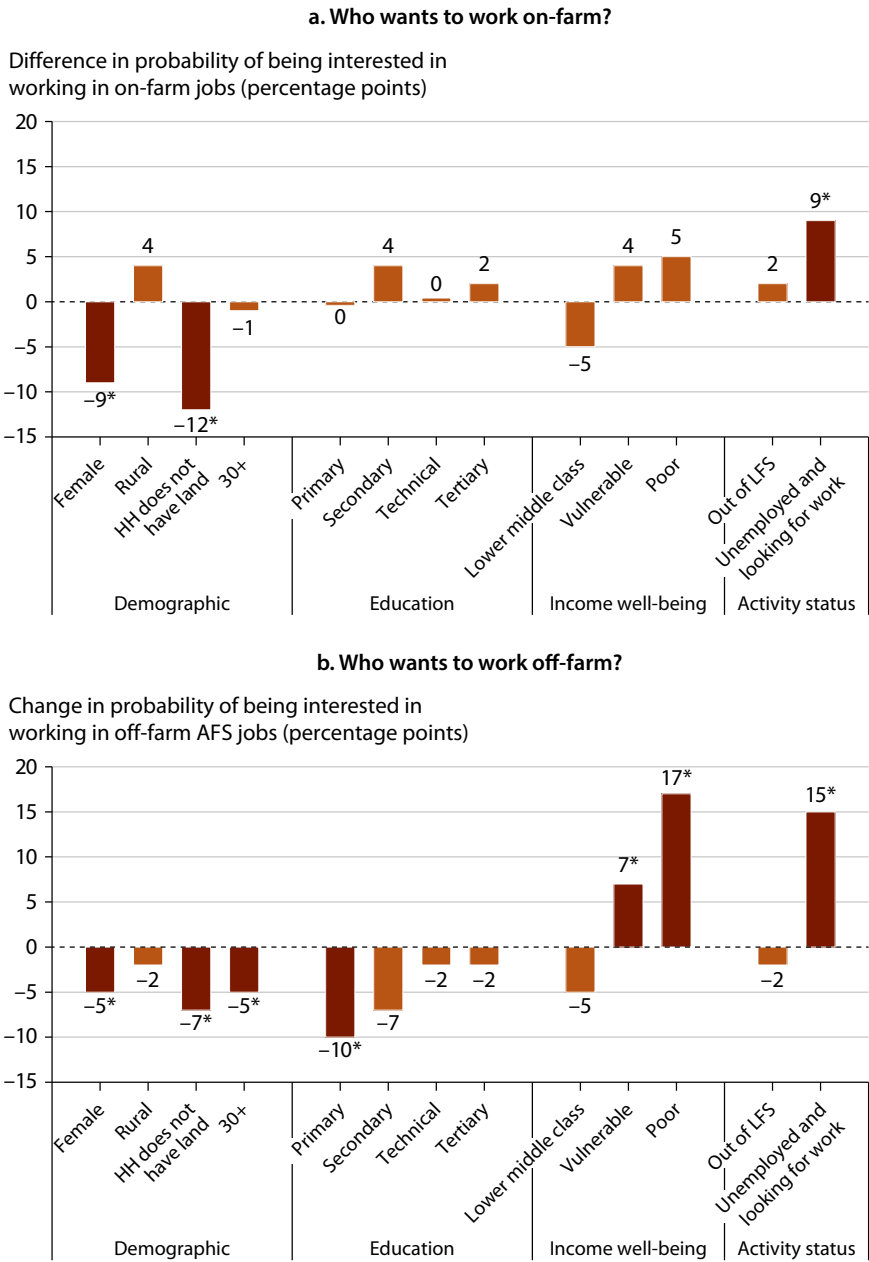


Source: Arab Barometer data collected for this report.
Note: Results shown are the unweighted average of country-specific shares (each country-specific share is obtained using survey weights). Markers indicate the minimum and maximum country-specific shares. AFS = agrifood system.

Interest in AFS jobs is higher among men, the unemployed, those with access to land, and those from poorer households, while youth are at least equally interested as older workers. In addition to soliciting views on AFS employment, the survey asked respondents whether they themselves would be interested in working in different AFS jobs on-farm and off-farm. From a policy perspective, it is particularly useful to assess what distinguishes those who are not currently active in the sector but say they are interested in either on or off-farm work from those who show no interest—that is, to understand the profile of those who could be supported in becoming active in the AFS (refer to figure 5.4). Compared to those who show no interest, these respondents are more likely to be unemployed (by a differential of 9 and 15 percentage points, respectively, for on- and off-farm AFS activities), to come from households that have access to land (12 and 7 percentage points), to be male (9 and 5 percentage points), and, for off-farm activities, to come from poorer households (17 percentage points). Positive views of earnings, prospects, and education

FIGURE 5.4

Correlates of Interest in AFS Work Among Survey Respondents Not Currently or Previously Active in the Sector



Source: Arab Barometer data collected for this report. Representative data from Egypt, Arab Rep.; Iraq; Jordan; Lebanon; Morocco; and Tunisia.

Note: The figure shows marginal effects on interest in working in AFS jobs obtained from a linear probability model. Bars shown in the dark color indicate effects that are significant. Omitted base categories are no formal training for education, upper-middle-class status for income, and being employed for activity status. AFS = agrifood system, HH = household, LFS = Labor Force Survey.

*Significant at the 5 percent level.

requirements in the sector are also associated with greater interest in on-farm employment. Importantly, young respondents (below 30 years of age) are more likely than older workers to express interest in off-farm work (5 percentage points), and no less likely to be interested in on-farm jobs.

In Egypt and Tunisia, most of those active in the AFS would rather improve their activities than start new ones, and believe that access to credit and land could help them do better. Additional data collected for this report in Egypt and Tunisia focused on the experience of workers currently active in the AFS. Most respondents said that, given the chance, they would rather improve their current activities (78 percent in Egypt and 65 percent in Tunisia) than start a new job or pursue more education, a measure of satisfaction with AFS jobs and the prospects they offer. In both on- and off-farm work, AFS workers listed long hours, low pay, and lack of capital as key disadvantages of working in the sector. In line with these concerns, respondents in both countries and across both types of AFS activities identified higher access to credit, higher pay, and access to land as the most important avenues for improving their activities.

FOR MORE AND BETTER AFS JOBS, POLICIES MUST SUPPORT AGRIBUSINESS FIRMS AND CONNECT MORE AGRIFOOD WORKERS TO THE MARKET

For more and better AFS jobs, policy must promote thriving businesses and provide better ways for individual producers to connect to the market and raise their incomes. Growth-oriented business drives sector innovation, investment, and productivity. Box 5.1 provides a concrete example from Pakistan. These firms are the source of the AFS jobs of the future. However, growth takes time, and most of today's AFS jobs still involve individual producers engaging in agribusiness activities. Raising the productivity of these activities and providing more ways for today's AFS workers to connect to the market improve today's jobs in the AFS. It also acts as a springboard for more young workers to find agribusiness employment that satisfies their aspirations. Table 5.3 provides an overview of where opportunities for more jobs and better-paid jobs are likely to arise in on- and off-farm activities.

BOX 5.1**Private Sector as Seed System Builder: AlMoiz Group's Experience in Pakistan**

Sugarcane production in Pakistan has historically been characterized by low productivity and inefficient use of resources. Two structural constraints have been particularly binding: the widespread use of recycled, disease-infested planting material in the absence of a formal seed system, and highly inefficient irrigation practices, with water use reaching around 25,000 m³ per hectare under conventional methods—nearly twice global benchmarks. AlMoiz Group, one of Pakistan's leading sugar producers, moved to address these challenges directly by embedding solutions for productivity and resource efficiency within its supply chain operations. With technical support from IFC under the Pakistan Sugar Value Chain Project, the company established an Approved Clean Seed Program integrated into its mill operations, including hot- and cold-water treatment facilities, standardized quality protocols, and farmer training delivered through its existing extension

network. In parallel, AlMoiz introduced a data-driven irrigation scheduling approach based on the pan evaporation method, designed for practical, low-cost adoption and rolled out through field demonstrations, training sessions, and digital advisory tools.

The results were significant. The clean seed system enabled the large-scale distribution of disease-free, high-vigor planting material, contributing to improved crop health and productivity across AlMoiz's supply base. Farmers adopting the improved irrigation scheduling achieved approximately 30 percent water savings along with a 12 percent increase in yields and a 13 percent improvement in profitability. Initially validated with 274 pilot farmers, both interventions were subsequently institutionalized within AlMoiz's standard agronomic advisory package and scaled to more than 16,000 sugarcane farmers. Their impact extended beyond the company itself, with other mills beginning to replicate the approach.

TABLE 5.3**More Jobs, Better Jobs, or Both? Where Are the Opportunities in the AFS?**

Potential for...	On-farm AFS jobs		Off-farm AFS jobs	
	More jobs	Better jobs	More jobs	Better jobs
GCC	Low	Mixed	High	Medium to high
	Water and land scarcity constrains area expansion and production is capital-intensive. However, there is potential in some niche high-value production.	Substantial productivity gains are possible in high-value climate-resilient crops, but limited scope of production constrains the number of workers.	High-value manufacturing and services can grow further.	Productivity is already high in off-farm AFS jobs, but could benefit workers more broadly, notably by improving women's participation.
MENA MICs	Generally low	High	High	High
	Moving toward more capital-intensive production. But Maghreb producers show potential for maintaining employment with high productivity.	Substantial productivity gains are possible. Nonmonetary aspects of job quality can improve with reforms.	Significant potential for continued growth in manufacturing and service jobs in competitive value chains.	Significant potential to continue productivity growth in manufacturing and service jobs and broaden access to good jobs.
Pakistan	Low	High	High	High
	Ample growth potential in agriculture value added, but current employment is well above what is typical at Pakistan's income level.	Substantial productivity gains are possible.	Significant potential for higher growth in manufacturing and service jobs (including logistics) in competitive value chains.	Significant potential to boost productivity growth in manufacturing and service jobs and to broaden access to good jobs.
FCV	Depending on country context	High, with stability	High, with stability	High, with stability
	Where current "safety net" employment is high, on-farm jobs are likely to decline if stability creates other opportunities. Elsewhere, recovery can help rebuild jobs in production.	Substantial productivity gains are possible, but require greater stability.	FCV economies lag the region in off-farm employment. With stability, catch-up growth could be significant.	FCV economies lag the region in off-farm productivity. With stability, catch-up growth could be significant.

Source: World Bank.

Note: Description of job potential considers current on- and off-farm employment shares relative to income peers, recent change in on- and off-farm employment, agricultural sector income, as well as prior World Bank assessments of the AFS. AFS = agrifood system; FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA MICs = Middle East and North Africa subregion middle-income countries.

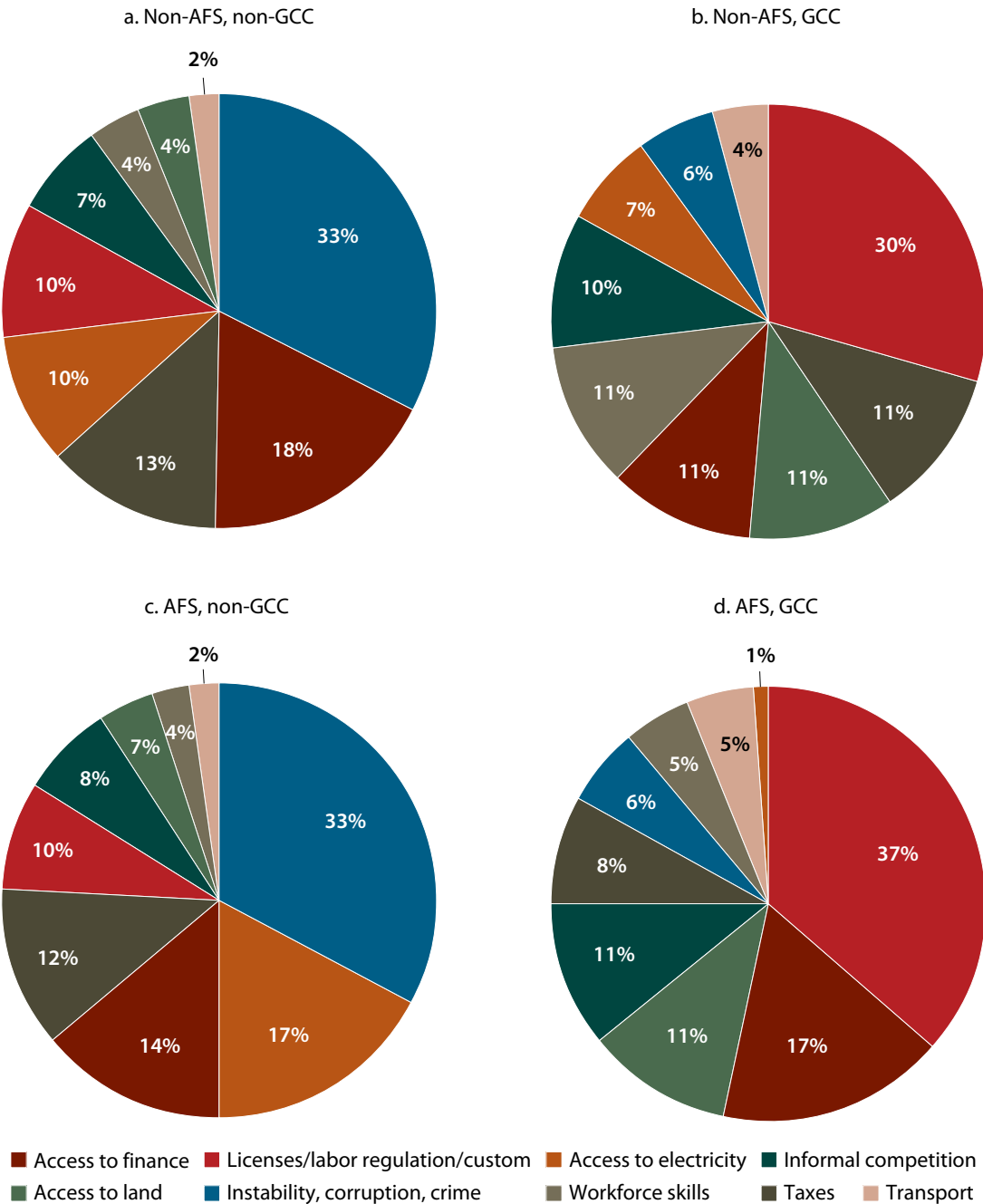
In MENAAP countries for which data are available, the state maintains an often heavy presence in industries that support the AFS. The World Bank's Business of the State database records state presence in businesses, from state-owned enterprises (SOEs) to more limited public participation in companies (World Bank 2023). The AFS business environment in the region is shaped by such public ventures. In five of six MENAAP countries

for which data are available, the state maintains a presence in food manufacturing, with the heaviest presence in Egypt and Jordan, where employment in businesses with state participation accounts for the equivalent of 7 percent and 4 percent of all formal employment in food manufacturing recorded in Enterprise Surveys (in most countries, the state also participates in agribusiness and food services, but to a more limited degree). An IFC analysis shows that in Egypt, SOEs dominate crop processing, controlling 60 percent of wheat milling, 75 percent of sugar refining, and 25 percent of rice milling capacity (IFC 2020). At the same time, the state participates in industries that support AFS businesses, from warehousing and transport to fertilizer manufacturing and, of course, water and electrical utilities. SOEs and companies in which the state holds a stake are difficult competitors for private businesses, because they tend to have preferential access to finance and enjoy advantages in bidding for contracts and (sometimes) in navigating regulations. The heavy presence of such entities in a sector can therefore lower returns and raise risks for private investment and hence crowd it out.

AFS businesses can benefit significantly from broad business climate reforms that enhance stability and reduce SOE footprints, as well as from better access to finance. Businesses active in the AFS share the key business obstacles that other formal businesses in MENAAP encounter (refer to figure 5.5). Outside of the GCC, both AFS businesses and others surveyed in the World Bank's Enterprise Surveys most frequently cite political instability, corruption, and crime (33 percent for both groups) as their main business obstacle, followed by access to finance (14 and 18 percent, respectively). Progress in the broad reform agenda to address these and similar overarching business climate challenges would directly benefit agribusiness in MENAAP. The IFC's Country Private Sector Diagnostics (CPSD) for Afghanistan, Egypt, Morocco, and Pakistan (IFC 2020, 2021a, 2021b, 2026) analyze these constraints and opportunities in greater detail. Thus, AFS businesses share with other firms a preoccupation with the dominance of SOEs that limits competition and depresses private investment through preferential financing and regulation. Policy distortions from subsidies and price controls further compound this high degree of market intervention. Judicial inefficiencies raise transaction costs and reduce business predictability. Shallow financial markets are risk-averse, geographically concentrated, and dominated by public institutions, thereby restricting financing, especially for small and medium enterprises.

FIGURE 5.5

Main Business Obstacles Reported by Formal Businesses



Source: World Bank calculations based on World Bank Enterprise Surveys; most recent available data shown for each country.

Note: AFS = agrifood system; GCC = Gulf Cooperation Council.

Access to electricity and other infrastructure bottlenecks pose particular challenges for AFS businesses. Outside the GCC, the most obvious difference between the concerns of AFS businesses and of others is that AFS businesses are more likely to worry about access to electricity. Next to instability, electricity is the second most frequently cited AFS business obstacle outside of the GCC, with 17 percent of respondents highlighting it. This compares with 10 percent among other businesses (refer to figure 5.5). Fully half of all formal-sector AFS businesses point to electricity as a major or severe concern (52 percent, compared with 43 percent among other businesses). Further AFS-specific obstacles include persistent post-harvest losses resulting from poor logistics, inadequate storage, and weak transport infrastructure. Such losses are costly. For example, Pakistan is estimated to lose 30 to 50 percent of its vegetable crops and 10 to 30 percent of its cereal crops, with substantial adverse impacts on revenues (IFC 2021b). These challenges are compounded by a lack of warehouse receipt systems and weak land markets and tenure systems, both limiting access to finance and investments.

In the GCC, AFS businesses growth can be supported through an advanced reform agenda focusing on human capital and a reduced regulatory burden. With a strong business climate, AFS businesses in the GCC are far less likely than those in other MENAAP countries to complain of major business obstacles. The challenges most frequently cited are those that rise to the fore when more fundamental issues, such as stable governance and infrastructure services, have been resolved. Thus, the leading concerns are cumbersome labor regulations and licensing or customs rules (the main obstacle cited by 37 percent of those active in the AFS and 30 percent of other businesses), as well as concerns about competition from informal firms, access to land, and access to finance.

Proven models connect individual producers to the market by providing opportunities in key value chains, improving access to finance, and building capacity in cooperatives. Successful approaches invest in infrastructure, inputs, skills, and quality control in high-potential value chains, thereby enabling producers to raise their revenues. For instance, despite the challenging security and business environment, Afghanistan expanded its saffron and pine nuts value chains, with pine nut exports to China rising from US\$3.4 million in 2017 to US\$54.5 million in 2020. Access to finance, facilitated by de-risking and digital tools, helps individual producers take small risks and gradually expand. For instance, a program in Tunisia that provided small grants to microenterprises succeeded in creating nearly 2,000 jobs, with a median public investment of US\$2,371 per job

(World Bank and OnetoOne 2025). Finally, farmers' cooperatives remain vital springboards for building business activities; strengthening their capacity can forge connections.

NOTES

1. MENAAP countries also outperformed income peers: the total growth in off-farm jobs that was predicted based on income levels was 20 percent over the 2010 to 2023 period, compared to an observed growth of 33 percent in MENAAP countries where this comparison can be drawn.
2. This modeled data align well with survey-based shares obtained in 2023, including Tunisia (19.9 percent), Egypt (16.0 percent), Islamic Republic of Iran (15.4 percent), Jordan (2.1 percent), and the United Arab Emirates (1.0 percent).
3. Unlike for on-farm AFS jobs, no harmonized gender-disaggregated data on off-farm AFS jobs are available.
4. Data are available from 13 World Bank Enterprise Survey data sets collected in the region between 2013 and 2024. The oldest surveys were taken in Afghanistan (2014); Djibouti (2013); and the Republic of Yemen (2013), with all other data collected since 2019. Coverage of the GCC is limited, with data available from Bahrain and Saudi Arabia. The averages for the economies affected by fragility, conflict, and violence (FCV) partially rely on more dated surveys. Data for Pakistan were collected in 2022. Coverage of the other MICs is good, including data from Djibouti, Egypt, Jordan, Lebanon, Morocco, and Tunisia.

REFERENCES

- CAPMAS (Central Agency for Public Mobilization and Statistics). 2023. "Labour Force Survey." Egypt: Economic Research Forum.
- IFC. 2020. "Creating Markets in Egypt: Realizing the Full Potential of a Productive Private Sector." Country Private Sector Diagnostic." World Bank, International Finance Corporation (IFC), Washington, DC. <https://www.ifc.org/content/dam/ifc/doc/mgrt/cpsd-egypt.pdf>.
- IFC. 2021a. "Afghanistan: Creating Markets in a Fragile and Conflict-Affected Environment." Country Private Sector Diagnostic. World Bank, IFC, Washington, DC.
- IFC. 2021b. "Creating Markets in Pakistan. Bolstering the Private Sector." Country Private Sector Diagnostic. World Bank, IFC, Washington, DC. <https://www.ifc.org/content/dam/ifc/doc/2026/morocco-country-private-sector-diagnostic-en.pdf>.
- IFC. 2026. "Morocco. Country Private Sector Diagnostic." World Bank, IFC, Washington, DC. <https://www.ifc.org/content/dam/ifc/doc/2026/morocco-country-private-sector-diagnostic-en.pdf>.
- OAMDI (Open Access Microdata Initiative). 2025. "Harmonized Labor Force Surveys." Version 1.0 of licensed data files. <https://www.erfdportal.com/index.php/catalog>.

- PBS (Pakistan Bureau of Statistics). 2022. “Pakistan Labour Force Survey 2020–21.” Islamabad: Pakistan Bureau of Statistics. https://www.pbs.gov.pk/wp-content/uploads/2020/07/LFS_2020-21_Report-3.pdf.
- World Bank. 2023. *The Business of the State*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-1998-8>.
- World Bank and OnetoOne. 2025. “Évaluation des résultats des projets de la deuxième composante du programme TRACE auprès des petits producteurs et des PME agricoles en Tunisie.” Internal document.

Protecting Food and Nutrition Security through Conflict and Recovery

WAR-TORN AND FRAGILE ECONOMIES ARE DRIVING ESCALATING HUNGER IN MENAAP

In areas of the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region affected by fragility, conflict, and violence (FCV), about two in five people—or 71 million—live in areas facing food consumption gaps or where populations can only minimally meet their needs by using crisis coping strategies that undermine their future livelihoods (Integrated Food Security Phase Classification [IPC] Phase 3+).¹ Despite significant data gaps (refer to box 6.1), innovative tools indicate that 41 percent of the overall population in Afghanistan, Iraq, Lebanon, Libya, the Syrian Arab Republic, the West Bank and Gaza, and the Republic of Yemen lives in areas classified at crisis levels of food insecurity or worse (IPC Phase 3+). The number of people living in such crisis-affected areas surged from 16 million in 2011–13 to 71 million today. Furthermore, IPC-compatible data show that in 2014, large-scale humanitarian emergencies (IPC Phase 4+) were virtually absent from MENAAP economies. However, by 2023–25, they affected about 24 million people, driven by the conflict in Gaza, protracted civil wars in the Republic of Yemen and Syria, worsening economic conditions in the wake of COVID-19, the Russia-Ukraine war, and regional instability. These figures underestimate the situation among displaced people and returnees (FSIN and GNAFC 2025).

BOX 6.1**Harnessing Machine Learning: Delivering Timely Data to Tackle Food Insecurity**

Despite severe food insecurity in MENAAP, official statistics often understate crises due to slow, survey-based methods, thereby missing data in conflict zones. National data often overlook displaced populations and refugees, while undernourishment figures arrive years late. Global systems like FAO's monitoring of severe food insecurity and the Integrated Phase Classification (IPC) are essential for tracking hunger and guiding emergency response. For its part, the Famine Early Warning Systems Network (FEWSNET) provides critical early warnings that help avert famine. However, in MENAAP, coverage is very limited and recent data disruptions in FEWSNET have weakened

these lifelines, leaving policy makers without timely insights.

To address these gaps, the World Bank launched the World Food Security Outlook (WFSO)^a in 2022 (Andrée 2022; Andrée et al. 2025) and introduced innovative indicators to add to the global effort. Using machine learning and statistical models, the WFSO generates IPC-compatible estimates where traditional data are missing—thus restoring early warning capacity and enabling coordinated, evidence-based action across borders.

a. Available at <https://doi.org/10.48529/ev5a-ke69>.

Residents of Afghanistan, Gaza, Syria, and the Republic of Yemen currently suffer particularly grave food insecurity due to armed conflict, violence, and systemic fragility. After 22 months of relentless conflict, famine was confirmed in Gaza in July 2025, with the entire population facing acute levels of food insecurity (IPC 2025). Afghanistan, Syria, and the Republic of Yemen are considered by the FAO and the World Food Programme (WFP) to be hunger hotspots of great concern (FSIN and GNAFC 2025; FAO and WFP 2025).

Most food crises in MENAAP are protracted, with enduring health and economic consequences. Afghanistan, Iraq, and the West Bank and Gaza have appeared continuously on the World Bank's Harmonized List of Fragile and Conflict Situations since the mid-2000s; Syria and Libya, since 2011; and the Republic of Yemen, since 2015. Therefore, beyond short-term shocks, food insecurity in these economies is rooted in long-standing crises. Inadequate nutrition during pregnancy and early childhood stunts cognitive and physical development, reducing economic potential in adulthood. Nutritional shocks—especially for

children—have lasting, multigenerational impacts on education, health, and income. As a result, in MENAAP, home to one of the world's youngest populations, acute food insecurity risk deepens inequality and constrains long-term growth.

If conflicts continue unabated and without strong action, baseline projections for 2029–31 estimate that hunger may keep escalating in MENAAP crisis-affected areas. The WFSO projects that the number of people in these areas could rise to about 86 million by 2030, including about 31 million in emergency-affected areas, assuming moderate recovery and no major shocks. Under a downside scenario, with prolonged inflation, weak growth, and escalating conflicts, their number could rise to 91 million in crisis-affected areas and 35 million in emergency-affected areas.

FOOD INSECURITY IS BOTH A CAUSE AND A CONSEQUENCE OF CONFLICT AND FRAGILITY

Food security underpins social stability in MENAAP. Price spikes in staples often trigger unrest in fragile states (FAO 2016a). The Arab Spring illustrates this: protests sparked by high bread prices in Tunisia spread across the Arab Republic of Egypt and Libya, with food costs widely cited as a factor after the 2008 crisis (Brinkman and Hendrix 2011). While rarely the sole cause of conflict, food insecurity amplifies grievances—such as poverty, unemployment, low wages, unpaid salaries, and political exclusion—and lowers the cost of joining in violence. Armed groups exploit hunger by weaponizing food and trading it for loyalty (Martin-Shields and Stojetz 2018). Conversely, a government's ability to manage food prices signals strength and legitimacy and builds trust in state institutions. Thus, policies such as subsidies and wheat public procurement are viewed by many MENAAP governments not only as welfare measures but as pillars of the social contract.

Conflict, displacement, and instability erode all dimensions of food security in the short and long term. Physical destruction of crops, livestock, and reserves reduces short-term food availability, while loss of farm assets discourages long-term production. Transport, markets, and networks of trust, which are necessary for trade, collapse. Insecurity and destroyed infrastructure hamper humanitarian food delivery. Even when food is available, households cannot access it as livelihoods and incomes vanish. This also forces households to adopt

risk-minimizing strategies that ensure survival but weaken nutrition and jeopardize future food security, such as cultivation of subsistence crops or reducing signs of visible wealth like livestock. Sanitary conditions worsen and food consumption becomes unsafe in the short term. Conflict also cripples institutions and markets, undermining fiscal management, services, and infrastructure, which in turn depress investment and purchasing power long after the fighting ends, thus leaving lasting damage to food systems. Box 6.2 summarizes the estimated cost of war to the agrifood system (AFS) in Lebanon and West Bank and Gaza.

BOX 6.2

Cost of War for Agricultural Production and Immediate Food Security in Lebanon and the West Bank and Gaza

The Lebanon Rapid Damage and Needs Assessment (RDNA) of March 2025 (World Bank 2025b) estimates total damages from the 2023–24 conflict at US\$6.8 billion, with reconstruction and recovery needs reaching US\$11 billion. Agriculture suffered US\$79 million in damage and US\$742 million in losses, mainly from inaccessible farmland, uprooted trees, and halted harvests. Recovery needs for agriculture and food security total US\$412 million, including US\$165 million for agriculture (US\$65 million immediate; US\$88 million short-term; and US\$11 million medium-term), as well as US\$247 million for emergency food assistance to support 550,000 people classified under IPC Phases 3 and 4. Immediate priorities include labor support, animal feed, irrigation repairs, and rehabilitation of plots, greenhouses, olive groves, and livestock assets.

In the West Bank and Gaza, the Interim RDNA of February 2025 (World Bank, European Union, and United Nations 2025) estimated US\$53 billion in reconstruction needs and US\$19.1 billion in economic and social losses. Agriculture and food systems alone account for US\$835 million in damage and US\$1.3 billion in losses. Over 80 percent of agricultural infrastructure was destroyed, including irrigation systems, greenhouses, and food processing facilities. Croplands saw up to 82 percent damage, while 94 percent of fishing boats and all fish cold storage facilities were lost. Livestock sectors faced near-total collapse. Recovery needs for agriculture and food systems are estimated at US\$4.2 billion, with US\$2.8 billion required for food assistance. Challenges include soil contamination, water scarcity, and salinization, requiring resilient infrastructure, improved water management, and soil rehabilitation.

In countries affected by instability, conflict and food insecurity form a vicious circle. Breaking that cycle through short-term targeted humanitarian interventions and integrated recovery efforts, as well as longer-term institutional reforms paired with conflict-sensitive system strengthening, can generate mutual benefits. Recognizing these linkages is essential for designing interventions in fragile contexts, thereby ensuring sustainable impact—particularly when operationalized through delivery models that are adaptive, locally grounded, and responsive to complex risks.

CLIMATE CHANGE AND WATER SCARCITY HEIGHTEN FOOD INSECURITY AND CONFLICT RISKS

Climate shocks deepen existing vulnerabilities. Droughts and floods often fuel grievances when relief is perceived as inequitable (Brinkman and Hendrix 2011). In 2023, over 50 percent of surveyed residents of the Republic of Yemen reported disputes over resource scarcity and distribution (World Bank 2024c). In Iraq, a survey showed that 72 percent of respondents already believed climate change could fuel community conflict (World Bank 2022). In Syria, a prolonged drought from 2006 to 2010 displaced rural populations, drove food prices up, and eroded state legitimacy—factors that may have contributed to unrest and eventual, prolonged conflict (Kelley et al. 2015).

Economies affected by FCV face severe climate exposure with limited coping capacity due to weak governance. In well-governed states, social protection and relevant policies buffer the impacts of climate change. However, in fragile states, institutions struggle to manage natural resources, climate adaptation, and disaster response. This is already exemplified by rapid land and water degradation in Afghanistan, Iraq, and the Republic of Yemen (refer to the section that follows). Yet climate change projections show that MENAAP FCV economies urgently need to scale up climate adaptation measures. Lebanon may lose 9 percent of its water by 2040, costing agriculture up to US\$250 million annually (World Bank 2024a). In the West Bank and Gaza, a 10 percent decline in rainfall may cut aquifer recharge by 14–24 percent by 2050, thus heightening competition over shared resources (World Bank 2023). Iraq risks a 50 percent drop in wheat yields by 2050 and a 20 percent decline in water available for agriculture, reducing GDP by 3.9 percent (World Bank 2022). The Republic of Yemen's rainfed crop output may fall 30 percent by 2050, with unmet irrigation demand surging. Half the population faces at least one climate hazard, and districts with overlapping food insecurity and climate stress already show higher conflict intensity (World Bank 2024c).

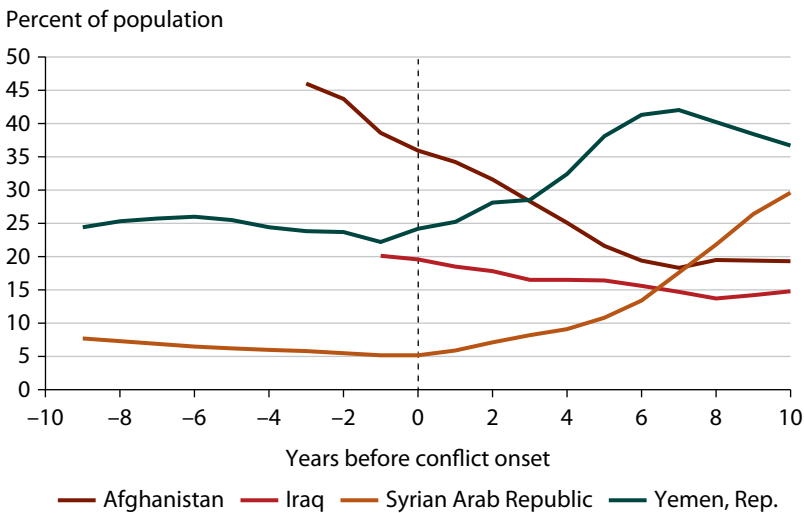
Weaponization of water is increasing in MENAAP, further turning climate stress into a driver of violence. In conflict-affected areas, armed groups exploit scarcities, weaponizing water access. In Libya, Syria, and the Republic of Yemen, there is evidence that water has been weaponized, with armed groups destroying and taking control of water infrastructure to threaten opponents and make it difficult to deliver basic water services to delegitimize the state and complicate peacebuilding efforts (World Bank 2021a). In the Syrian war, water was turned into a weapon to punish communities (for example, by withholding irrigation water from disfavored areas) or to gain military advantage (Daoudy 2020).

CONTEXT MATTERS: THERE IS NO SINGLE CONFLICT AND FRAGILITY NARRATIVE IN MENAAP

There is no uniform pattern in the mid- to long-term effect of conflict and fragility on food security. Four high-intensity conflicts with a clear onset were analyzed to observe how food and nutrition security and the AFS change after conflict begins: (1) the Taliban insurgency in Afghanistan after 2005; (2) the conflict against Daesh in Iraq from 2014; (3) the Syrian civil war beginning in 2011; and (4) the intensification of the Republic of Yemen’s civil war after 2014. Syria and the Republic of Yemen experienced dramatic increases in food insecurity after the onset of conflict. Afghanistan saw continued improvement amid large aid inflows, whereas Iraq achieved steady gains thanks to sustained economic growth (refer to figure 6.1).

FIGURE 6.1

Prevalence of Undernourishment before and after Conflict Onset



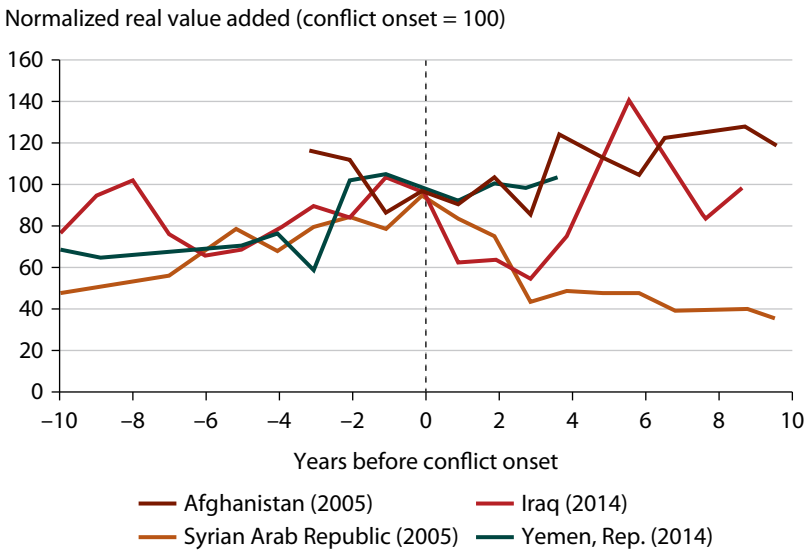
Sources: World Bank, FAOSTAT.

Similarly, agricultural production does not consistently decline in the mid or long term compared to preconflict. Syria experienced such a decline, but patterns elsewhere are more complex (refer to figure 6.2). Drivers of these gaps include conflict characteristics (intensity, duration, localization, damage, population displacement), but also postconflict management such as investment and economic policy, food aid, donor support, state rebuilding, governance, and policy responses. For instance, in Syria, conflict exacerbated sectoral challenges, restricting access to seeds, fertilizers, pesticides, fuel, and machinery parts. Fertilizer use nearly ceased between 2015 and 2021, sharply reducing yields (World Bank 2024b). Yemeni farmers faced high costs for oil derivatives, fertilizers, and pesticides, compounded by declining rainfall and rising taxes and customs duties (Thamer et al. 2023).

Food import dependence varies across FCV economies, but financing imports poses greater risks where conflict drives economic decline or import reliance. In Syria, the food import-to-export ratio rose fivefold between the five years before and after conflict onset; in the Republic of Yemen, it surged eightfold in the decade after the onset of conflict (refer to figure 6.3).

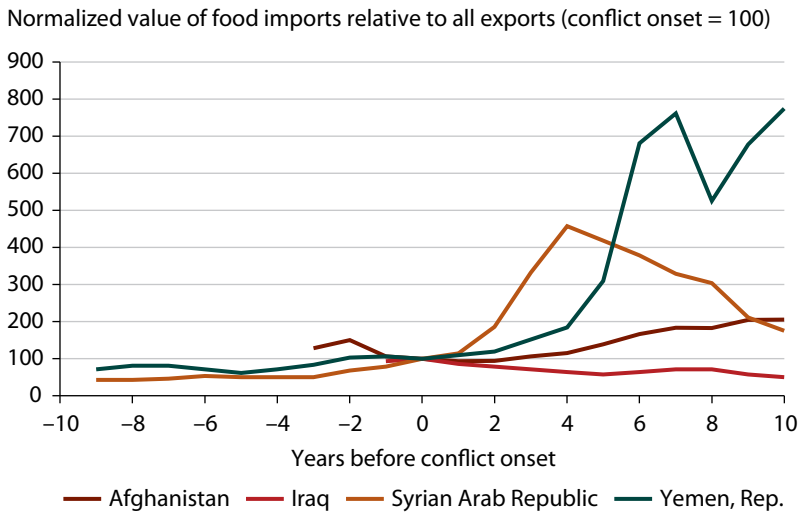
FIGURE 6.2

Normalized Real Value Added in Agriculture, Fisheries, and Forestry before and after Conflict Onset



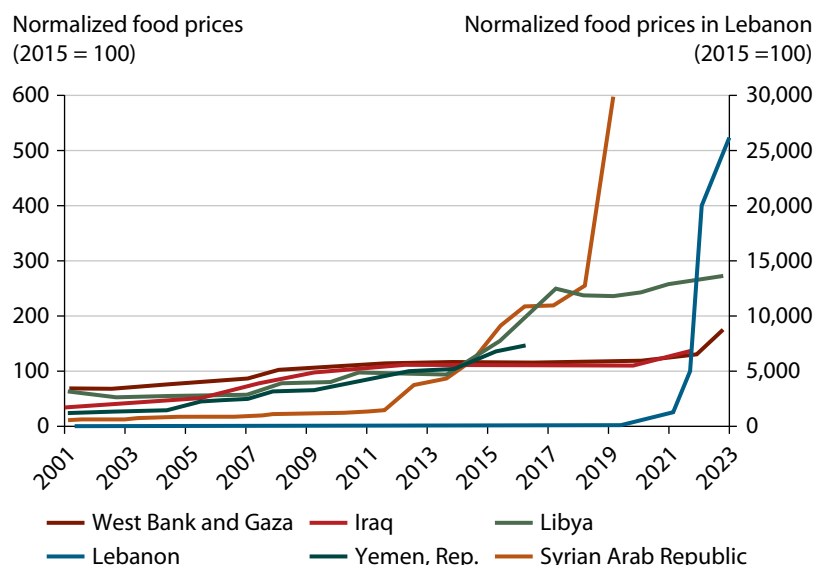
Sources: World Bank, FAOSTAT.

FIGURE 6.3
Value of Food Imports Relative to All Exports before and after Conflict Onset



Sources: World Bank, FAOSTAT.

Macroeconomic management is critical: severe currency devaluation has fueled sharp food price inflation in Lebanon and Syria (refer to figure 6.4). In Syria, inflation spiked after July 2023 amid currency collapse and fuel subsidy cuts. In Lebanon, the depreciation of the pound since 2019 pushed essential costs to record highs. The Survival Minimum Expenditure Basket² more than doubled between 2023 and 2024, with soaring food, rent, electricity, and transport costs rendering basic goods unaffordable, especially in conflict-affected southern Lebanon (FAO and WFP 2024).

FIGURE 6.4**Consumer Prices (Food Indices) in Conflict-Affected Economies**

Sources: World Bank, FAOSTAT.

BUILDING STRONGER FOOD SYSTEMS FOR BETTER FOOD AND NUTRITION SECURITY IN FRAGILITY-, CONFLICT-, AND VIOLENCE-AFFECTED AREAS

Strengthening food systems in FCV settings can prevent hunger, as well as ensure a pathway to job creation, shared prosperity, and social cohesion. Well-designed interventions can stabilize communities, restore livelihoods, and foster inclusive growth.

The orchestration and prioritization of policies and actions should reflect the severity and nature of food insecurity. In severe or acute food emergencies, the focus remains on making food physically available in affected areas. Immediate interventions, such as cash and in-kind transfers, are thus essential safety nets during emergencies. The cost of ensuring a minimum energy diet for severely food-insecure populations in MENAAP is substantial, yet manageable: annual financing needs to provide support equivalent to 25 percent of the dietary requirements in the FCV-affected economies are projected to reach almost US\$9 billion by 2030 (World Bank calculations, WFSO). At the same time, early investments in resilience are far more cost-effective than reactive measures, preventing irreversible damage.

The World Bank's four pillars of engagement in FCV countries provide a framework for interventions that combine immediate relief with long-term resilience (World Bank 2021b):

1. *Strengthening governance and institutional capacity to ensure long-term recovery and resilience:* Robust governance is the cornerstone of effective food security interventions in FCV contexts. To improve accountability, transparency, and predictability, projects should serve entire populations rather than select groups and include vulnerable groups and lagging regions. This can prevent marginalization and reinforce state legitimacy. Investments in repairing and strengthening national and local institutions, alongside community-based structures, can enhance social cohesion and trust in government.
2. *Preventing and responding to food crises:* Timely crisis response is critical to prevent hunger and stop households from sliding deeper into poverty. This includes facilitating imports, improving delivery logistics through better road access and transport capacity, and enabling humanitarian responses. Simultaneously, investments in the next production season—such as asset replacement, input access, and climate-resilient practices—help avert a worsening cycle. Interventions should integrate monitoring and early warning systems to anticipate shocks and enable rapid action. They must also address food price volatility, pest and disease control, drought and flood mitigation, irrigation rehabilitation, preservation of purchasing power via shock-responsive safety nets (such as cash-for-work programs), and the closing of gender gaps in access to productive assets.
3. *Increasing private sector engagement and developing rural livelihoods:* Private sector engagement is challenging in FCV economies, but vital for breaking intergenerational poverty cycles. Projects should consider spatial solutions to enhance security and infrastructure for private investment, restore and protect capital stock in food systems, and improve the policy environment. Expanding access to finance and insurance, including political risk coverage, is key to attracting investment and fostering resilience.
4. *Reducing conflict risk through sustainable resource management:* Projects must incorporate strategies for resilient and sustainable resource management and land administration, thus safeguarding natural capital and reducing tensions over land, water, and livestock. Investments in water and soil preservation help reverse degradation and sustain agricultural productivity. These measures protect ecosystems, as well as reinforce government legitimacy through equitable shared resources.

PROJECTS IN PRACTICE: CASE STUDIES OF INTERVENTIONS FOR FOOD SECURITY

A review of 18 World Bank projects across five MENAAP countries (2006–23) highlights factors of success in interventions to protect and rebuild the agrifood system in FCV settings that mirror global experience (World Bank 2021b). In MENAAP, high-performing projects shared common strengths: design simplicity, anchoring in local communities, trusted implementation partners, and attentiveness to socially sensitive needs, such as access to staple foods and agricultural recovery. They featured robust monitoring, grievance redress, and credible inclusion of women, ensuring fairness and accountability even under access constraints. In addition, successful interventions approached immediate needs as a foundation for long-term recovery, pairing rapid asset restoration with livelihood support and market-based solutions. Box 6.3 illustrates with the case of the Republic of Yemen how challenging this can be, but also how agriculture can become a refuge sector.

BOX 6.3

The Republic of Yemen: A History of Cash Aid and Inflation

Since 2014, the Republic of Yemen has been engulfed in a brutal conflict between the Hadi-led government and the Houthi movement, which continues to control most of the north of the country. The war has devastated the economy, crippled infrastructure, and repeatedly disrupted supply chains through blockades and restricted access. It has also taken a toll on agriculture, destroying land, crops, and infrastructure. Before the conflict, the Republic of Yemen imported less than 35 percent of its food; by May 2023, domestic production covered only 15–20 percent of staples. Thus, this collapse has left over 18 million people acutely food insecure.

The food crisis persists in the Republic of Yemen despite humanitarian aid that, in

the aggregate, exceeded population needs. In 2018, the Republic of Yemen received US\$8 billion in official development assistance, enough to cover 90 percent of annual expenses for the malnourished population. By 2020, 80 percent of districts received significant aid. Yet food insecurity remained widespread, largely triggered by macroeconomic risk factors, including food and fuel prices and exchange rates (refer to figure B6.3.1, ACAPS et al. 2024).

In settings like the Republic of Yemen, where market disruptions and infrastructure damage inhibit the efficient conversion of cash aid into essential commodities, international aid programs need to balance cash and in-kind transfers. Focusing aid on the food supply can help

(continued)

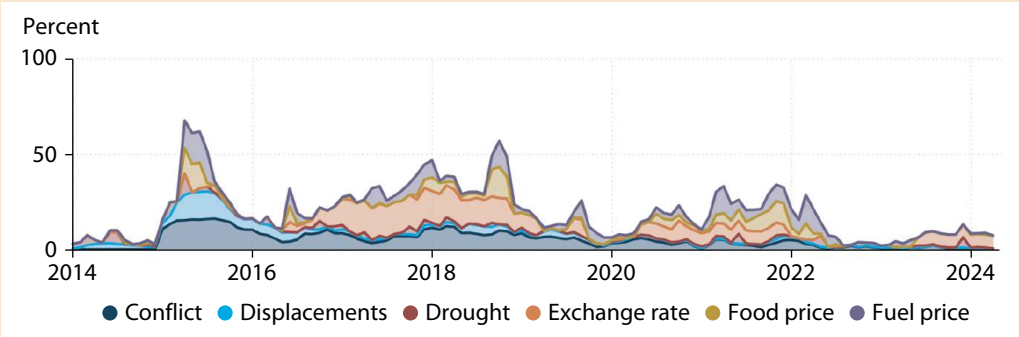
BOX 6.3 (continued)

cash aid stretch further and potentially reduce food insecurity. For sustainable long-term solutions, food security requires boosting domestic food production. UNICEF, WFP, and the World Bank are jointly supporting local agriculture, reaching more than 7.5 million Yemenis.

Indeed, agriculture is reemerging as a lifeline (World Bank 2025c). Satellite imagery and machine learning reveal a 20–40 percent increase in cropland between 2018 and 2023 (refer to figure B6.3.2). This revival is driven by urban-to-rural displacement, as households seek safety and subsistence in rural areas amid

collapsing urban economies. Agriculture is a coping mechanism and now provides vital income and food security for rural populations, complementing underfunded social protection programs. To strengthen this safety net, investment in agricultural infrastructure through public works programs is essential, enabling households to move beyond subsistence toward sustainable production. The sustainable development of fisheries, supported jointly by UNDP and the World Bank, offers additional livelihood opportunities, including by engaging women in processing.

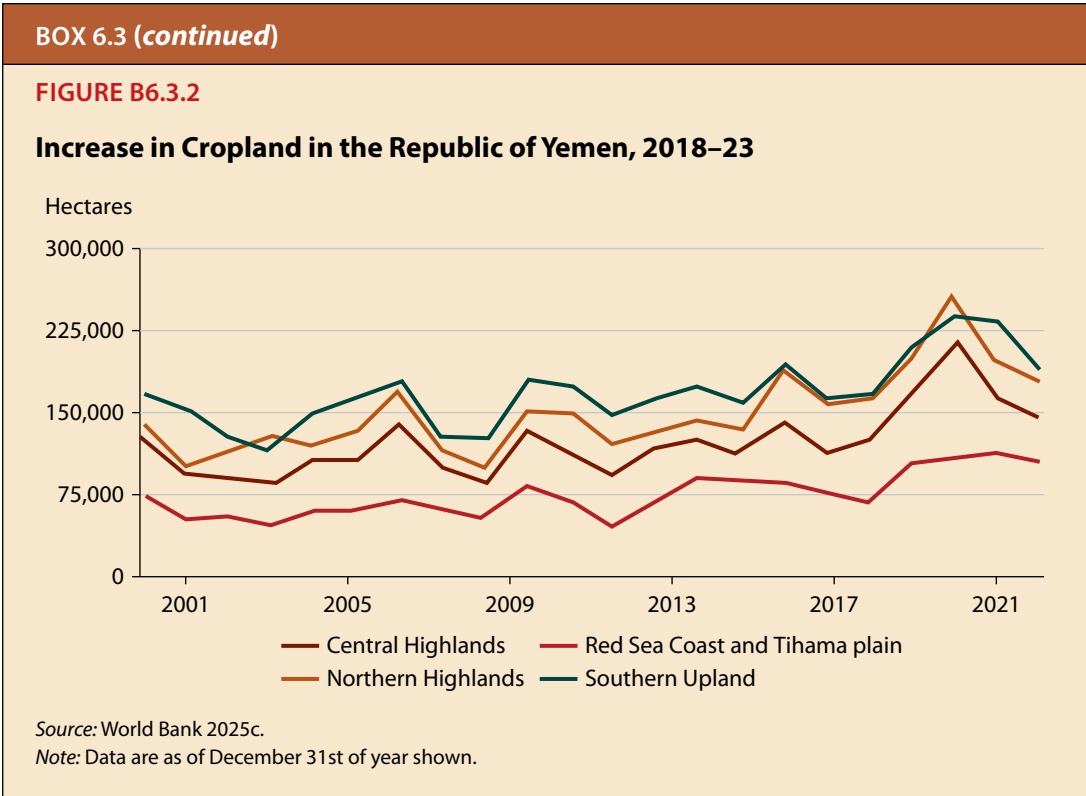
FIGURE B6.3.1
Historical Percentage of Heightened and Critical Risk Alerts



Source: ACAPS et al. 2024.

Note: The higher the score, the higher the risk to food and nutrition security.

(continued)



Successful projects recognize that markets in FCV settings are not neutral—they can either exacerbate inequities or enable recovery. Thus, effective programs rehabilitated shared assets, supported inclusive market access, safeguarded against elite capture to deliver equitable outcomes, and ensured the private sector can operate. Box 6.4 provides the example of a market-based food security intervention in Lebanon.

BOX 6.4**Lebanon: Stabilizing Wheat Availability and Access to Protect the Social Contract**

Lebanon's wheat supply emergency unfolded amid economic collapse and global shocks (World Bank 2025a), as GDP contracted by 34 percent, the Lebanese pound lost over 98 percent of its value, and inflation soared to 231 percent between 2019 and 2022. This economic freefall was compounded by political paralysis, weak governance, and the devastating 2020 Beirut port explosion, which heightened vulnerability to external market disruptions. Simultaneously, the war in Ukraine disrupted global wheat markets. Bread—subsidized and 80 percent imported, with 96 percent sourced from Ukraine and Russia—remains a staple of the Lebanese diet. Rising global prices strained wheat subsidies, which were nearly exhausted by April 2022. A series of bread price hikes between 2020 and 2021 fueled social tensions. At the same time, earlier energy subsidy removals had triggered unrest, underscoring the risks resulting from abrupt policy shifts.

The World Bank supported the Government of Lebanon in safeguarding bread access and averting a food security crisis. The project leveraged private importers and millers for rapid procurement, supported by digital monitoring and third-party oversight (World Bank 2025a). Through this approach, more than twice the planned wheat deliveries could be delivered at highly competitive prices, generating US\$82 million in savings. Bread prices rose only 7 percent, compared to 200 percent overall inflation, ensuring access for 97.4 percent of targeted households, including refugees and women. The effort also helped mitigate social unrest, strengthen transparency in the wheat value chain, and pave the way for subsidy removal in late 2023. Key success factors included a simple project design, real-time monitoring, and strong private sector engagement. Using established market actors preserved supply chain functionality and enabled rapid results under mounting pressure.

NOTES

1. This chapter uses data from the World Food Security Outlook (WFSO) database, version dated April 2025, available at <https://microdata.worldbank.org/index.php/catalog/6103>. The method can be found in André (2022).
2. A Survival Minimum Expenditure Basket is defined as the absolute minimum amount of money needed by a household meet acute life-sustaining needs.

REFERENCES

- ACAPS, FAO (Food and Agriculture Organization of the United Nations), UNICEF, WFP (World Food Programme), WHO (World Health Organization), and World Bank. 2024. “Yemen Joint Monitoring Report. Bimonthly Update on Food and Nutrition Security Crisis Risks June 2024—Report #3.” ACAPS, Geneva, Switzerland.
- Andrée, Bo, Julius Adewopo, Vanina Forget, Jan von der Goltz, Erwin Knippenberg, Kamwo Lee, Javier Varela, Daniel Gil-Sanchez. 2025. “Addressing Food Insecurity in the Middle East and North Africa: Innovations in Data Monitoring.” *Data Blog*, September 15. World Bank, Washington, DC. <https://blogs.worldbank.org/en/opendata/addressing-food-insecurity-in-the-middle-east-and-north-africa-->.
- Andrée, Bo, Erwin Knippenberg, Julius Adewopo, and Steve Penson. 2026. “Food Security in MENAAP: Assessing the Present, Forecasting the Future, and Shaping the Response.” Background paper for this report. World Bank, Washington, DC.
- Brinkman, H. J., and C.S. Hendrix. 2011. “Food Insecurity and Violent Conflict: Causes, Consequences, and Addressing the Challenges.” WFP Occasional Paper No. 24. World Food Programme, Rome.
- Daoudy, M. 2020. “Water Weaponization in the Syrian Conflict: Strategies of Domination and Cooperation.” *International Affairs* 96:5.
- FAO (Food and Agriculture Organization of the United Nations). 2016a. “Peace Conflict and Food Security: What Do We Know About the Linkages?” Technical Note. Rome.
- FAO (Food and Agriculture Organization of the United Nations). 2016b. “Regional Conference on Food Security and Income Generation Through the Reduction of Losses and Waste in Fisheries.” Nouakchott, Mauritania, 15–17 December 2013. FAO Fisheries and Aquaculture Proceedings No. 43. Rome. <http://www.fao.org/3/a-i5581e.pdf>.
- FAO and WFP. 2024. “Special Report—2024 FAO/WFP Crop and Food Security Assessment Mission (CFSAM) to the Lebanese Republic.” Rome. <https://doi.org/10.4060/cd3356en>.
- FAO and WFP. 2025. “Hunger Hotspots: FAO–WFP Early Warnings on Acute Food Insecurity, November 2025 to May 2026 Outlook.” Rome. <https://doi.org/10.4060/cd7310en>.
- FSIN (Food Security Information Network) and GNAFC (Global Network Against Food Crises). 2025. “2025 Global Report on Food Crises: Joint Analysis for Better Decisions.” September Update. Rome. <https://doi.org/10.71958/wfp131041>.
- IPC (Integrated Food Security Phase Classification). 2025. Integrated Food Security Phase Classification, IPC. Country Profiles. Accessed June 2025 at <https://www.ipcinfo.org/ipc-country-analysis/en/>.
- Kelley, Colin P., Shahrzad Mohtadi, Mark A. Cane, Richard Seager, and Yochanan Kushnir. 2015. “Climate Change in the Fertile Crescent and Implications of the Recent Syrian Drought.” *Proceedings of the National Academy of Sciences* 112 (11): 3241–46. <https://doi.org/10.1073/pnas.1421533112>.

- Martin-Shields, C., and W. Stojetz. 2018. "Food Security and Conflict: Empirical Challenges and Future Opportunities." FAO Agricultural Development Economics Working Paper 18-04. FAO, Rome.
- Thamer, Mohammed Ali, Abdullah Ali, and Ismail Al-Aghbari. 2023. "Agriculture and Yemen's Economy." Carnegie Endowment for International Peace (blog). 2023. <https://carnegieendowment.org/sada/2023/05/agriculture-an>.
- World Bank. 2021a. *Ebb and Flow: Volume 2—Water in the Shadow of Conflict in MENA*. Washington, DC: World Bank. <https://documents1.worldbank.org/curated/en/500921631860795869/pdf/Ebb-and-Flow-Volume-2-Water-in-the-Shadow-of-Conflict-in-the-Middle-East-and-North-Africa.pdf>.
- World Bank. 2021b. "Future of Food: Building Stronger Food Systems in Fragility, Conflict, and Violence Settings." World Bank, Washington, DC. <https://documents1.worldbank.org/curated/en/523161636137633885/pdf/Future-of-Food-Building-Stronger-Food-Systems-in-Fragility-Conflict-and-Violence-Settings.pdf>.
- World Bank. 2022. ASPIRE: The Atlas of Social Protection Indicators of Resilience and Equity (database). World Bank, Washington, DC. <https://www.worldbank.org/en/data/datatopics/aspire>.
- World Bank. 2024a. "Lebanon Country Climate and Development Report." World Bank, Washington, DC. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099215003152427091/p179617111e46d05c187b91daa689f7b351>.
- World Bank. 2024b. "Syria Economic Monitor Spring 2024: Conflict, Crises, and the Collapse of Household Welfare." Middle East and North Africa subregion. World Bank, Washington, DC.
- World Bank. 2024c. "Yemen Country Climate and Development Report." World Bank, Washington, DC. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/787011714196064879/yemen-country-climate-and-development-report>.
- World Bank. 2025a. "Lebanon: Wheat Supply Emergency Response Project—Implementation Completion and Results Report." World Bank, Washington, DC. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099052925053518414>.
- World Bank. 2025b. "Tunisia Poverty and Equity Brief: October 2025." World Bank, Washington, DC. <http://documents.worldbank.org/curated/en/099509004222555951>.
- World Bank. 2025c. "Yemen: Agricultural Production Potential for Food and Nutrition Security." World Bank, Washington, DC.
- World Bank, European Union, and United Nations. 2025. "Gaza and West Bank Interim Rapid Damage and Needs Assessment (RDNA)." February 2025. World Bank, Washington, DC.

Looking Ahead: Bold Pathways to Promote Food and Nutrition Security and Agrifood Jobs in MENAAP

THE PRECONDITIONS FOR GREATER FOOD SECURITY ARE STABILITY, SUSTAINABILITY, AND A GOOD BUSINESS ENVIRONMENT

Stability, sustainability, and a good business environment are key to economic development and strong food and nutrition security (FNS) in the region. Economies in the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region have important opportunities to improve FNS through policies specifically designed to address the issue, whether by increasing food production, facilitating trade, raising the purchasing power of the poor, or reducing food loss and waste. Yet, policies that promote social stability, favor the sustainable use of resources, and enhance the business environment are also indispensable for FNS.

Regional stability and higher economic growth alone would lead to a reduction of food insecurity—though not necessarily to improvements in other nutrition outcomes. A comparison of projected food security outcomes across different development pathways defined for modeling by the Intergovernmental Panel on Climate Change (IPCC 2023) illustrates this point. Under the “middle of the road” Shared Socioeconomic Pathway (SSP) 2 scenario, this report’s baseline, regional GDP is projected to grow by 3.1 percent per year in per capita

terms through 2050. By contrast, growth is only 2.2 percent in the less favorable SSP3 pathway, which assumes weaker policy effort toward cooperation and sustainable development. Even without additional policies to improve food production, availability, or access, modeling suggests that additional growth in the SSP2 scenario would be associated with 39 million fewer MENAAP residents experiencing food insecurity (refer to table 7.1). Most gains come from Pakistan and regional economies affected by fragility, conflict, and violence (FCV). Similarly, stronger policy reform, as captured in the SSP1 scenario, is assumed to raise per capita GDP growth to 3.8 percent. It is also estimated to further reduce the number of people living in food insecurity by almost half.

Sustained growth is particularly critical in postconflict recovery. The growth scenarios this report uses assume smooth growth paths. This includes today's FCV-affected economies, where the SSP2 path assumes about 5 percent annual growth through 2050 (3 percent per capita). Such growth performance is unusual. After conflicts end, economies often grow fast, at least initially. However, sustaining high growth is much more difficult. Therefore, modeling results for FCV-affected economies illustrate a very favorable case of sustained development. Still, even a shorter postconflict growth spurt can achieve much for food security: steady growth through 2035 alone is projected to reduce the share of the population at risk of hunger in today's FCV-affected economies by 4 percentage points compared to 2020. It is also expected to yield about half the growth in cereal and livestock production that could be achieved with steady growth through 2050 (without additional investment, as described below), and one-third of the increase in fruit and vegetable production.

TABLE 7.1

Better Development Policy Is Modeled to Improve Food Security Outcomes

Change between development pathways	MENAAP	FCV	GCC	MICs	Pakistan
Assumed additional annual per capita GDP growth with better policies (SSP2 compared to SSP3, %)	0.8	0.9	0.3	0.8	0.9
Modeled additional reduction in the number of food-insecure people with better policies (SSP2 compared to SSP3, millions)	39	17	0.3	2	19

Source: Original table for this report, based on results from the International Food Policy Research Institute's (IFPRI) International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT) model.

Note: FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; MICs = middle-income countries; SSP = Shared Socioeconomic Pathway.

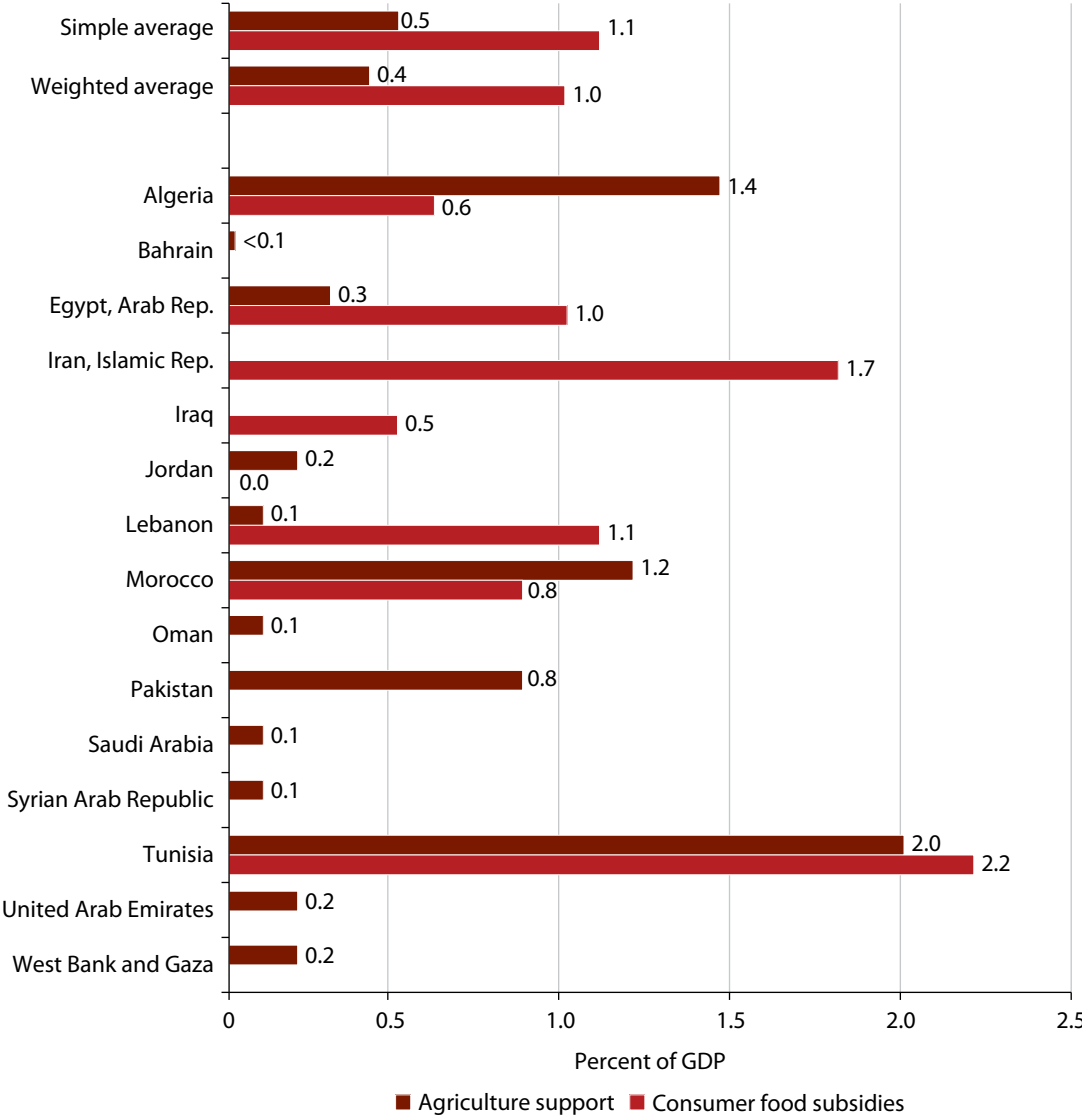
Well-defined policy options and investments that promote stability, sustainability, and a good business environment are available to each of the region's diverse economies. The cornerstones of regional food security, jobs, and growth are peace and stability, sound macro-fiscal management, improved infrastructure services, stronger accumulation of human capital with skills that better match industry needs, and inclusion, notably more labor market opportunities for women and youth (World Bank 2026). Sustainability pillars include better water management and land conservation, including by reducing food loss and waste, as well as climate resilience. Business-environment reforms are also pivotal to reducing the state's footprint in business, thereby opening opportunities for growth and job creation.

SMARTER CONSUMER POLICY TOOLS CAN HELP SHAPE FOOD DEMAND AND IMPROVE NUTRITION

The goals of ensuring access to food, promoting nutritious choices, and growing food production remain urgent, especially given population growth and rising incomes. Effective and efficient policy to help ensure access to food will remain important: global patterns suggest that with steady economic growth, the share of the region's population at risk of hunger could decline to 8 percent by 2050. Still, with high population growth, the absolute number of people at risk would remain high even with favorable economic development. At the same time, health concerns related to nutrition will also continue to be relevant: consumption patterns change globally with rising incomes, favoring higher-protein-content products but also oils, sugars, and nutrient-poor ultra-processed foods that are associated with significant health costs.

Spending on consumer subsidies far exceeds spending to promote agrifood system (AFS) development. In MENAAP countries where data are available, public spending on food subsidies, exceeded US\$27.8 billion annually on average in 2022–23, or 1.0 percent of GDP (refer to figure 7.1). Spending comparisons between these consumer subsidies and support for food production are not straightforward, given differences in data coverage. However, the order of magnitude of spending is clearly different: average support to regional production is close to 0.4 percent of GDP in areas where data are available. Therefore, with far higher fiscal outlays, consumer subsidies offer greater opportunities to realize efficiency gains or redefine priorities.

FIGURE 7.1
Spending on Agricultural Support and Consumer Food Subsidies as Percentage of GDP, 2022–23



Sources: World Bank, data from FAOSTAT and Pinxten, Gentilini, and Jenzri 2025.

Note: Absence of a bar indicates that data are not available in that category.

A rich range of policy tools can be deployed to help break the impasse between maintaining an inefficient status quo and a new agenda focused on fully repurposing subsidies. As regional economies consider what role subsidies should play, it is important to avoid the notion that the only choice is between the status quo and a full move away from

subsidies. Rather, experience globally and in the region shows that countries can balance a range of approaches to achieving policy goals in a way that is effective, socially and politically acceptable, and affordable. Access to subsidized food can be means-tested to improve targeting and reduce fiscal outlays, leveraging e-vouchers or digital food support. Subsidies can either be complemented by shock-responsive social safety nets or gradually reduced in favor of direct transfers delivered through them. Subsidies can also be partially repurposed to favor more nutritious food choices. Conversely, taxation of sugar-sweetened drinks and some ultra-processed foods can encourage healthy choices, as can regulation of food labeling and of the marketing of problematic products to children.

SCALING UP INVESTMENT IN RESEARCH AND THE ADOPTION OF INNOVATIONS IS CENTRAL TO FUTURE SUSTAINABLE AND RESILIENT DOMESTIC FOOD PRODUCTION

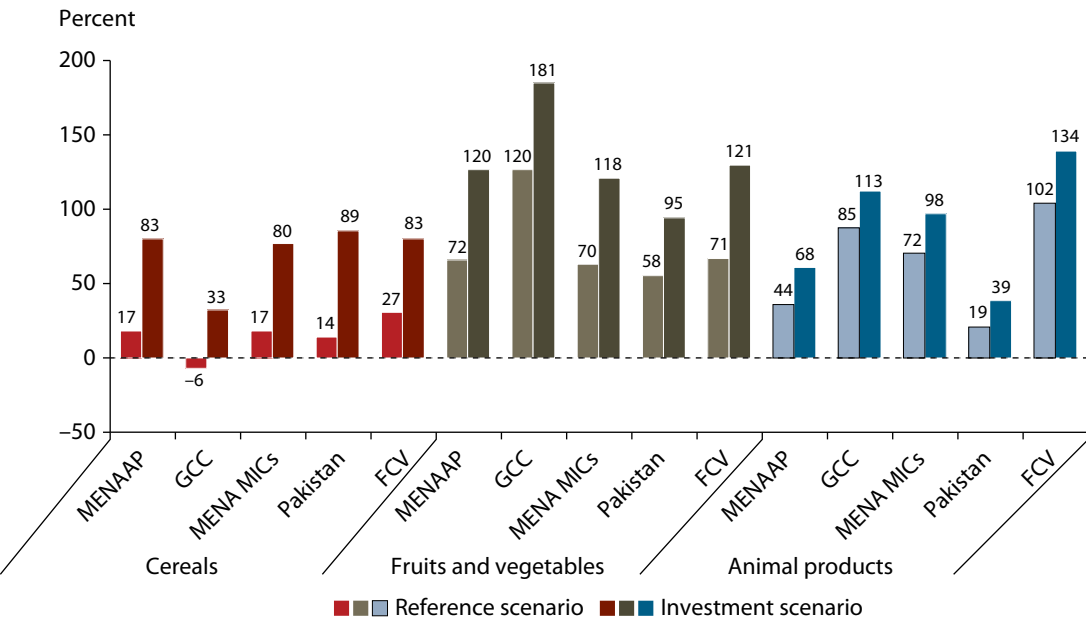
To assess the potential for ambitious food system development, this report models a policy pathway that roughly doubles investment in R&D and irrigation technology. As noted, regional yield growth is slowing, even as water resources are strained. This indicates both the need to accelerate the adoption of existing innovations and to sustain a flow of new technologies capable of responding to intensifying climate, water, and nutrition pressures. This report shows the potential of such investment to drive a transformation in the agrifood system by modeling the gains in food production resulting from an approximate doubling of investment in agriculture technology development, as well as the adoption of irrigation technology. The former is modeled as rising from a projected average of US\$1.8 billion per year over the 2020–50 period under current policy trends to US\$4.0 billion per year. Likewise, irrigation spending is modeled to increase from an average of US\$0.7 billion per year to US\$1.7 billion.

In the context of stability and economic growth, a well-designed investment program has the potential to significantly boost production of both staples and export products across the region. Cereal production could increase by 83 percent region-wide, well above the projected 17 percent increase in the reference scenario (refer to figure 7.2). Notably, the reference scenario already represents a favorable pathway, with steady growth and continued investment. The production of fruits and vegetables is already projected to rise

strongly with current policies; however, targeted investment could lead to production more than doubling (120 percent). Regarding livestock production, strong investment is estimated to increase growth by half, with an overall 68 percent increase in output.¹

Additional investment could help the region do more with scarce resources: strong projected yield growth raises output while using less irrigation water and only modestly more land. For instance, relative to current policies, investment is projected to raise the growth in cereal production nearly fivefold. This output growth is driven by the realization of large gains in cereal yields across the region—modeled to reach 72 percent region-wide—as compared to 18 percent under current policies. Area planted to cereals is projected to only increase marginally, by 6 percent. Thanks to water efficiency investments, irrigation water use for all crops outside of Pakistan is projected to decline region-wide (7 percent), compared to a 4 percent increase under current policies (if water-rich Pakistan is included, the investment scenario projects a 2 percent growth in irrigation water use, compared to 7 percent with current policies).

FIGURE 7.2
Modeled Change in Output, 2020–50



Sources: World Bank, results from the IFPRI IMPACT model.
Note: Bars on the left in each pair indicate the reference scenario. FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; MICs = middle-income countries.

All parts of the region could benefit significantly, though the specific growth opportunities vary. The modeled growth potential in fruit and vegetable production is very significant across the region, with benefits ranging from a projected near-doubling of production in Pakistan to a near-tripling in the Gulf Cooperation Council (GCC) countries.

Animal production could approximately double in much of the region, though modeled growth is more modest in Pakistan (39 percent). FCV economies also have considerable opportunities, assuming they can achieve stability. Cereal production in most of the region is expected to benefit similarly from investment, with modeled potential increases ranging from 80 percent in the middle-income countries (MICs) in the Middle East and North Africa subregion (MENA) to 89 percent in Pakistan. The exception is the GCC, where agroclimatic factors limit modeled cereal output growth to one-third of current production.

The scenario also shows that with better economic management, the Islamic Republic of Iran could become a major producer, potentially accounting for one-fifth of the region's production of fruits and vegetables (21 percent).

GROWTH OF THE AGRIFOOD SYSTEM DEPENDS ON AMBITIOUS REFORMS AND INVESTMENT TO BETTER MANAGE SCARCE WATER

More sustainable water use is critical for a thriving AFS in the arid environment characteristic of the MENA subregion. Irrigated production remains pivotal: it accounts for nearly all agriculture value added in the Arab Republic of Egypt and the GCC, more than half in Morocco, and one-third in Tunisia. At the same time, agriculture uses by far the largest share of water in the region, with 87 percent at the MENAAP average. Yet, irrigation is facing increasing competition due to population growth and the consequent rise in residential demand, combined with increasing demand from industry and tourism. Climate change will further constrain supply: in the MENA subregion, one-third of today's wheat production (32 percent), along with 40 to 50 percent of the production of important cash crops, is in areas where severe drought conditions are projected to become typical by midcentury (refer to chapter 3). Groundwater represents an important resource, but most countries in MENA currently use more groundwater than is sustainable, with an average overextraction of 26 percent (Aquastat, <https://data.apps.fao.org/aquastat/?lang=en>). Given these factors, sustainable water management is critical for the future of agriculture in the region, as well as related jobs and food production.

Management of water resources to support the AFS and other key uses requires strong institutions and a conducive governance framework. Managing scarce water across competing demands, amid dwindling and variable supply, is extremely challenging. Water accounting is the first step toward ensuring that allocation is fact-based, yet countries across the region have varying degrees of knowledge on their water resources, particularly groundwater. Similarly, reliable and sufficiently detailed data on actual use are not always available. Allocation rules, data-driven applications, collective agreement across multiple stakeholders, and adaptive behavior are the basis of water management. Equally important is the implementation of governance measures that support demand management, potentially including quotas and the adoption of appropriate water tariffs. The capacity and empowerment of institutions to implement these measures is equally important.

When combined with institutional and governance measures, farm-level investments can maintain current levels of water extraction with higher production. Modeling for this report illustrates that, with a doubling of current on-farm investment to reduce nonbeneficial water use, groundwater abstraction for irrigation by 2050 could be kept at its current level while enabling higher production (refer to the preceding section, “Scaling Up Investment in Research”). A scenario with more sustainable groundwater use has also been considered in modeling, cutting by half the current level of overextraction. While uncertainty over modeling assumptions is substantial, the simulation indicates that agricultural returns might not be overly affected by such a reduction. It also shows that shifts in crop choices can help facilitate a move toward more sustainable water use.

Additional investment in higher irrigation water use efficiency could provide a substantial opportunity to facilitate more sustainable groundwater use. Even with investment in on-farm water use efficiency, at the current growth rate, the level of over abstraction projected for 2050 is roughly equivalent to the entire projected increase in the region’s desalination capacity. Conversely, however, since agriculture in the region uses large amounts of water, a further 14 percent increase in regionwide crop water productivity could significantly help the region move toward more sustainable groundwater use (approaching sustainability under some data assumptions). Thus, the MENA subregion has an additional opportunity to further promote sustainable groundwater that it must not miss. Prior World Bank simulations suggest that, if the region were to catch up to the global median water consumption for 35 pivotal crops (accounting for the agroclimatic zone),

it could save 29 percent of the water currently used for these crops while producing the same amount of output, while a more ambitious reduction to the level of water use in global high-performing areas would save 45 percent of current water use (Zhang et al. 2025). If widely adopted, a rich range of technologies could substantially improve the efficiency of irrigation water use and reduce network losses (refer to chapter 3). However, achieving higher levels of water use efficiency also requires institutions dedicated to changing how water is used in the agricultural sector. Operational experience shows that the public investment cost associated with such changes is typically on the order of US\$4,000 to US\$8,000 per hectare, roughly suggesting an additional investment cost of US\$3.3 to US\$6.7 billion (Izzi, Denison, and Veldwisch 2021) above the amounts modeled in the “Investment” scenario described above.

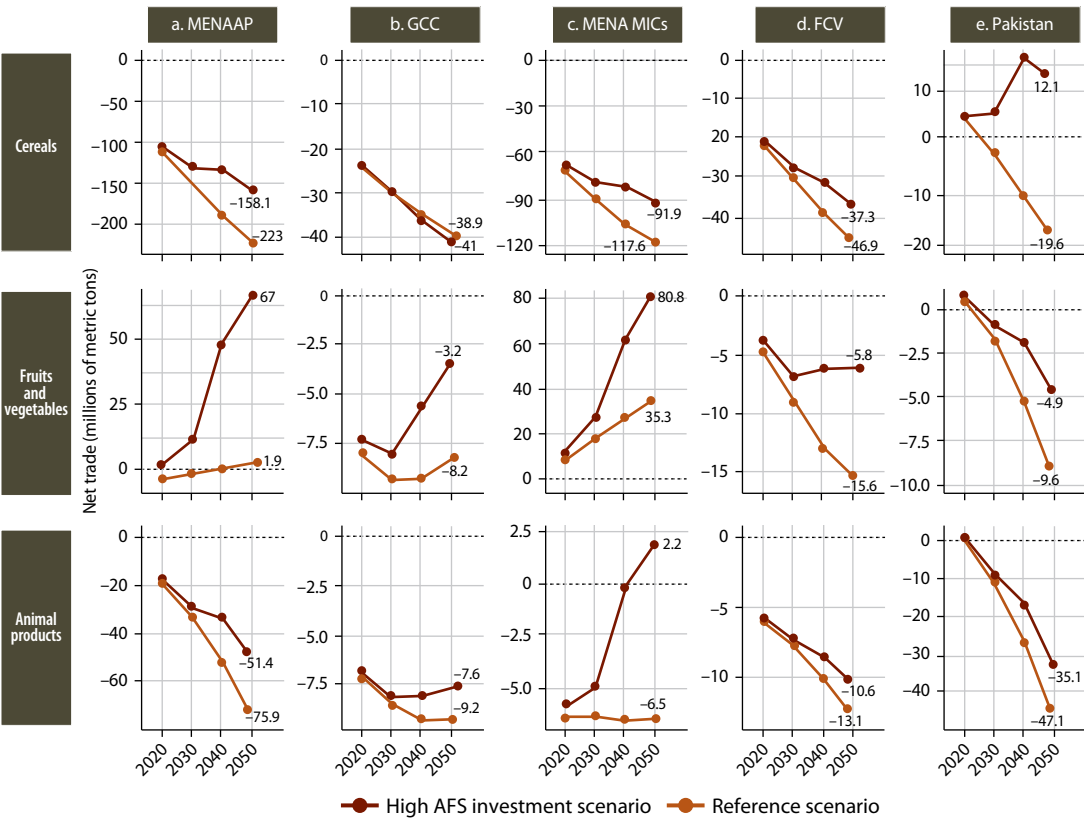
In addition to demand-management interventions, new water production can be considered to support the region’s agrifood system. Wastewater reuse in agriculture represents an increasingly interesting avenue for countries across the region. Desalination can also contribute to easing water scarcity: current installed capacity in the MENA subregion is around 18 billion cubic meters per year. Growth through 2030 is projected at around 3 to 6 billion cubic meters of capacity (World Bank 2025). Assuming the same absolute annual increase in capacity, annual desalination output could increase by 22 billion cubic meters by mid-century, more than doubling current volume. Due to costs associated with desalination, its use across the region has been initially prioritized for potable water use. However, as desalination costs decline, the practice of using desalinated water for irrigation is becoming more common across the MENA subregion.

FACILITATING TRADE CAN CONTRIBUTE EVEN MORE TO FOOD SECURITY AND JOBS

Trade remains an important part of food security, whether with current policies or under ambitious policy pathways—including higher investment in the agrifood system. Across scenarios, cereals, animal products, and oils and sugars account for most of the region’s net imports in financial terms, whereas fruits and vegetables are the largest net export component. With population growth and income increases, the region is projected to import much higher quantities of these commodities than today, even if the agrifood sector develops vigorously and net imports fall (refer to figure 7.3).

FIGURE 7.3

Modeled Trends in Net Trade in Reference Scenario versus Investment Scenario



Source: Original figure for this report, results from IFPRI IMPACT model.
Note: AFS = agrifood system; FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; MICs = middle-income countries.

The region is modeled to remain a large cereal importer, but with high investment, the cereal trade deficit decreases by one-third, with Pakistan potentially becoming a net exporter. Cereal imports will remain key to food security and sustainable water management in the region, with net regional imports expected to reach 223 million metric tons per year by 2050 in the reference scenario, worth an estimated US\$67 billion. However, the cereal trade balance is much more favorable with high investment, thereby reducing net imports to US\$43 billion. With vigorous development of the agrifood system, Pakistan is projected to become a net exporter by mid-century, with annual cereal exports worth US\$6 billion.²

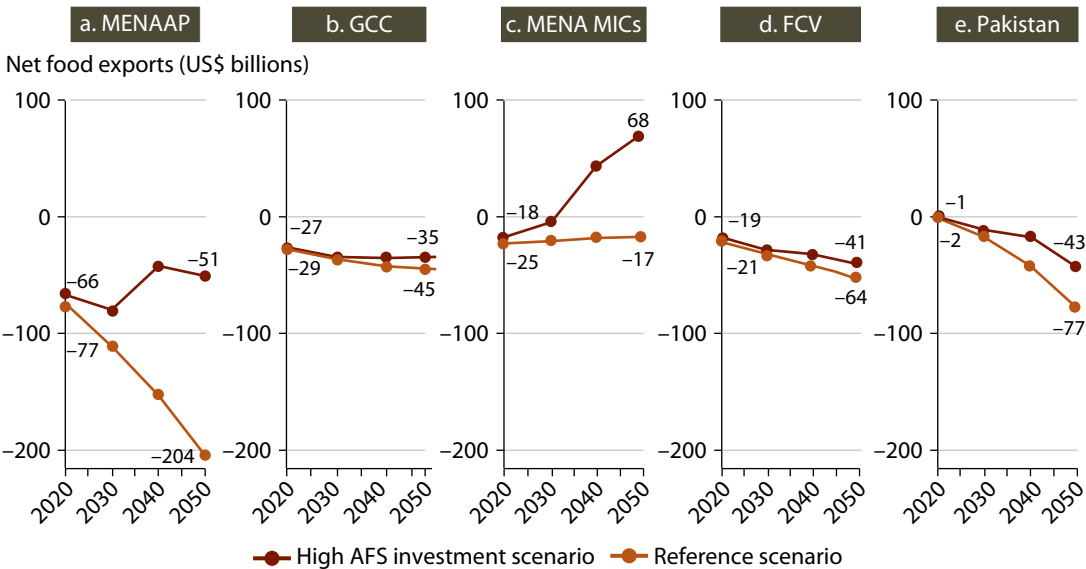
Under current policies, the rise in imports needed to meet growing food demand by 2050 goes hand in hand with an increase in the food

trade deficit in all parts of the region. The trade balance is modeled to fall from US\$77 billion in net imports in 2020 to US\$204 billion in 2050 (in real terms; refer to figure 7.4). If economic growth keeps pace, this does not signal an affordability crisis: with the middle-of-the-road SSP assumptions, the food trade deficit remains essentially constant compared to GDP (going from -0.9 percent in 2020 to -0.8 percent in 2050). The exception is Pakistan, where the trade balance is projected to fall from an almost neutral balance (-0.2 percent of GDP) to a more substantial deficit of -1.7 percent.

Ambitious agrifood system investment that seizes export opportunities could cut the region’s projected food trade deficit by three-quarters, or US\$153 billion, by 2050. A transformed agrifood system in the region could change the trade outlook: investment is projected to cut the 2050 deficit by 75 percent, reducing it to less than -0.2 percent of GDP, well below the current level. For most of the region, exports of fruits and vegetables provide the biggest opportunities to improve food trade. Apart from Pakistan, these goods contribute between 62 and 70 percent of the estimated gains in trade in the GCC, MENA MICs, and FCV economies.

FIGURE 7.4

Modeled Net Food Exports in Reference Scenario versus Investment Scenario



Source: Original figure for this report, results from IFPRI IMPACT model.

Note: AFS = agrifood system; FCV = fragility, conflict, and violence; GCC = Gulf Cooperation Council; MENA = Middle East and North Africa; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; MICs = middle-income countries.

Better performance in trade in animal products is particularly important for Pakistan and the GCC, accounting for 37 and 30 percent of all gains, respectively. Smaller gains come from a reduction in the cereal trade deficit—or in the case of Pakistan, a shift toward exporting cereals, which contributes 34 percent of the trade gains.

These favorable shifts indicate a greater ability to secure food imports and finance productivity investments, as well as a continued contribution from trade to water security. Increased food exports and a reduction in the trade deficit can help ease the pressure on foreign reserves experienced by some of the region's countries. This is particularly helpful in ensuring stable access to food imports during periods of instability in world market prices. It also helps ensure that AFS investment is consistent with stable macroeconomic management. For much of the region, virtual water embodied in cereal and other imports helps enable the production of fruits and vegetables and other export products, reflecting an increasing orientation of water use toward products in which the region is competitive.

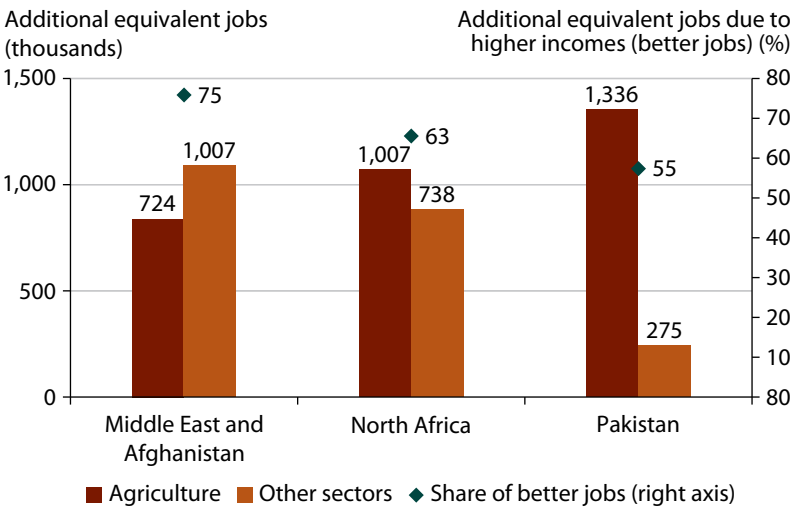
A BETTER BUSINESS CLIMATE IS PIVOTAL TO INCREASING AFS JOBS AND ATTRACTING THE FINANCING NEEDED FOR AMBITIOUS INVESTMENT

The job stakes are high in agrifood system transformation: ambitious investment and reform could create the equivalent of 5 million regional jobs. When the business environment is conducive, investment in the agrifood system creates jobs and raises incomes, both within the sector and in other activities that can grow with rising incomes, providing jobs for workers moving out of farming and the food sector. Modeling shows that ambitious investment in the agrifood system could create the equivalent of 5 million jobs for the region, both by raising employment and growing incomes (refer to appendix B for methods). However, these favorable outcomes arise in a modeling scenario of steady growth and external financing that can be thought of as reflecting a strong effort to reform the business climate. Whether these jobs and earnings opportunities become primarily available in agriculture or outside the sector depends in part on whether the policy promotes a competitive, export-oriented AFS. Thus, without additional export orientation, investment is estimated to create the equivalent of 300,000 (net) jobs on-farm region-wide, with many more opportunities off-farm.³ However, with more active export promotion (the base case

shown in figure 7.5), a much larger share of opportunities arises in the agricultural sector, with the regional equivalent of 3 million jobs. The difference an active export stance makes is particularly large for Pakistan. By contrast, North Africa’s more export-oriented agricultural sector benefits similarly under both policy stances, thereby adding the equivalent of about 1 million jobs.

From a macro-fiscal perspective, ambitious spending in the agrifood system is affordable but contingent on private sector contributions. The scenario modeled here would raise investment in research and development (R&D), technology adoption, and the expansion and efficiency of irrigation from US\$2.5 billion to US\$ 5.7 billion per year. This additional investment is equivalent to 0.3 percent of regional GDP, though expenditures are higher in some countries. It could likely be mobilized from public sources. However, financing the more comprehensive investment programs, estimated at around US\$12 billion per year, requires mobilizing private capital. More fundamentally, it requires creating the conditions under which private firms will want to invest. This is not a passive relationship: the private sector must be engaged as a co-owner of the investment agenda.

FIGURE 7.5
Modeled Additional Equivalent Jobs from AFS Investment with Export Promotion, Compared to Business-as-Usual Activities, 2050



Source: Original figure for this report, results from IFPRI IMPACT model.

Business climate reforms and investments in public goods can support production while avoiding distortions. In contrast to the modeling exercise described here, the policy choice is not between maintaining producer subsidies and cutting them without replacement. Rather, some spending that is today dedicated to the most market-distorting, environmentally harmful, or inefficient subsidies can be repurposed toward other investments and policies to boost the AFS, whether spending on innovation and other public goods, climate change adaptation, access to finance, support for cooperatives and aggregation, access to land, or other approaches described in chapter 5. The large costs and benefits of subsidy reductions shown in the modeling effort highlight potential gains to be had by shifting to policies that achieve similar benefits without creating similarly heavy distortions.

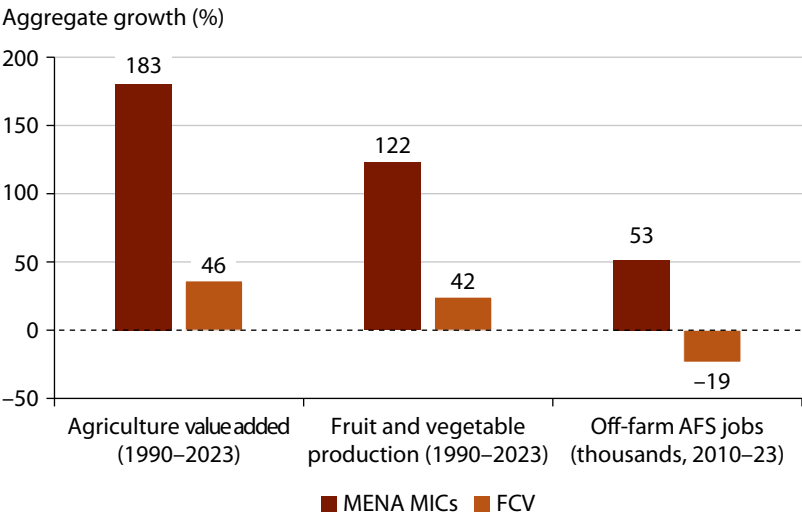
FCV ECONOMIES NEED BOTH URGENT ACTION TO REDUCE HUNGER AND INVESTMENT TO MAINTAIN AND BUILD THE AFS

Residents of FCV-affected economies are far more likely to suffer hunger and malnutrition than others in the region, while also losing out dramatically on AFS opportunities. Although food security is a concern for the entire region, emergencies are nearly synonymous with conflict. Of the 82 million people suffering crisis-level food insecurity or worse, more than four in five live in FCV economies. At the same time, FCV economies participate little in the positive regional AFS trends. Thus, since 1990, agriculture value added has nearly tripled in stable MICs but grown by less than half in FCV economies (46 percent) (refer to figure 7.6). Fruit and vegetable production—a key source of export potential—has more than doubled in MICs (114 percent). However, it has grown by less than half in FCV economies (40 percent). In addition, between 2010 and 2023, the region gained a net 3 million off-farm AFS jobs, whereas the FCV economies lost 257,000 jobs. Therefore, policy makers need to consider what is required to ensure immediate access to food; however, where the situation allows, they should also ask what can be done to protect and revive the AFS.

With stability, a recovery in food security, production, and jobs could occur; however, to avoid greater damage, investment cannot wait until stability returns. Modeling shows that with steady economic recovery, food systems in the region's FCV economies have the potential to grow

FIGURE 7.6

Comparative Long-Term AFS Development in MENA MICs and FCV-Affected Economies



Sources: World Bank, data from FAOSTAT, ILO, and World Development Indicators.
Note: FCV = fragility, conflict, and violence; MENA = Middle East and North Africa; MICs = middle-income countries.

substantially. With a steady recovery, yield growth for both cereal and fruits and vegetables in FCV economies are modeled to exceed growth rates in MENA MICs. The benefits of stability are even more notable for food security. With steady development, by mid-century today’s conflict-affected economies could close the gap that separates them from MICs in preventing the risk of hunger by nearly half (47 percent).

The highest priority for policy makers is to prevent acute food insecurity, but where possible, they must also look for opportunities to preserve and build the agrifood system in FCV-affected economies. In emergencies, the focus needs to remain on making food available. However, where feasible, remaining engaged in supporting businesses, cooperatives, and individual producers is key to avoiding a hollowing out of food systems. Proven support models can preserve the institutions that sustain the agrifood sector, help the private sector remain active, and reduce the overuse of natural resources. Operational experience shows that simple support modalities, an emphasis on delivery capacity, and awareness of the conflict context help such support succeed.

NOTES

1. The projected regional production patterns are not dependent on the assumption of sustained growth in today's FCV economies. In the investment scenario, post-2035 growth accounts for only between 4 and 7 percent of projected MENAAP output of cereals, fruits and vegetables, and animal products by 2050.
2. Differences in implicit prices are explained by differences in modeled commodity prices across scenarios as well as in the composition of cereal production.
3. The comparison here is between the business-as-usual (BAU) and investment scenarios: the overall employment share of agriculture in 2050 is projected to fall, relative to today, under both scenarios, with structural transformation. However, additional AFS investment means that more workers remain in the sector, compared to BAU.

REFERENCES

- IPCC (Intergovernmental Panel on Climate Change). 2023. *Climate Change 2023—Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. H. Lee and J. Romero, eds. Geneva: IPCC. <https://doi.org/10.59327/ipcc/ar6-9789291691647>.
- Izzi, G., J. Denison, and G. J. Veldwisch, eds. 2021. "The Farmer-Led Irrigation Development Guide: A What, Why and How-To for Intervention Design." World Bank, Washington, DC.
- Mbaye, S., M. Moreno-Badia, and K. Chae. 2018. "Global Debt Database: Methodology and Sources," IMF Working Paper, International Monetary Fund, Washington, DC.
- Pinxten, Juul, Ugo Gentilini, and Wiem Jenzri. 2025. Food Subsidy Spending and Coverage in MENA, 2010–23. Data set. World Bank, Washington, DC.
- World Bank. 2025. "Fresh Perspectives: Emerging Issues and Opportunities for Desalination in the Middle East and North Africa." World Bank, Washington, DC.
- World Bank. 2026. "Waste Management in the Middle East and North Africa." World Bank, Washington, DC. <http://hdl.handle.net/10986/44214>.
- Zhang, Fan, Christian Borja-Vega, Hrishikesh Arvind Chandanpurkar, James Famiglietti, Rick Hogeboom, Regassa Namara, Zarif Rasul, Pavel Luengas-Sierra, and Deyu Rao. 2025. *Continental Drying: A Threat to Our Common Future. Global Water Monitoring*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-2269-8>.

Conclusion

AN ACTIONABLE ROADMAP TOWARD FOOD AND NUTRITION SECURITY AND MORE AND BETTER JOBS

Different pathways toward greater food and nutrition security (FNS) and more and better agrifood system (AFS) jobs can accommodate national priorities. This report has shown that policy makers have many levers to improve FNS and create AFS job opportunities. There is no single “right” choice of action to emphasize. Rather, the available policy tools provide space for choices that respond to the economic, environmental, political, and social priorities as each country defines them.

A central lesson that emerges from this report is the need for more ambitious investment and policy making. Although national priorities, political economy, and circumstances differ, a common insight cuts across contexts: there is much to gain from a more ambitious pursuit of FNS and job creation in the AFS.

Transforming the AFS starts with better value for money in public spending. Economies in the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region already devote substantial fiscal resources to food and agriculture: over 2022–23, consumer subsidies exceeded US\$27.8 billion annually, and agricultural subsidies exceeded over US\$12.7 billion.¹ Yet FNS is deteriorating. The comprehensive investment program advocated in this report is estimated at US\$12 billion per year. This report has made the case that deliberately repurposing existing expenditures toward more impactful, sustainable, and nutrition-sensitive uses is urgent and feasible, as recent global reports also demonstrate (World Bank 2026; Sutton, Lotsch, and Prasann 2024; Gautam et al. 2022). Investments with better value for public money include research, innovation, extension services, food

safety, strategic grain reserves, safety nets, water and transport infrastructure, and trade facilitation. A common thread is the need to reduce food, environmental, and fiscal waste by optimizing the AFS.

Closing the financing gap requires private capital mobilization and innovative financing tools, which cannot happen without pro-business reforms. This report has highlighted the major role the private sector can and should play in achieving food and nutrition security and creating AFS jobs. The US\$12 billion investment need will also require private capital, calling for an improved business environment in MENAAP. Blended finance solutions should be deployed for de-risking and mobilizing private capital. Mechanisms like Advance Market Commitments² could be scaled up to further stimulate private investment in underserved markets, particularly for inputs and technologies that are critical to resilience and productivity.

Transformative outcomes depend on coherent and sustained policy packages, not isolated measures. Progress requires moving beyond fragmented, single-dimension interventions toward an integrated food-system approach. Policies, incentives, and investments need to be designed and implemented jointly, aligned across sectors and over time. This report's recommendations map priority actions across country subgroups, translating policy and investment options into differentiated pathways reflecting the region's diversity while maintaining a coherent strategic direction.

The World Bank's AgriConnect initiative provides a useful framework for prioritizing actions that can support FNS and AFS job creation. It builds on the insight that successful action must rest on three complementary pillars. First, *strengthening foundations* improves productivity through investment in physical (transport, electricity, digital infrastructure) and organizational infrastructure, natural capital (management of water and land resources), and human capital (including skills and nutrition). Second, *revamping policies* creates a conducive business climate and stable macro-fiscal environment, including the ability to efficiently manage subsidies and social safety nets, leverage trade, and promote regulations that facilitate market access. Third, *private capital mobilization* boosts investment in the AFS through access to finance, including through guarantees, insurance, and climate finance, as well as by forging genuine partnerships in which private actors help shape, not merely implement, ambitious projects (refer to figure C.1). Indeed, in this framework, the private sector is not positioned as a downstream financier but as a codeveloper and coimplementer of AFS solutions.

FIGURE C.1

The AgriConnect Framework



Source: World Bank.

Figure C.2 summarizes the top three priorities by subregion. Table C.1 details recommendations according to subregion:

- **In the Gulf Cooperation Council (GCC) countries,** *Strengthening Foundations* can begin with investing in the sustainability of and resilience on food systems. This starts with water: strengthening governance (regulation, pricing aligned with cost), irrigation efficiency, and new water sources, particularly wastewater reuse. There are also notable opportunities to tackle food loss and waste by scaling resilient cold chains, storage, and processing, while also nudging consumer behavior and accelerating a circular economy. Creating high-quality job opportunities will require upgrading skills, as well as modernized labor regulation with a deliberate gender equality lens. Regarding *Revamping Policies*, the priority is to shift both demand and supply toward healthier diets to curb the incidence of obesity and overweight. Options include eliminating consumer sugar subsidies, taxing sugar-sweetened beverages, and protecting children from targeted advertisements of unhealthy foods. *Capital Mobilization* would require an easing of the state’s role in key sectors to crowd-in private investment, with the goal of supporting frontier innovations and agrifood ventures. Piloting results-based instruments can build nutrition-smart value chains and sustainable systems. With this agenda, GCC countries could further position themselves as champions of innovation in terms of sustainable and modern food systems, catalyzing partnerships and finance across the region to deliver transformational impact.

FIGURE C.2

Top Three Priority Action Areas, by MENAAP Subregion

MENA middle-income countries	Fragile and conflict-affected countries	Gulf Cooperation Council countries	Pakistan
 Boost innovation, access to finance, and skills in the agrifood system  Invest in irrigation efficiency and water governance  Improve the business environment	 Enable humanitarian response and ensure food availability  Preserve domestic food production capacity  Improve macro-fiscal management	 Actively shape food demand and supply to fight obesity  Champion frontier innovation  Boost the circular economy to reduce food loss and waste	 Invest in infrastructure along value chains  Continue repurposing subsidies for public goods  Improve access to finance

Source: World Bank.

- **In MENA MICs** (middle-income countries in the Middle East and North Africa), *Strengthening Foundations* should first raise agricultural productivity by promoting technology adoption and attendant skills, while also protecting natural capital. This would entail prioritizing water efficiency and regulation, soil health, sound stewardship of fisheries, and reducing food loss and waste. At the same time, aggregating smallholder production through cooperatives and farmer organizations would improve market access, as well as upgrading processes to strengthen food safety. Thus, there is an opportunity to aggressively pursue job creation along value chains by investing in cold chains and improved logistics, as well as in processing, the circular economy, and business skills training. *Revamping Policies* can realign incentives by improving subsidy efficiency, and repurposing subsidy spending toward more productive, climate-smart, and nutrition-sensitive farm systems and value chains. Broader and more shock-responsive safety nets can support faster, better-targeted relief, while strategic food reserves and more efficient wheat public procurement can be leveraged to reduce subsidy spending. Improving the business environment is a priority, importantly including actions to reduce dominance by state-owned enterprises, boost transparency and predictability, and facilitate trade. *Capital Mobilization* must expand access to finance for working capital, as well as for fixed assets and innovation. It must also entail the de-risking of food systems through scalable agricultural insurance and blended finance for priority investments.

- **In Pakistan**, *Strengthening Foundations* should prioritize skills development both on and off the farm, while also strengthening food safety, digital infrastructure, and early warning systems. In addition, the sustainable raising of productivity and investing in infrastructure to cut food loss and waste are critical enablers. *Revamping Policies* should start with deepening policy coherence and advancing trade liberalization, particularly on import and export restrictions. It should also improve the business environment by reducing market distortions. A continued effort to repurpose agriculture and food subsidies toward public goods and sustainable and nutrition-sensitive practices will deepen efficiency and impact. Safety nets could also be expanded and become more shock-responsive, thus leveraging digitalization. Land and land-tenure reforms are central to unlocking investment and inclusive growth. Finally, *Capital Mobilization* should expand access to finance, particularly for women and landless farmers, as well as scale agricultural insurance to support investment and resilience.
- **In countries affected by FCV** (fragility, conflict, and violence), *Strengthening Foundations* should not wait for full stability: early investments can avert hunger and keep AFSs functioning. A priority is the preservation of productive capacity by sustaining businesses, cooperatives, and individual producers through simple, conflict-sensitive modalities, as well as rebuilding logistics and road access. Resilient practices and nature-based solutions—such as pasture restoration—combined with sustainable land and water management can reduce conflict risks while protecting natural capital. Robust monitoring and anticipatory early warning systems are needed to act before nutrition deteriorates. Digital infrastructure can also support safety nets to reach vulnerable households. *Revamping Policies* should allow food to be physically available during acute crises by facilitating imports and enabling a humanitarian response. Staying engaged to strengthen governance, coordination, and state legitimacy is also key. Food and cash aid should not crowd out local production or contribute to inflationary pressure. Progress toward macro-fiscal stability can ease the pressure on producers and businesses. *Capital Mobilization* can de-risk and crowd in private activity to repair weak transport infrastructure and logistics, expand producer aggregation (cooperatives and farmer organizations) to access markets, and scale blended finance for climate-smart investments.

Across the region, priority data gaps must be closed to develop compelling investment and reform packages. For more effective action to support food security and AFS jobs, the region needs to

invest in data systems that can undergird decision-making. Data are too often outdated, too aggregated, or only accessible with difficulty. Four major data gaps should be addressed through regional collaboration and other means: (1) Accurate data on key nutrition indicators such as wasting or stunting are largely outdated. High-frequency data regarding dietary intake are often lacking, particularly for displaced people and refugees. While this book uses cutting-edge methods to fill data gaps, they cannot replace high-quality field data collection conducted on a regular basis. (2) Precise, shared information on groundwater volumes and water use should also be prioritized, given their strategic importance in guiding decisions about the region's food supply capacity and the drastic uncertainties surrounding them. (3) Decision-making cannot significantly improve without detailed data on public expenditures in the AFS. Systematic and comprehensive agriculture and food expenditure reviews are important tools to boost the efficiency and effectiveness of public spending and identify repurposing opportunities. (4) Finally, reforms and investments that effectively support AFS jobs require improved data on AFS jobs and incomes as well as on the performance of AFS firms, especially in the informal and household sectors not covered by the World Bank Group's Enterprise Surveys.

Beyond closing individual country data gaps, the region has a significant and underexploited opportunity to deepen regional cooperation on data, technologies, knowledge exchange, and trade in AFSs. MENAAP countries face many of the same structural challenges, yet largely address them in isolation, duplicating research efforts, procuring technologies independently, and generating knowledge that is not shared across borders. Regional cooperation on groundwater data and transboundary aquifer governance is particularly urgent. Strengthening these cooperation mechanisms is not a peripheral add-on to the agenda outlined in this report but would be a force multiplier for every pillar of it.

TABLE C.1

Recommendations, by MENAAP Subregion

Strengthening foundations	Revamping policies	Capital mobilization
MENA middle-income countries		
Infrastructure. Invest in (1) power, (2) transport, cold chains, storage, processing facilities, prioritizing food loss reduction; (3) digital infrastructure; (4) early-warning systems; and (5) food safety monitoring. Water and land. Establish explicit metrics for the value of water. Invest in new water sources, with an eye on fiscal sustainability. Invest in reducing non-revenue water and in higher irrigation water use efficiency. Adopt suitable approaches to sustain land productivity, including soil health and nature-based approaches. Ensure sound stewardship of forestry and fisheries. AFS R&D. Invest in the development and adoption of yield-increasing innovation, including improved water efficiency, food loss reduction, and climate-resilient crops. Skills. Invest in skills for market-oriented on-farm jobs and for activities along the competitive AFS value chains. Focus on youth and ensure gender inclusion. Consumer choices. Raise consumer awareness food waste and healthier food choices (through, for instance, package labeling).	Business environment. Advance the reform agenda, with an emphasis on improving transparency and accountability, as well as reducing the SOE footprint. Foster the One Health agenda. Consumer subsidies and safety nets. Revisit the balance between subsidy spending, targeted social safety net support, and investment in AFS productivity. Enhance the coverage and shock-responsiveness of safety nets. Producer subsidies. Repurpose subsidies (particularly input subsidies) and increase support to sustainable and nutrition-sensitive practices, nature-based approaches, innovation adoption, value chain diversification and youth agripreneurship. Trade policy. Revisit the trade-related costs of price controls. Reduce nontariff barriers to trade. Emphasize opportunities to grow exports of products that are both commercially and environmentally sustainable products. Build the capacity of private sector-managed strategic food reserves. Optimize the efficiency of wheat public procurement.	Access to finance. Reduce the public sector footprint in the banking sector. Develop collateral registries and other tools to allow AFS businesses to access lending. Leverage private finance for AFS lenders. Pursue an A2F (access to finance) agenda for individual producers. De-risking. Expand crop insurance products. Promote export financing instruments for currency risk. Partnerships. Develop action compacts to strategically align private investment, government spending and IFI (international financial institution) resources for AFS transformation. Climate finance. Build MRV (monitoring, reporting, and verification) systems, regulatory frameworks, and private-sector capacity to enable climate finance.
Fragile and conflict-affected countries		
Infrastructure. Make priority repairs and investments for power, transport, and digital infrastructure where fiscally sustainable. Water and land. Foster resilient practices and the preservation of natural capital to reduce risks of conflict over natural resources. Invest in higher irrigation water use efficiency.	Business environment. Prioritize reforms that favor stability, transparency, and state legitimacy. Consumer subsidies and safety nets. Assess the fiscal sustainability of subsidies. Build capacity for targeted social safety net support. Ensure that food and cash aid do not crowd out local production or contribute to inflationary pressure.	Access to finance. Pursue an A2F agenda for individual producers. Develop collateral registries and other tools to allow AFS businesses to access lending. De-risking. Leverage concessional finance to de-risk AFS lenders. Partnerships. Ensure funding for humanitarian food aid, balanced by support to AFS resilience. Develop action compacts to strategically align private investment, government spending and IFI resources for AFS transformation.

(continued)

TABLE C.1

Recommendations, by MENAAP Subregion (*continued*)

Strengthening foundations	Revamping policies	Capital mobilization
Agricultural R&D. Make priority investments in the adoption of yield-increasing, water-efficient, climate resilient, nutrition-sensitive technologies and techniques where most effective in raising incomes and safeguarding resources. Skills. Invest in preserving the production capacity to rebuild livelihoods, with a gender lens. Consumer choices. Raise consumer awareness regarding healthy food choices in a context-appropriate way.	Trade policy. Ensure the macro-fiscal sustainability of imports. Focus export facilitation on selected high-potential value chains. Build the capacity of private sector-managed strategic food reserves.	Climate finance. Emphasize readiness for selected high-potential projects.
Gulf Cooperation Council countries		
Infrastructure. Continue to strengthen innovative port infrastructure solutions and other logistics. Promote digital and AI tools for AFS businesses. Develop food safety monitoring. Water and land. Establish explicit metrics for the value of water. Continue investing in new water sources. Pioneer high-efficiency water use and the adoption of novel approaches to combating desertification. Agricultural R&D. Champion regional initiatives for the development and adoption of yield-increasing, water-efficient, and resilient technologies and techniques, including food loss and waste reduction along value chains. Skills. Invest in skills training with a gender lens for high-value-added food manufacturing and services. Consumer choices. Raise consumer awareness of food waste through ambitious communication campaigns, as well as healthy food choices (including through food-package labeling).	Business environment. Pursue an advanced reform agenda focused on labor force skill building and inclusive labor regulation, as well as a reduced regulatory burden for agribusiness. Foster the One Health agenda. Consumer subsidies. Repurpose consumer subsidies (particularly for sugar) and improve targeting and efficiency. Tax products with adverse health impacts, such as SSBs. Implement regulations to protect children's nutrition. Safety nets. Expand targeted shock-responsive safety nets and social insurance. Producer subsidies. Focus on nutrition-sensitive value chains and sustainability; pilot results-based incentives. Trade policy. Emphasize diversification of import suppliers and trade routes. Establish strategic food reserves. Foster regional trade partnerships.	Access to finance. Strengthen commercial AFS finance. De-risking. Develop instruments to de-risk frontier technologies and innovation adoption and to support early-stage agrifood ventures. Partnerships. Seek regional leadership opportunities in financing investments in AFS and water security. Climate finance. Develop regulations to enable green bonds and similar commercial climate financial instruments.

(continued)

TABLE C.1

Recommendations, by MENAAP Subregion (*continued*)

Strengthening foundations	Revamping policies	Capital mobilization
Pakistan		
Infrastructure. Invest in power, transport, storage, processing, cold chain, digital infrastructure, early-warning systems, and food safety monitoring. Water and land. Establish explicit metrics for the value of water. Invest in reducing nonrevenue water and in higher irrigation water-use efficiency. Phase out irrigation practices that advance salinization. Adopt suitable approaches (such as nature-based approaches and landscape-based approaches) to sustain land productivity, with a focus on soil health. Agricultural R&D. Strategize existing support to improve the adoption of crop yield-increasing innovation, water-efficiency, loss-reduction, balanced fertilizer use and resilience technologies and techniques. Skills. Invest in skills for market-oriented on-farm jobs, as well as for activities along competitive AFS value chains, with a focus on women and youth. Consumer choices. Raise consumer awareness of food waste, as well as of healthy food choices (through, for instance, package labeling).	Business environment. Advance the reform agenda, with an accent on reducing market distortions; improving transparency; reforming land and land tenure regulations; and improving policy coherence between federal and provincial governments. Foster the One Health agenda. Consumer subsidies and safety nets. Deepen social safety net support and leverage digitalization for shock-responsiveness. Producer subsidies. Repurpose existing support toward public goods for AFS productivity, as well as sustainable and nutrition-sensitive farm practices.	Access to finance. Develop collateral registries and other tools to allow AFS businesses to access lending. Develop instruments to support the production cycle, as well as asset building and innovation; diversify instruments (for example, the warehouse receipt system). De-risking. Expand crop insurance products. Partnerships. Develop action compacts to strategically align private investment, government spending and IFI resources for AFS transformation. Climate finance. Build MRV systems, regulatory frameworks, and private sector capacity to enable climate finance.

Source: World Bank.

Note: MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

NOTES

1. The food subsidy and agricultural subsidy estimates are based on different country samples, each covering only a subset of MENAAP countries; refer to earlier chapters.
2. For an example, refer to <https://agresults.org/>.

REFERENCES

- Gautam, Madhur, David Laborde, Abdullah Mamun, Valeria Piñeiro, Will Martin, and Rob Vos. 2022. “Repurposing Agricultural Policies and Support: Options to Transform Agriculture and Food Systems to Better Serve the Health of People, Economies, and the Planet.” World Bank and IFPRI (International Food Policy Research Institute), Washington, DC. <http://hdl.handle.net/10986/36875>.
- Sutton, William R., Alexander Lotsch, and Ashesh Prasann. 2024. *Recipe for a Livable Planet: Achieving Net Zero Emissions in the Agrifood System*. Agriculture and Food Series. Washington, DC: World Bank. <https://doi.org/10.1596/41468>.
- World Bank. 2026. “Hooked on Subsidies: The Case for Reform.” World Bank, Washington, DC. <http://documents.worldbank.org/curated/en/099032626103039700>.

Conceptual Framework, Methodology, and Stakeholder Engagement

A FOOD SYSTEM APPROACH TO FOOD AND NUTRITION SECURITY

The concepts used in this report align with the internationally acknowledged definition of food security, encompassing four dimensions (FAO 2008):

1. *Availability* is determined by the level of food production, stock levels, and net trade.
2. *Accessibility* means that households can physically access food and have the means to purchase it.
3. *Utilization* refers to the way the body makes the most of various nutrients in the food, and the results of good care and feeding practices, food preparation, diversity of the diet, and intra-household distribution of food (FAO 2008).
4. *Stability* applies to the first three dimensions over time to guarantee food security, giving a dynamic dimension to the concept.

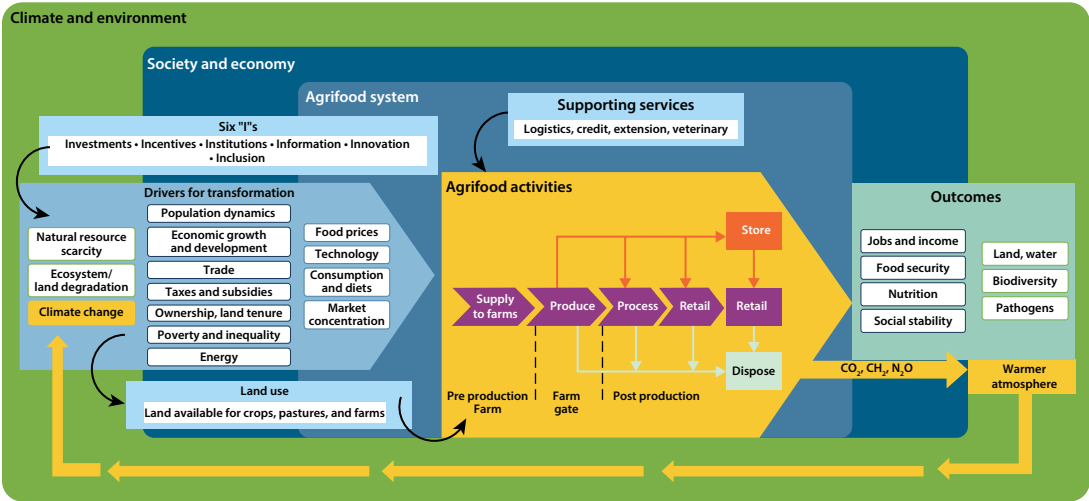
The purposeful use of the term *food and nutrition security* (FNS) throughout the report explicitly draws attention to the need to address all four dimensions simultaneously in the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region, considering the double burden of malnutrition the region faces.

A macro-level approach allows for the investigation of food availability at the regional level by examining the balance between food demand and supply, including whether sufficient food is available at reasonable prices.

While overlooking some of the micro-level processes of food insecurity described above, this scale of analysis provides insight into food availability and how the food market affects the production, trade, and price of food items (Burchi and De Muro 2016). This neoclassical framework, where food security results from food supply meeting food demand, is valuable at this scale as it focuses on aggregate dynamics like resource allocation, market efficiency, and price mechanisms. Food supply includes food production for the domestic market and export, modified by stock changes and food imports. It relies on national agricultural production, including subsistence farming, and trade. Food demand comprises effective market demand and home consumption from subsistence production. In this framework, food insecurity and malnutrition occur when market dynamics fail to ensure that food requirements are consistently met, due to production deficit, import deficit, supply deficit, or demand deficit. The latter refers to a disparity between effective food demand and food requirements, primarily driven by inadequate purchasing power (Sassi 2018a, 2018b).

The agrifood system (AFS) concept bridges the gap between the macro and micro levels of food and nutrition security. While food availability can be addressed at the macro scale, food access and utilization are rooted in household dynamics, reflecting significant geographic and socioeconomic disparities within a country. Stability, as a cross-cutting dimension of these three pillars, operates across both the macro and micro levels, influencing and being influenced by each. Adopting an AFS lens enables the integration of these two scales and their linkages, as well as their interconnections with other systems, such as ecological, health, economic, political, and sociocultural (Clapp et al. 2022). The concept captures all economic activities tied to food value chains from farm to fork. It thus includes on-farm agricultural production (crop, livestock, forestry, fisheries, and aquaculture) and off-farm activities along the value chains, including input provision, storage, transport, food processing, trading, retail, and food services. Food and nutrition security, as well as jobs, income, and social stability, are some of the main positive outcomes of a thriving AFS. AFS externalities (impact on land, water, biodiversity, and the like) closely depend on a wide range of drivers, detailed in figure A.1, such as economic growth and policies (Sutton, Lotsch, and Prasann 2024).

FIGURE A.1
Agrifood System Linkages with Society, Economy, Climate, and the Environment



Source: Sutton, Lotsch, and Prasann 2024.

Agribusiness is conceptualized in this report as the food-supply component of the food system that is led by the private sector and has the greatest potential to create jobs. It encompasses all enterprises and firms that participate in commercial farming, input supply, food processing, storage, logistics, retail, and trade. It is thus a strategic engine for job creation: beyond being a main source of employment, agribusiness is a transformational sector that can drive food and nutrition security, inclusive growth, and rural development. Its contribution to FNS is twofold: first, as a main source of diversified food supply, contributing to food availability and stability; and second, as a provider of decent jobs and incomes, supporting food accessibility and poverty reduction.

A MIX OF QUANTITATIVE AND QUALITATIVE METHODOLOGIES IN SCENARIOS TO FUTURE-PROOF POLICIES

This book leverages the analytical and operational knowledge built over the past decade in MENAAP and combines recent data, innovative modeling, novel survey data, and case studies to offer a holistic regional perspective. It integrates country-specific insights

and thematic expertise to provide actionable recommendations. It also builds on the feedback and inputs provided by participants in internal and external workshops.

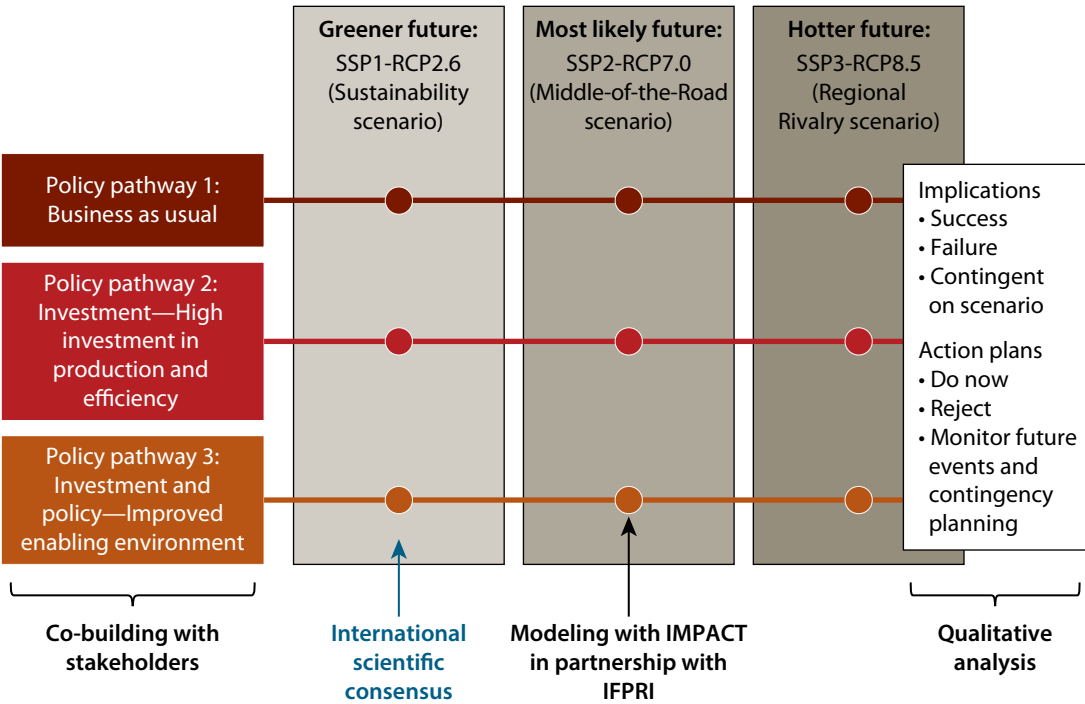
The book's synthesis summarizes the key learning points stemming from seven accompanying self-standing background papers, which each mobilize different data and analytical tools. Major sources of data across all chapters are FAOSTAT, including (but not limited to) the food security and nutrition suite of indicators, agricultural production and agricultural value added; and data developed by the World Bank Development Data Group, including the World Food Security Outlook, food prices, inflation, and their machine learning-based projections. This report also leverages data and lessons produced by recent complementary World Bank global and regional flagship reports.

A common thread across the report is scenarios that serve as a strategic foresight tool to guide policy makers in envisioning and preparing for diverse futures. Rather than predicting or projecting the future, these scenarios act as a compass, helping navigate the complexities of turbulence, uncertainty, and novelty. Unlike single-trend projections, scenarios examine the interplays between various change drivers. Scenarios are thus used in this report to future-proof policy making, ensuring the robustness of policy options under different circumstances. This method is called *policy stress-testing*, which consists of testing strategic options against a set of scenarios to see how well they stand up to a range of possible external conditions. It thus allows policy makers to explore how a policy could be modified today to succeed in different futures (GOS Futures Toolkit 2024; UNDP 2018; De Vito and Taffoni 2023).

In this report, three Policy Pathways are thus developed and assessed against three scenarios, defined by different Shared Socioeconomic Pathways (SSPs). Developed by the Intergovernmental Panel on Climate Change, the SSPs, along with the Representative Concentration Pathways (RCPs), represent alternative futures for economic and population growth and climate change. The three SSPs selected in this report to stress-test policies are the "Sustainability Scenario" (SSP1-RCP2.6), the "Middle of the Road Scenario" (SSP2-RCP 7.0), and the "Regional Rivalry Scenario" (SSP3-RCP8.5), in alignment with the majority of MENAAP World Bank Country Climate and Development Reports (CCDRs) (Singh et al. 2024). The report's storyline is essentially built around the "Middle of the Road Scenario," which is the reference scenario. Figure A.2 summarizes the policy pathways stress-testing approach developed in the report.

FIGURE A.2

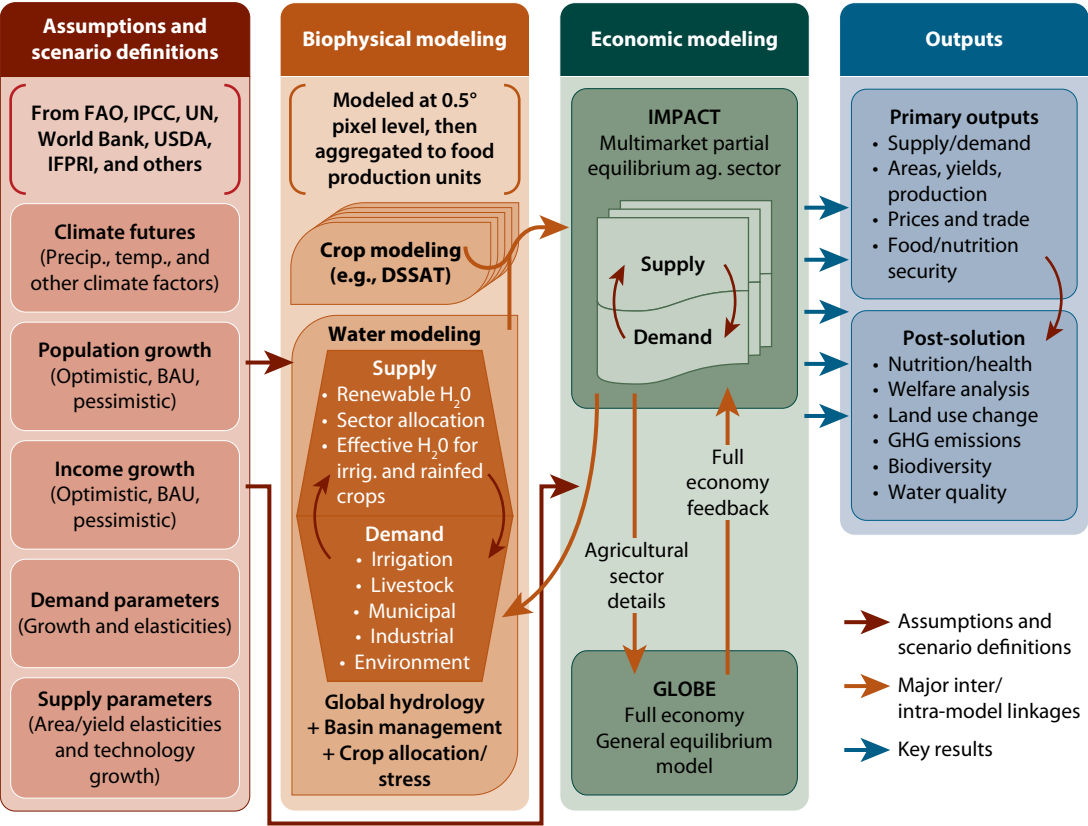
Policy Stress-Testing Approach of the Report: Three Policy Pathways Are Tested across Three Development Scenarios



Source: World Bank, based on GOS Futures Toolkit 2024.
Note: IFPRI = International Food Policy Research Institute.

The impacts of the different policy pathways across the set of SSPs are modeled using the International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT) framework developed by the International Food Policy Research Institute (IFPRI). IMPACT is an integrated system of models that links information from climate models, crop simulation models, and water models with a core global, partial equilibrium, multimarket model focused on the agriculture sector. This economic model simulates national and global markets of agricultural production, demand, and trade associated with 62 agricultural commodities across 158 countries (Robinson et al. 2024). IMPACT is also iteratively linked to the global dynamic computable general equilibrium (CGE) model GLOBE (Willenbockel et al. 2018), allowing assessment of macroeconomic and employment effects associated with the different scenarios. Figure A.3 details IMPACT’s modeling framework.

FIGURE A.3
IMPACT Modeling Framework and Interactions



Source: Robinson et al. 2024.
Note: ag. = agriculture; BAU = Business-as-usual scenario; DSSAT = Decision Support System for Agrotechnology Transfer; FAO = Food and Agricultural Organization of the United Nations; GHG = greenhouse gas; GLOBE = global dynamic computable general equilibrium model; IMPACT = International Model for Policy Analysis of Agricultural Commodities and Trade; IPCC = Intergovernmental Panel on Climate Change; irrig. = irrigation; precip. = precipitation; temp. = temperature; USDA = US Department of Agriculture.

Several limitations of this report need to be acknowledged. Partial equilibrium modeling functions on trends and is not structurally built to embed uncertainties related to external shocks. A stochastic approach to modeling was beyond the scope of this report. Hence, modeling results do not account for potential large interannual variability, such as massive droughts, pandemics, and conflict.

STAKEHOLDER ENGAGEMENT

Broad-based stakeholder engagement anchors this report in the region’s priorities and realities. From the outset, the analytical

process was shaped by direct input from national and regional actors. An initial participative session at the Regional Forum on Accelerating Food Systems Transformation in the Arab Region, held in Amman in October 2024, brought together key country representations and international organizations. The forum was organized by the Jordanian Ministry of Agriculture, with support from the United Nations Economic and Social Commission for Western Asia (ESCWA), the Food and Agricultural Organization of the United Nations (FAO), the World Food Programme (WFP), the United Nations Industrial Development Organization (UNIDO), the World Bank, the Arab Organization for Agricultural Development, and the Swedish Government. This flagship session enabled the report to reflect the diverse needs and ambitions of countries across the region. Participants were requested to share their perspectives on the importance, challenges, and success stories across nine policy tools: investments in resource-efficient water technologies, trade policies, consumer subsidies, producer subsidies, innovation and research, infrastructure, processing and value added private sector enablers, and food aid. Participants included representatives from ministries of agriculture, planning, and finance from 16 countries, spanning the full spectrum of the region's economic and social contexts.

A Regional Workshop on Food and Nutrition Security in the Middle East and North Africa was convened in Cairo in June 2025 by the World Bank and the Government of Egypt. It provided a critical platform for sharing evidence, innovations, and reform experiences. Amid heightened regional tensions, the workshop gathered senior officials from ministries responsible for agriculture, fisheries, trade, food security, economy, planning, and finance, as well as representatives from international organizations and development partners. Twelve economies participated, both in person and virtually due to ongoing conflicts: Algeria, Bahrain (virtual), Djibouti, the Arab Republic of Egypt, Jordan (virtual), Lebanon, Libya, Oman, the Syrian Arab Republic (virtual), Tunisia, West Bank and Gaza (virtual), and the Republic of Yemen. International organizations and development partners included the French Development Agency (AFD), the Italian Agency for Development Cooperation (AICS), Canada, the European Bank for Reconstruction and Development (EBRD), the United Nations Development Programme (UNDP), ESCWA, the European Union (EU), the FAO, the FAO Investment Center, the FAO Regional Office for the Near East and North Africa, the Islamic Development Bank, the Japan International Cooperation Agency (JICA), the League of Arab States, the United Kingdom, the United Nations Conference

on Trade and Development (UNCTAD), and the World Food Programme (WFP).

The engagement process fostered co-creation of policy options and collective learning. High-level discussions focused on the transformative potential of food systems for economic growth and job creation, while thematic sessions delved into food demand, production, trade, and the impacts of conflict. Each session enabled participants to present country and partner experiences, exchange knowledge, and debate preliminary findings from the World Bank's regional analysis. Interactive break-out sessions—both in-person and online—were instrumental in shaping actionable policy pathways for improved food and nutrition security.

REFERENCES

- Burchi, Francesco, and Pasquale De Muro. 2016. "From Food Availability to Nutritional Capabilities: Advancing Food Security Analysis." *Food Policy* 60: 10–19. <https://doi.org/10.1016/j.foodpol.2015.03.008>.
- Clapp, Jennifer, William G. Moseley, Barbara Burlingame, and Paola Termine. 2022. "Viewpoint: The Case for a Six-Dimensional Food Security Framework." *Food Policy* 106: 102164. <https://doi.org/10.1016/j.foodpol.2021.102164>.
- De Vito, Laura, and Gaia Taffoni. 2023. "Strategic Foresight and Policy Evaluation: Insights for an Integrated Approach." *European Journal of Risk Regulation* 14 (4): 800–06. <https://doi.org/10.1017/err.2023.77>.
- FAO (Food and Agriculture Organization of the United Nations). 2008. *An Introduction to the Basic Concepts of Food Security*. Food Security Information for Action. Practical Guides. Rome, Italy: FAO. <https://www.fao.org/agrifood-economics/publications/detail/en/c/122386/>.
- GOS (Government Office for Science). 2024. "The Futures Toolkit." GOS, London. <https://assets.publishing.service.gov.uk/media/66c4493f057d859c0e8fa778/futures-toolkit-edition-2.pdf>.
- Robinson, Sherman, Shahnaila Dunston, Abhijeet Mishra, Timothy B. Sulser, Daniel Mason-D'Croz, Richard D. Robertson, Nicola Cenacchi, Timothy Thomas, Keith Wiebe, and Mark Rosegrant. 2024. "The International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT): Model documentation for version 3.6." Modeling Systems Technical Paper 1. Washington, DC: International Food Policy Research Institute. <https://hdl.handle.net/10568/148953>.
- Sassi, Maria. 2018a. "Conceptual Frameworks for the Analysis of Food Security." In *Understanding Food Insecurity*, 31–49. Springer Cham. https://doi.org/10.1007/978-3-319-70362-6_2.

- Sassi, Maria. 2018b. "Food Security Basics." In *Understanding Food Insecurity*, 1–30. Springer Cham. https://doi.org/10.1007/978-3-319-70362-6_1.
- Singh, Moradhvaj, Samir KC, Michaela Potancokova, Saroja Adhikari, Dilek Yildiz, Maria Mamolo, Tomas Sobotka, Krystof Zeman, Guy Abel, Wolfgang Lutz, and Anne Goujon. 2024. "Wittgenstein Center (WIC) Population and Human Capital Projections—2023." Data set. Zenodo (CERN European Organization for Nuclear Research). <https://doi.org/10.5281/zenodo.10618931>.
- Sutton, William R., Alexander Lotsch, and Ashesh Prasann. 2024. *Recipe for a Livable Planet: Achieving Net Zero Emissions in the Agrifood System*. Agriculture and Food Series. Washington, DC: World Bank. <https://doi.org/10.1596/41468>.
- UNDP (United Nations Development Programme, Global Centre for Public Service Excellence). 2018. "Foresight Manual. Empowered Futures for the 2030 Agenda." <https://www.undp.org/publications/foresight-manual-empowered-futures>.
- Willenbockel, D., S. Robinson, D. Mason-D'Croz, M. W. Rosegrant, T. B. Sulser, S. Dunston, and N. Cenacchi. 2018. "Dynamic Computable General Equilibrium Simulations in Support of Quantitative Foresight Modeling to Inform the CGIAR Research Portfolio: Linking the IMPACT and GLOBE Models." IFPRI Discussion Paper 01738. <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/132757>.

Selected Methods and Data Sources

CALCULATION OF OFF-FARM AFS EMPLOYMENT

To obtain estimates of off-farm agrifood system (AFS) employment, this report uses harmonized global data on employment by 2-digit ISIC¹ (Rev. 4) sector provided by the International Labour Organization. The approach partially follows Davis et al. (2023) but provides estimates that are more conservative and more directly focused on the AFS. Thus, the AFS off-farm aggregate used in this report includes off-farm activities in food and beverage processing (codes 10 and 11), food and beverage services (usually in hospitality, code 56), as well as retail and wholesale trade related to food and beverages (imputed as described below).

While the ISIC classification in principle distinguishes between retail and wholesale activities that are and are not related to food and beverages, this disaggregation is not available in the harmonized data. Therefore, the AFS-related share of employment in retail and wholesale trade is imputed following the Davis et al. (2023) approach, based on the assumption that the share of AFS jobs in commerce is the same as the share of AFS jobs across all economic activities for which we can distinguish between AFS and non-AFS.

In labor force surveys collected in the Arab Republic of Egypt (2023) and Pakistan (2021), as well as a household budget survey in Tunisia (2021), ISIC codes are available at the 4-digit level. This allows for a comparison of AFS employment in retail and wholesale observed in

survey data with the imputed figures. The comparison suggests that the approach provides a reasonable if likely conservative proxy. Thus, in Egypt, imputed AFS employment in commerce is 1.13 million, compared to 1.08 million in the survey data (an overestimate by 5 percent), in Pakistan, 1.62 million compared to 1.79 million (an underestimate by 10 percent), and in Tunisia, 0.95 million, compared to 1.20 million (an underestimate by 21 percent).

The resulting data differ from the approach taken in Davis et al. (2023) in two ways. First, it excludes from the AFS total activities related to tobacco products, leather, and textiles. These are meaningfully linked to agriculture, but not to food production. Second, it excludes activities related to transport, since even at high disaggregation, ISIC codes do not distinguish between food-related and other freight transport, making imputed values more difficult to validate than for retail and wholesale values. Therefore, the resulting data should be thought of as a more conservative estimate of off-farm AFS employment.

Where there are data gaps for certain years, values are imputed either linearly when gaps are short and sporadic, or with a regression-based approach if gaps are longer or frequent.

ESTIMATING THE POTENTIAL FOR MORE AND BETTER JOBS THROUGH AFS INVESTMENT

For each of the scenarios described in chapter 7, modeling with the GLOBE computable general equilibrium model implemented by IFPRI provides estimates of changes in agriculture and nonagriculture employment, as well as of (economy-wide) wages, by 2050 and relative to business as usual. We then apply the World Bank Group's More and Better Jobs indicator (MBJ) approach to express these changes in terms of equivalent jobs.

The MBJ indicator is based on the overall increase in labor income, both from *more* jobs that provide new income opportunities and from *better* jobs that raise workers' incomes. It can be written as follows:

$$MBJ = \left(\frac{w^* L^* - wL}{wL} \right) \times \frac{\underline{L}}{\text{Baseline Employment}},$$

$\underbrace{\hspace{10em}}_{\text{percent change in labor income}}$

where w and L are wages and employment under business as usual, and w^* and L^* are wages and employment under the policy scenario.

To apply this formula to the model outputs, we normalize wage (w) to unity and rewrite the formula as follows:

$$MB\mathcal{J} = \gamma_L L + \gamma_w L + \gamma_L \gamma_w L,$$

where γ_L is the effect on employment growth, $\frac{L^* - L}{L}$, and γ_w is the effect on wage growth, $\frac{w^* - w}{w}$. The first term represents the effect in terms of more jobs, and the sum of the second and third terms, the effect in terms of better jobs. We then compute more and better jobs in the agricultural and nonagricultural sectors using this formula.

Table B.1 shows changes by 2050 relative to the baseline for the investment scenario with additional trade facilitation policies, and the equivalent jobs numbers they imply.

TABLE B.1
Modeled Impacts on Employment and Wages and Computation of Equivalent Jobs Numbers

Sector and type of job		Investment scenario with trade facilitation, change relative to reference scenario (2050)		
		Middle East and Afghanistan	North Africa	Pakistan
Agriculture employment	A	3.1%	5.3%	2.2%
Nonagriculture employment	B	−0.1%	−0.2%	−0.4%
Real wages	C	1.0%	1.3%	0.7%
		Reference employment (thousand, 2050)		
Agriculture	D	17,646	15,092	45,999
Nonagriculture	E	110,787	68,497	81,438
More and better jobs (1,000s, equivalent)				
Agriculture		724	1,007	1,336
Nonagriculture		1,007	738	275
All jobs		1,731	1,744	1,611
More jobs (1,000s)				
Agriculture	A*D	540	798	1,012
Nonagriculture	B*E	(111)	(158)	(285)
All jobs		429	641	727
Better jobs (1,000s, equivalent)				
Agriculture	C*D + A* C*D	184	208	324
Nonagriculture	C*E + B*C*E	1,118	895	560
All jobs		1,302	1,103	884

Source: Original table for this publication.

NOTE

1. International Standard Industrial Classification for grouping economic activity, <https://siccode.com/isic-code-lookup-directory>.

REFERENCE

Davis, B., E. Mane, L. Y. Gurbuzer, G. Caivano, N. Piedrahita, K. Schneider, N. Azhar, M. Benali, N. Chaudhary, R. Rivera, R. Ambikapathi, and P. Winters. 2023. “Estimating Global and Country-Level Employment in Agrifood Systems.” FAO Statistics Working Paper Series No. 23-34. FAO. <https://doi.org/10.4060/cc4337en>.

Food security is a major concern for the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP). Across the region, food insecurity and malnutrition are rising at a pace not seen in recent decades, affecting conflict-affected, middle-income, and high-income countries alike. While one in six MENAAP residents lacks secure access to food, the region simultaneously records some of the highest rates of overweight and obesity in the world. Mounting pressures from conflict, water scarcity, climate shocks, and economic volatility make the need for food system transformation both urgent and unavoidable.

This transformation also presents a crucial opportunity. MENAAP's agrifood systems are already a major engine of employment, and they hold untapped potential for creating better, more inclusive jobs. *Building Food Security, Creating Jobs: Policy Pathways for the Region* argues that confronting the region's food security crisis goes hand-in-hand with addressing its chronic jobs challenge.

Drawing on regional data, original quantitative modeling, new survey evidence, and country case studies, this book examines the full complexity of the challenge: the evolution of food demand, the constraints on domestic production under climate change and severe water scarcity, trade management, the devastating impact of conflict on food systems, and the role of the private sector in driving sustainable change as well as the potential for job creation.

The central message is one of possibility. Substantial gains in food security and job quality are within reach, but they require greater ambition in both investment and policy making. *Building Food Security, Creating Jobs* offers governments a concrete policy roadmap showing how coordinated, cross-sectoral reforms can simultaneously strengthen food and nutrition security and unlock the potential for more and better jobs across the agrifood system.



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