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IFAD International Fund for Agricultural Development

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World Health Organization

2019

NEAR EAST AND NORTH AFRICA

REGIONAL OVERVIEW OF FOOD SECURITY AND NUTRITION

RETHINKING FOOD SYSTEMS FOR HEALTHY DIETS AND IMPROVED NUTRITION

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EGYPT. Female retail trader buying from Belbeis wholesale market.

2019

NEAR EAST AND NORTH AFRICA REGIONAL OVERVIEW OF FOOD SECURITY AND NUTRITION

RETHINKING FOOD SYSTEMS FOR HEALTHY DIETS AND IMPROVED NUTRITION

Food and Agriculture Organization of the United Nations
International Fund for Agricultural Development
United Nations Children's Fund
United Nations World Food Programme
and
World Health Organization
Cairo, 2020

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FOREWORD

In The State of Food Security and Nutrition in the World 2019, the Food and Agriculture Organization of the United Nations (FAO), in partnership with the International Fund for Agricultural Development (IFAD), the United Nations Children's Fund (UNICEF), the World Food Programme (WFP) and the World Health Organization (WHO), monitors progress against two targets from Sustainable Development Goal 2 (SDG 2) on ending hunger (SDG Target 2.1) and all forms of malnutrition (SDG Target 2.2). In addition to this global report, FAO has published Regional Overviews of Food Security and Nutrition since 2015. This year, marks the first year that FAO has produced the Regional Overview for the Near East and North Africa (NENA) in partnership with IFAD, UNICEF, WFP and WHO Regional Offices. It is also the first year that the Regional Overview covers all Arab States to be consistent with the League of Arab States (LAS).

The past few decades have seen dramatic improvements in the region in access to food, reduction in stunting rates, in premature death and disability caused by communicable, maternal, neonatal, and nutritional diseases. However, the gains in the fight against hunger and malnutrition have reversed in the wake of conflicts and violence that have spread in many parts of the region in the last decade.

Today, nearly 55 million people in the Arab States, 13.2 percent of the population, are hungry and the situation is particularly worrying in countries affected by conflicts and violence: Iraq, Libya, Somalia, Syria, Sudan, Yemen. Displacements and forced migration are widespread in the region, especially among the growing youth population segment. In addition to conflicts, water scarcity and climate change pose significant constraints to agricultural production and rural livelihoods in the region.

Many countries carry a double burden of malnutrition, including overweight and obesity and undernutrition. A high or very high prevalence of stunting in children under the age of five persists in nearly half of the Arab States, while anaemia is a severe public health issue in certain countries. The trends of overweight and obesity continue to worsen for children and adults. Today diet-related non-communicable diseases (NCDs) cause more premature deaths and disabilities than communicable, maternal, neonatal, and nutritional diseases.

Beyond these numbers, the report explores food systems in the Arab States and the policies that support them. It also explores how the latter have contributed to poor nutritional outcomes by failing to make safe and diversified healthy diets available to all. While there has been significant progress in policies designed to reduce caloric deficiencies in the population, the policy reaction to address existing malnutrition problems, particularly in relation to overweight and obesity, has not been adequate considering

FOREWORD

the gravity of the problem. In October 2019, the WHO Regional Committee endorsed the Nutrition Strategy for the Eastern Mediterranean Region (2020-2030), developed in close coordination with FAO, WFP, UNICEF and the Arab League, to address the double burden of malnutrition in the region.

The overall message of the report is one of realistic optimism. The Arab region can still make progress towards the achievement of the SDG2 targets 2.1 and 2.2. Ending hunger and addressing the root causes of malnutrition will require bold actions on several fronts. Ending conflicts and sustaining peace is a prerequisite to reverse rising hunger in the region. Promoting gender equality and women's empowerment is imperative to strengthen food systems to fight hunger and malnutrition. Transforming food systems by devising agricultural, health, nutrition, trade, food and environmental policies that are gender- and climate-sensitive and support healthy diets are immediate and urgent actions governments and other stakeholders in the region can take in order to end hunger, achieve food security and improve nutrition by 2030.

The report provides several policy recommendations, addressing governance and regulatory frameworks, food supply and demand, health and nutrition that when implemented together will deliver healthy diets and positive nutrition outcomes for people across the region.

As we embark on the Decade of Action for SDGs, we reiterate our commitment to support the Arab States in their quest to end hunger and all forms of malnutrition.

Abdessalam Ould Ahmed
Assistant Director General/ Regional Representative – FAO
Near East and North Africa Region

Khalida Bouzar
Regional Director – IFAD
Near East, North Africa, Central Asia and Europe Division

Ted Chaiban
Regional Director – UNICEF
Middle East and North Africa Region

Muhannad Hadi
Regional Director – WFP
Middle East, North Africa, Central Asia & Eastern Europe

Ahmed Al-Mandhari
Regional Director – WHO
Eastern Mediterranean Region

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The report draws on extensive contributions from Tamara Nanitashvili (FAO, Regional Office for the Near East and North Africa), Vilma Tyler (UNICEF, Regional Office for Middle East and North Africa), Ayoub Al-Jawaldeh (WHO, Regional Office for the Eastern Mediterranean), Nerina Muzurovic (IFAD, Near East, North Africa and Europe Division), Abdelkarim Sma (IFAD, Near East, Lead Regional Economist, North Africa and Europe Division), Nitesh Patel (WFP, Regional Bureau for Middle East, North Africa, Central Asia & Eastern Europe), Hala Ghattas (American University of Beirut), Tatiana Elghossain (American University of Beirut) and Ghida Krisht (American University of Beirut).

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ACRONYMS AND ABBREVIATIONS

AOAD	Arab Organization for Agricultural Development
BMI	body mass index
BP	blood pressure
CMM	child and maternal malnutrition
CVD	cardiovascular disease
DALY	disability adjusted life year
EPI	export potential indicator of the International Trade Centre
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAO RNE	FAO Regional Office for the Near East and North Africa
FAS	Foreign Agricultural Service (of the USDA)
FBD	foodborne diseases
FBDG	food–based dietary guidelines
FIES	food insecurity experience scale
FImod+sev	moderate or severe food insecurity on FIES
FIsev	severe food insecurity based on FIES
g/dL	grams per decalitre
GBD	global burden of disease
GCC	Gulf Cooperation Council
GDP	gross domestic product
GSHS	Global School–based Student Health Survey of WHO
GSO	Gulf Coordination Council Standardization Organization
HACCP	hazard analysis and critical control point
HGSF	home grown school feeding
HLPE	High Level Panel of Experts on Food Security and Nutrition
IFAD	International Fund for Agricultural Development
IHME	Institute for Health Metrics and Evaluation
IPC	integrated phase classification
ITC	International Trade Centre, a joint development agency of WTO and UN
IU	international unit
LDC	least developed country
IYCF	infant and young child feeding
LAS	League of Arab States
MENA	Middle East and North Africa
MDG	Millennium Development Goal
NCD	non–communicable disease
NENA	Near East and North Africa
NTD	neural tube defects
PHO	partially hydrogenated oils
PoU	prevalence of undernourishment
PRAREV	Programme to Reduce Vulnerability in Coastal Fishing Areas
SAGO	Saudi Arabia Grains Organization
SFDA	Saudi Food and Drug Authority
SD	standard deviation
SDG	Sustainable Development Goal
SSB	sugar sweetened beverage
µg/	micrograms per litre
µmol/L	micromoles per litre
UN	United Nations

ACRONYMS AND ABBREVIATIONS

UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNSD	United Nations Statistical Division
UNU	United Nations University
USDA	United States Department of Agriculture
VAD	vitamin A deficiency
VAT	value added tax
WB	World Bank
WDI	World Development Indicators
WFP	World Food Programme
WHA	World Health Assembly
WHO	World Health Organization
WTO	World Trade Organization
YLD	years lived with disability
YLL	years of life lost

COUNTRY AND TERRITORY ABBREVIATIONS

A list of countries and territories with names abbreviated in the text

Algeria	People's Democratic Republic of Algeria
Bahrain	Kingdom of Bahrain
Comoros	Union of Comoros
Djibouti	Republic of Djibouti
Egypt	Arab Republic of Egypt
Iraq	Republic of Iraq
Jordan	Hashemite Kingdom of Jordan
Kuwait	State of Kuwait
Lebanon	Lebanese Republic
Libya	State of Libya
Mauritania	Islamic Republic of Mauritania
Morocco	Kingdom of Morocco
Oman	Sultanate of Oman
Qatar	State of Qatar
Palestine	State of Palestine
Saudi Arabia	Kingdom of Saudi Arabia
Somalia	Somali Republic
Sudan	Republic of Sudan
Syria	Syrian Arab Republic
Tunisia	Republic of Tunisia
UAE	United Arab Emirates
Yemen	Republic of Yemen

Note: The Islamic Republic of Iran, which was covered in the previous Regional Overview for NENA is not included in the current report. However, an analysis of Iran's progress towards achieving SDG 2 can be found in the Asia and the Pacific Regional Overview of Food Security and Nutrition Report 2019.

This year's report covers a total of 22 Arab States that include all 19 NENA countries as well as three additional Arab States previously not covered in the report: Djibouti, Comoros and Somalia. Such coverage facilitates an analysis of the Arab States' group and is consistent with the League of Arab States' membership that includes 22 member states: Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Palestine, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates and Yemen.

KEY MESSAGES

The past few decades have seen phenomenal improvements in mortality and morbidity in the Arab States. Premature death and disability caused by communicable, maternal, neonatal, and nutritional diseases have been reduced by three–quarters since 1990. Stunting rates have fallen, while the iodine intake in the region as a whole is adequate.

Despite these encouraging trends, the food security and nutrition status of the population remains dire for many countries in the region. Hunger continues to affect 55 million people (13.2 percent of the population) and child undernutrition is a severe public health issue. Furthermore, rates of obesity and diet–related non–communicable diseases (NCDs) are among the highest in the world and growing rapidly.

➔ Conflict is the primary reason for hunger in the region. In Yemen, the food security status of 15.9 million people reached "crisis, emergency or catastrophe" levels (IPC[1] phase 3, 4 or 5) for acute food insecurity in 2018 (FSIN, 2019). In Syria, 6.5 million people are food insecure (FSIN, 2019), while 5.6 million people have become refugees, nearly all of whom live throughout the Arab States and Turkey. In Iraq, 2.5 million people are food insecure and in need of assistance, while in the Sudan 6.2 million people were IPC phase 3 or above in 2018 (FSIN, 2019).

➔ Undernutrition and deficiencies of micronutrients in children under 5 years of age in the region are of particular concern. Nearly half the countries of the region have a high or very high prevalence of stunting in children under 5s, and anaemia is a severe public health issue in many of the low and lower middle income countries. Stunting and anaemia adversely affect the cognitive and physical growth of children, contributing to lower performance in schools and lowering lifetime incomes.

➔ The Arab States have the second highest prevalence of obesity and overweight after the Americas (North America, Central America, South America and the Caribbean countries), with 62 percent of adults overweight and 27 percent obese. Today 73 million adults in the region are obese, 168 million are overweight, and NCDs cause three times as many premature deaths and disabilities than communicable, maternal, neonatal, and nutritional diseases.

➔ The food systems in the Arab States and the policies that support them have contributed to these poor nutritional outcomes by failing to provide adequate, safe, diversified and nutritious food for all that is economically, culturally and socially acceptable.

➔ Agricultural subsidies and food security policies in the region generally favour energy–rich staple food production, without sufficient attention to promoting nutrient–rich foods. Cereal policies which encourage farmers to produce wheat through state subsidies and procurement depress rural incomes and export revenues, prolonging a legacy of rural poverty in the region.

[1] The Integrated Food Security Phase Classification (IPC), also known as IPC scale, is a tool to classify the severity and magnitude of food insecurity.

➔ Foods with high levels of saturated fats, trans–fats, salt and free sugars are ubiquitous, contributing to unhealthy diets. In some countries food subsidies stimulate consumption of bread made with highly refined wheat flour, displacing healthier alternatives such as coarse grains and pulses.

➔ Health and nutrition policies of the region have been slow to adapt to the need to fight NCDs driven by behavioural risk factors, primarily unhealthy diets. In many Arab countries, policies focus on curative and episode–based care, a legacy of managing communicable and nutritional diseases, rather than risk factor preventative care.

➔ Reversing the poor nutritional outcomes in the region will require governments to devise agricultural, health, trade, security and environmental policies that support healthy diets.

To achieve SDG 2 (Zero hunger) demands bold action to reverse many current trends in food security and nutrition. Ending hunger and malnutrition in all their forms requires addressing the underlying causes, including inadequate access to health care, the social environment, consumer awareness and nutrition education that influence consumer behaviour around food, diet and nutrition, and household food insecurity. Ending conflict, highly prevalent in the region, will contribute positively to reducing hunger and malnutrition, much of which is linked to the vast displaced population and the associated poverty.

Transforming the region's food systems is also needed to deliver healthy diets that address undernutrition as well as overnutrition. Because each country is unique, entry points to transforming food systems will vary, as will their priorities. Countries with high levels of undernutrition will opt for entry points that are different from those with high levels of overweight and obesity. In addition, the characteristics of local systems from production to consumption vary widely in the region and will, therefore, need a different approach to change in each country. These entry points may be a combination of supply focused, demand focused or governance related policies and interventions. In the Arab region, this report highlights several food system entry points to address the challenges of food security and malnutrition in all its forms in the region.

➔ Governance interventions: Regulatory measures like food standards legislation through food product reformulation, taxes on sugar sweetened beverages (SSBs), control of advertising to children and in schools, as well as informative food labels, including simple front of pack nutrition labelling can help to reduce sugar, salt, fat intake and eliminate trans-fats.

➔ Governance interventions: Modernizing national food control systems can enhance food safety and reduce foodborne diseases and their nutrition outcomes especially in low and lower middle income Arab States. This entails risk analysis and updating food laws and regulations, food control management, inspection services,

laboratory services for food monitoring and epidemiological data and capacity development and training.

➔ Supply side interventions: Direct farm subsidies away from staple crops towards fruits, vegetables and other high value export crops, along with ensuring compliance with food quality and safety demands. This could raise rural incomes and help reduce rural poverty.

➔ Demand-side interventions: Nutritionally appropriate food subsidies and targeted social protection policies can support equal access to education for girls as well as social protection programmes that make cash payments directly to women. Such tools reduce stunting and micronutrient deficiencies in children. Additionally, WHO (2019a) recommends interventions for improved exclusive breastfeeding and complementary feeding practices, community based nutrition education, particularly for women of childbearing age, appropriate micronutrient supplements, creation of a healthy food environment and various other actions that support safe and supportive nutrition environments.

WEST BANK AND GAZA STRIP
Fresh Tajik puff cakes being prepared as part of a project supporting inclusive agriculture and food security initiatives.
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INTRODUCTION

The United Nations 2030 Agenda for Sustainable Development envisions "a world free of poverty, hunger, disease and want . . . where food is sufficient, safe, affordable and nutritious" (UN, 2015). This is an ambitious and transformative vision for the world's food system. The *food system* in the 2030 Agenda is expected to ensure availability and access to enough safe food to satisfy the nutritional needs and preferences of a growing population and their right to a healthy life, leaving no one behind. Alongside will be the adoption of sustainable agricultural practices (Box 1).

BOX 1
WHAT IS A FOOD SYSTEM AND WHAT ARE ITS OUTCOMES?

"A food system gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socio–economic and environmental outcomes" (HLPE, 2014). Its core includes the food supply chain, the processes and actors involved in production, processing and waste disposal (HLPE, 2017); and the food environment, "the physical, economic, political and sociocultural context in which consumers engage with the food system to make their decisions about acquiring, preparing and consuming food" (HLPE, 2017). A number of drivers impact on the food supply chain and food environment (environmental, technological, political, economic, sociocultural and demographic), altering these two core elements over time. Food safety regulations influence the environment in which consumers make choices about what and where to buy and how to consume and store food, as do the consumer's budget constraints, advertising and information, and government food assistance programmes.

Diet, nutritional and health status are therefore the outcomes of many influences and constraints that provide plentiful drivers and entry points for change.

SOURCES: HLPE, 2014; HLPE, 2017.

INTRODUCTION

Over the past ten years Arab State food systems have had a mixed record in reaching this goal. Though there has been progress in reducing the number of hungry people, much of this was erased by growing conflict in the region since 2010. The region has made tremendous progress in the past three decades in reducing stunting, and premature mortality and morbidity from child and maternal malnutrition. However, in the same period the number of obese and overweight children and adults has continued to grow and premature mortality and morbidity from unhealthy diets and diet-related NCDs are constant.

This year's Overview of Food Security and Nutrition focuses on the transformative vision of the 2030 Agenda for food systems in the Arab States: "sustainable food systems for healthy diets and improved nutrition". Part I analyses the latest indicator data for SDG 2, as well as global nutrition targets agreed by the World Health Assembly (WHA) (Table 1). These are supplemented by Global Burden of Disease (GBD) data to give an overview of the context of changes in the levels of hunger and different forms of malnutrition in the Arab States. Part II focuses on the region's policies to transform food systems to reduce hunger, child and maternal malnutrition and overweight, obesity and NCDs. Part III takes up the theme of sustainable food systems for healthy diets, proposing ways to shape food systems to better support safe and healthy diets.

TABLE 1
TARGETS AND INDICATORS CONSIDERED IN PART I

Targets		Indicators for Monitoring Targets
SDG Target 2.1	By 2030, end hunger and ensure access by all people, in particular, the poor, and those in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.	1. Prevalence of undernourishment
		2. Prevalence of moderate or severe food insecurity in the population, based on the food insecurity experience scale (FIES)
SDG Target 2.2	By 2030, end all forms of malnutrition, including achieving, by 2025, internationally agreed targets on stunting and wasting in children under 5, and addressing the nutritional needs of adolescent girls, pregnant and lactating women and older persons.	1. Prevalence of stunting among children under 5
		2. Prevalence of malnutrition among children under 5 (wasting and overweight)
WHA nutrition and NCD targets	WHA nutrition targets*[2]	40% reduction in the number of children under 5 who are stunted
		50% reduction in anaemia among women of reproductive age
		no increase in the number of overweight children
		increase the rate of exclusive breastfeeding in the first 6 months to at least 50%
		reduce and maintain childhood wasting to less than 5%
	WHA NCD targets*	Prevalence of obesity in adults

*Among the WHA nutrition targets, this report does not consider low birth weight (30% reduction). Among the WHA NCD targets, only obesity is considered. See Part I, Beyond SDG 2: Nutrition and NCD targets agreed by the WHA.

[2]The WHA is the decision–making and policy–setting body of the World Health Organization (WHO) made up of delegations from all WHO Member States convening annually in Geneva, Switzerland. In 2013 the WHA endorsed a comprehensive implementation plan on maternal, infant and young child nutrition in 2012, and a Global Action Plan for the Prevention and Control of NCDs 2013–2020.

EGYPT
Retail Trader, is selling Tomatoes at Giza street market.
©FAO/Heba Khamis

PART 1
REGIONAL OVERVIEW OF FOOD SECURITY AND NUTRITION INDICATORS

PART 1

REGIONAL OVERVIEW OF FOOD SECURITY AND NUTRITION INDICATORS

The steady decline of hunger in the Arab States since at least 2000 came to an end in 2014. The portion of the population suffering hunger today is the same as it was 10 years ago: 13.2 percent. This stagnation is largely a result of increasing hunger in conflict countries since 2010 but it has also crept up in non–conflict countries since 2015. Apart from hunger, the Arab States face two malnutrition challenges that contribute to disease and death in the region: maternal, infant and young child undernutrition, including micronutrient deficiencies; and unhealthy diets that increase obesity and diet–related NCDs.

This setback has erased many years of progress, as food systems have failed to address hunger, food insecurity and malnutrition and yielded two important nutrition outcomes. The first is evident progress in reducing calorie deficiencies and child malnutrition. Between 2000 and 2014 undernourishment has fallen across most Arab States (see Figure 1 and Table 4). Between 1990 and 2017 there was progress in reducing child malnutrition across the Arab States, most visible in lower stunting rates among children under 5. While recognizing these improvements, it is important to note that about 55 million of nearly 415 million people remain hungry and stunting rates are still high, relative to other regions. The second nutrition outcome is the considerable growth in overweight and obesity rates. The prevalence of overweight children, though moderate, is growing quickly, and adult overweight and obesity is alarmingly high, second only to the WHO Americas region, which includes North America, Latin America and the Caribbean. For adult women, overweight and obesity rates in the Arab States are higher than in any of the WHO regions (Table 11).

Part I of this *Regional Overview* analyses the main indicators of hunger, food insecurity and malnutrition behind SDG Targets 2.1 and 2.2 for the Arab States as outcomes of the food systems in these countries. For SDG Target 2.1, undernourishment and food insecurity according to the food insecurity experience scale (FIES) are examined as indicators of hunger and food insecurity. For SDG 2.2, Part I examines indicators of child anthropometry (stunting, wasting and overweight). Finally, selected indicators for WHA nutrition and NCD targets are considered, including: (1) anaemia among women of reproductive age; (2) exclusive breastfeeding among infants for the first six months; and (3) adult obesity. Part I then looks at the larger demographic of malnutrition to place the SDG indicators in the wider context of mortality and morbidity trends in the Arab States.

The overall conclusion of Part I is that, despite the current negative hunger trend, a result of conflict, the mortality and morbidity costs of child and maternal undernutrition have fallen since the 1990s (Figure 5). However, in comparison to other regions, progress has been slow and child and adult overweight and obesity are growing. If food systems continue with business as usual, the region is not on track to meet SDG 2, particularly for conflict countries, but also for many others.

SDG TARGET 2.1: HUNGER AND FOOD INSECURITY IN ARAB STATES, 2015–2017

The Arab States are a tale of two worlds. On the one hand non–conflict countries have hunger levels just a little over twice as high as the world average for developed countries. On the other, in conflict countries hunger is higher than in the least developed countries (LDCs). Table 2 illustrates this pattern in 2016–2018 where non–conflict countries have undernourishment rates of 5.4 percent, slightly over double the developed world at less than 2.5 percent. At the other extreme are conflict countries where undernourishment has now reached 27.7 percent, even higher than the LDCs. Box 2 explores the two main indicators of hunger and food insecurity more thoroughly.

TABLE 2

HUNGER AND FOOD INSECURITY IN SELECTED SUB-REGIONS OF THE ARAB STATES, 3 YEAR AVERAGES FOR 2016–2018

Country	Prevalence of undernourishment (%)	Prevalence of severe food insecurity (%)	Prevalence of moderate or severe food insecurity (%)	Countries in the category
ARAB STATES				
All Arab States	13.2	10.2	33.3	Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syria, United Arab Emirates, Tunisia, Yemen, Palestine
BY CONFLICT/NON–CONFLICT				
Conflict countries	27.7	n.a.	n.a.	Iraq, Libya, Somalia, Syria, Sudan, Yemen
Non–conflict countries	5.4	8.9	32.1	Algeria, Bahrain, Comoros, Djibouti, Egypt, Jordan, Kuwait, Lebanon, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Tunisia, United Arab Emirates
GLOBAL COMPARISON FOR REGIONS OR CATEGORIES				
Least developed countries	23.6	22.4	52.5	
Developing regions	12.8	10.2	28.9	
Developed regions	<2.5	1.1	8.0	

NOTES: n.a.: data unavailable. The FIES data are not available either because they were not collected or governments did not make them available.
SOURCE: FAO. FAOSTAT, 2019 .

BOX 2

THE TWO MAIN SDG 2 INDICATORS OF HUNGER AND FOOD SECURITY

Sustainable Development Goal 2, Target 2.1 on ending hunger and ensuring food security is measured through two indicators of hunger and food insecurity: the prevalence of undernourishment (PoU) and the prevalence of food insecurity, as measured through the FIES.

SDG Indicator 2.1.1, PoU, is FAO's traditional indicator to monitor global, regional and country–level hunger. This indicator uses aggregate data on food available for human consumption from country food balance sheets and on food consumption from surveys. It compares the distribution of average, daily dietary energy consumption for each country with the distribution of dietary energy needs. These are recalculated each year based on age, gender and physical activity levels. Comparing consumption to needs yields an estimate of the proportion of the population that lacks enough dietary energy for a healthy, active life.

According to the FIES prevalence of food insecurity measures household access or individual food security, based on annual surveys. The indicator is calculated from direct responses to eight questions regarding access to food of adequate quality and quantity. It divides individuals into three classes based on answers to a series of questions about conditions and behaviours regarding food access: (1) food secure or marginally insecure; (2) moderately food insecure; or (3) severely food insecure. The FImod+sev is the cumulative probability of being either moderately or severely food insecure. A separate indicator (FIsev) considers only the severe food insecurity class.

Moderate food insecurity means uncertainty about the ability to obtain food, forcing consumers to reduce the quality or quantity of food during the year, due to lack of money or other resources. It therefore refers to a lack of consistent access to food, diminishing dietary quality with negative consequences for nutrition and health. People facing severe food insecurity are likely to have run out of food, experienced hunger and, in extreme circumstances, have gone for days without eating, gravely risking their health and life.

The 2019 PoU indicator series should not be compared to those published in 2018 as FAO produces a new series every year, often with improvements in methodology and data. An important example of data changes that affect PoU past figures is the world population prospects, revised every two years. The 2018 and 2019 PoU indicator series use the 2017 revision of the world population prospects, while the 2017 PoU indicator series used the 2015 revision of the world population prospects.

SOURCES: FAO–IFAD–UNICEF–WFP–WHO SOFI, 2019.

Table 3 shows that the total number of undernourished in the Arab States, as well as the totals for current conflict and non–conflict countries, have increased over the past 12 years, particularly after 2012/14. Part of the increase is due to population growth among the undernourished and non–undernourished and part to the growth in overall undernourishment.

TABLE 3
NUMBER OF UNDERNOURISHED IN THE ARAB STATES, 2004/06–2016/18 (MILLION)

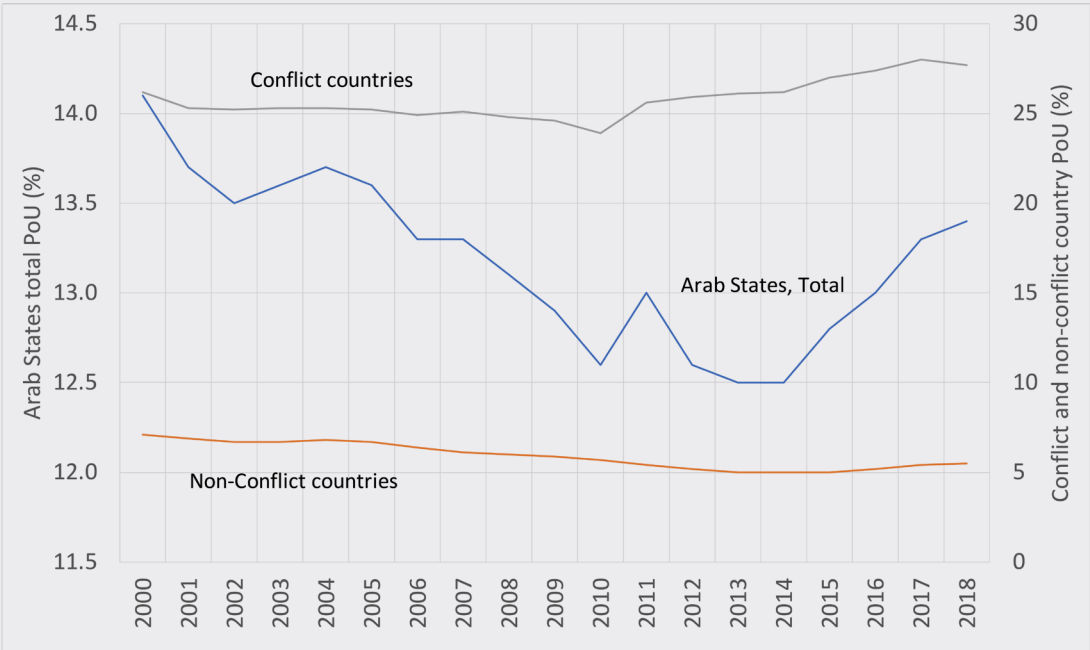
Number of undernourished (million)								
	2004–2006	2006–2008	2008–2010	2010–2012	2012–2014	2014–2016	2015–2017	2016–2018
All Arab States	44.0	45.1	46.0	48.0	47.8	50.8	53.0	54.9
Arab States Sub-regions								
Conflict countries[a]	30.5	31.9	32.9	35.3	35.3	37.8	39.4	40.6
Non–conflict countries[b]	13.5	13.2	13.1	12.7	12.5	13.1	13.6	14.4
Countries								
Algeria	2.9	2.8	2.5	2.0	1.7	1.6	1.6	1.6
Bahrain	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Comoros	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Djibouti	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Egypt	4.2	3.8	3.8	3.8	3.9	4.1	4.2	4.4
Iraq	7.6	8.5	8.5	8.4	9.1	10.2	10.7	11.1
Jordan	0.4	0.4	0.5	0.7	0.9	1.1	1.1	1.2
Kuwait	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	0.1	0.1
Lebanon	0.1	0.1	0.2	0.3	0.5	0.6	0.7	0.7
Libya	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Mauritania	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.5
Morocco	1.7	1.7	1.7	1.6	1.4	1.2	1.2	1.2
Oman	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3
Palestine	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Qatar	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Saudi Arabia	1.9	1.9	2.0	1.8	1.6	1.8	2.0	2.3
Somalia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sudan	—	—	—	—	8.3	7.8	7.9	8.2
Syria	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tunisia	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5
United Arab Emirates	0.2	0.3	0.5	0.5	0.4	0.3	0.3	0.2
Yemen	6.2	6.0	6.0	6.1	7.2	9.3	10.4	11.0

NOTES: n.a.: data unavailable; n.r.: data unreported as prevalence is less than 2.5 percent. There are no data for the number of undernourished for Bahrain, Comoros, Libya, Qatar, Palestine, the Sudan (2004–2012) and Syria. The aggregates include imputed estimates for these countries. a. Libya, the Sudan, Yemen, Somalia, Syria and Iraq;b. Comoros, Djibouti, Mauritania, Morocco, Algeria, Tunisia, Jordan, Lebanon, Palestine, Egypt, Sudan, Oman, United Arab Emirates, Saudi Arabia, Bahrain, Qatar and Kuwait.
SOURCES: FAO FAOSTAT, 2019.

Figure 1 shows that undernourishment in the Arab States fell almost continuously between 2000 and 2014, from 14.1 to 12.5 percent, after which there was an abrupt turnaround. It fell at an average rate of about 0.9 percent per year, a record that helped 15 out of 19 countries to achieve the Millennium Development Goal (MDG) target of halving undernourishment between 1990 and 2015 (FAO RNE, 2015). This reduction was supported by an annual rate of GDP growth per capita of 2.1 percent (World Bank, 2019).

From 2011 the prevalence of undernourishment began to increase in conflict countries, at first only slightly. This only slowed the rate of decrease in the Arab States' total PoU, because reduced numbers of undernourished in non–conflict countries outweighed increases in conflict countries, except for one year, 2011. When the PoU rate of increase in conflict countries rose from 2015, the Arab States' total also began to rise.

FIGURE 1
PREVALENCE OF UNDERNOURISHMENT (POU) IN THE ARAB STATES, 2000–2018



NOTE: The conflict countries aggregate includes the six countries currently in conflict: Libya, Sudan, Yemen, Somalia, Syria and Iraq. The non–conflict aggregate includes the other 17 countries of the Arab States region in the note to Table 3.
SOURCE: FAO FAOSTAT, 2019.

Table 4 shows undernourishment estimates for the region, conflict and non–conflict countries and for individual countries. The aggregates in Table 4 are based on information for only 15 of 22 countries. Data for the conflict countries are particularly sparse with extensive data series for only Iraq and Yemen, a short series for Sudan. There are no data at all for Syria, Somalia or

Libya which are therefore assumed to have a similar level of undernourishment as the average for Iraq and Yemen. Based on data for Iraq and Yemen, the prevalence of undernourishment in conflict countries has been approximately four to five times higher than in non–conflict countries since 2004–2006.[3]

In the past ten years, of the 15 countries for which there are data, undernourishment rose substantially in only Jordan, Lebanon and Yemen. In Iraq, undernourishment fell to 26.6 percent in 2010–2012 and has been rising thereafter, but the ten year trend is actually downwards. In Sudan it fell from 22.5 percent in 2012–2014 to 20.1 percent in 2016–2018.

TABLE 4.
PREVALENCE OF UNDERNOURISHMENT IN THE ARAB STATES AND SUB-REGIONS, 2004/06–2016/18 (%)

	Prevalence of undernourishment (%)							
	2004–2006	2006–2008	2008–2010	2010–2012	2012–2014	2014–2016	2015–2017	2016–2018
All Arab States	13.5	13.2	12.8	12.8	12.5	12.8	13.0	13.2
Arab States Sub-regions								
Conflict countries[a]	25.1	24.9	24.4	25.1	26.1	26.9	27.5	27.7
Non–conflict countries[b]	6.6	6.2	5.9	5.4	5.1	5.1	5.2	5.4
Countries								
Algeria	8.8	8.0	7.0	5.6	4.5	4.0	3.9	3.9
Bahrain	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Comoros	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Djibouti	32.2	25.6	22.9	21.3	19.3	19.0	19.0	18.9
Egypt	5.4	4.8	4.5	4.5	4.4	4.4	4.4	4.5
Iraq	28.2	30.0	28.5	26.6	26.7	28.2	28.8	29.0
Jordan	6.6	7.1	7.9	8.6	10.4	11.6	11.8	12.2
Kuwait	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	2.6	2.8
Lebanon	3.4	3.4	3.8	5.9	9.4	11.1	11.2	11.0
Libya	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Mauritania	12.1	10.2	8.7	7.8	7.1	8.6	9.6	10.4
Morocco	5.7	5.5	5.4	4.9	4.2	3.5	3.4	3.4
Oman	10.5	8.3	6.1	5.3	5.1	5.6	6.1	6.8
Palestine	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Qatar	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Saudi Arabia	7.9	7.7	7.6	6.4	5.4	5.6	6.2	7.1
Somalia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

[3] The aggregates appear only for countries where the data available exceed 50 percent of the population in the aggregation group. For the PoU in conflict countries, the aggregates of Iraq and Yemen (i.e. population–weighted average) represent more than 50 percent of the total population of the conflict group.

Sudan	—	—	—	—	22.5	20.1	19.9	20.1
Syria	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tunisia	5.6	5.4	5.0	4.6	4.5	4.4	4.3	4.3
United Arab Emirates	4.1	5.6	6.0	5.6	4.4	3.1	2.8	2.6
Yemen	30.1	27.6	26.2	25.3	28.2	34.4	37.5	38.9

NOTES: n.a.: not available. There being no data for Bahrain, Comoros, Libya, Qatar, Palestine, Sudan (2004–2012) and Syria, aggregates include imputed estimates for these countries.
a. Libya, Sudan, Yemen, Somalia, Syria and Iraq; b. Comoros, Djibouti, Mauritania, Morocco, Algeria, Tunisia, Jordan, Lebanon, Palestine, Egypt, Sudan, Oman, United Arab Emirates, Saudi Arabia, Bahrain, Qatar and Kuwait.
SOURCES: FAO FAOSTAT, 2019.

FAO developed the FIES to assess food access using information complementary to that of the PoU. The FIES indicator uses survey data to assign a probability of individuals being in one of three classes, based on responses to survey questions: (1) food secure or marginally insecure; (2) moderately food insecure; and (3) severely food insecure. The FImod+sev is the cumulative probability of being in the latter two classes of moderate and severe food insecurity. A separate indicator (FIsev) is computed by considering only the severe food insecurity class (FAO–IFAD–UNICEF–WFP–WHO SOFI, 2019). Severe food insecurity measured using the food insecurity experience scale (FIsev) was not much different from that of undernourishment in 2016–2018 (10.2 vs. 13.2 percent).

Unlike severe food insecurity, which involves experiencing hunger, moderate food insecurity is characterized by anxiety ("worrying about the ability to obtain food") and behaviour such as "compromising on quality and variety or reducing portions, skipping meals". About twice as many people in the Arab States exhibited hunger anxiety and behaved consistently with having limited access to food rather than experiencing hunger (see Table 5, columns on severe and moderate or severe food insecurity). However, in Palestine, the sum of moderate and severe food insecurity was far higher than the average for the entire region in 2016–2018. The difference may underscore the precariousness of food security there.

TABLE 5.
PREVALENCE OF PEOPLE AFFECTED BY FOOD INSECURITY IN THE ARAB STATES AND SUB-REGIONS, 2014/16–2015/17

	Severe		Moderate or severe	
	2014–2016	2016–2018	2014–2016	2016–2018
All Arab States[a]	9.5	10.2	31.5	33.3
Arab States Sub-regions				
Conflict countries	n.a.	n.a.	n.a.	n.a.
Non–conflict countries[b]	8.6	8.9	30.8	32.1
Countries				
Comoros	n.a.	n.a.	n.a.	n.a.
Djibouti	n.a.	n.a.	n.a.	n.a.
Egypt	9.4	10.1	27.6	36.0
Lebanon	n.a.	n.a.	n.a.	n.a.
Oman	n.a.	n.a.	n.a.	n.a.
Palestine	n.a.	4.4	n.a.	26.3
Qatar	n.a.	n.a.	n.a.	n.a.
Somalia	n.a.	n.a.	n.a.	n.a.
Sudan	n.a.	n.a.	n.a.	n.a.
Syria	n.a.	n.a.	n.a.	n.a.
Yemen	n.a.	n.a.	n.a.	n.a.

NOTES: n.a.: not available. The FIES estimates include: a. The aggregate for all Arab States, 13 countries – Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Libya, Mauritania, Morocco, Saudi Arabia, United Arab Emirates, Tunisia, Palestine; b. the aggregate for 11 non–conflict countries: Algeria, Bahrain, Egypt, Jordan, Kuwait, Mauritania, Morocco, Saudi Arabia, United Arab Emirates, Tunisia, Palestine. There are no estimates for six conflict countries.
SOURCE: FAO FAOSTAT, 2019.

SDG TARGET 2.2: MALNUTRITION IN THE ARAB STATES

SDG Target 2.2 seeks to "end all forms of malnutrition, including achieving, by 2025, internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons" (UN SDG, 2015). WHO monitors closely malnutrition indicators among children and pregnant women in the Arab States because poor nutrition during these critical life stages can cause permanent damage to children's health, with repercussions for learning, income earning ability, future disease complications, as well as early death. For the Arab States, three childhood anthropometric malnutrition indicators (stunting, wasting and overweight) and three micronutrient deficiency indicators (vitamin A deficiency, anaemia and insufficient iodine intake) are considered. Box 3 discusses these main indicators of childhood malnutrition.

BOX 3.

DEFINITIONS AND CONSEQUENCES OF THE MAIN ANTHROPOMETRIC INDICATORS AND MICRONUTRIENT DEFICIENCIES FOR CHILDREN

Stunting indicates a failure to achieve one's genetic potential for height (Golden, 2009). A child whose height is more than two standard deviations below the WHO standard is considered stunted (WHO Multicentre Growth Reference Study Group, 2006). The main causes of stunting include intrauterine growth retardation, inadequate nutrition to support the development of infants and young children and frequent infections during early life (Pendergast and Humphrey, 2014). Although a child may not be classified as stunted until 2–3 years of age, the process typically begins in utero. The result, very short height, usually reflects the persistent, cumulative effects of poor nutrition and other deficits that often span several generations. Stunting adversely affects the cognitive and physical growth of children, making for poor performance in school and lower lifetime incomes.

Wasting refers to children who do not gain weight according to their genetic capacity. Defined as low weight for height, according to a WHO reference population, it indicates acute malnutrition and increases the risk of death in childhood from infectious diseases such as diarrhoea, pneumonia and measles.

The prevalence of ***overweight*** in children is defined according to the WHO child growth standards for overweight and obesity in infants and young children up to age 5 (WHO, 2019a; 2019b). The basic cause is an imbalance between calories consumed and expended. The recent global increase in childhood overweight is linked to diet changes with increased intake of highly processed, energy-dense foods high in fat and sugar and the trend towards less physical activity.

Vitamin A deficiency (VAD) is the leading cause of preventable blindness in children and increases the risk of disease and death from severe infections. In pregnant women VAD causes night blindness and may increase the risk of maternal mortality.

Anaemia prevalence is measured as the proportion of under 5 children with haemoglobin (Hb) concentration (<110 g/l) and is a condition that occurs when the red blood cells do not carry enough oxygen to the body tissues. While childhood anaemia often has multifactorial aetiology, the most common cause is low consumption of iron–rich foods, e.g. meat products, legumes and/or inadequate iron absorption. This often leads to iron deficiency, which accounts for most anaemia globally. Anaemia adversely affects the cognitive performance, motor development and physical growth of infants, preschool and school–age children and leads to greater morbidity and mortality (WHO, 2001).

Serious ***iodine deficiency*** during pregnancy can result in stillbirth, spontaneous abortion, and congenital abnormalities such as mental retardation. Moderate iodine deficiency can result in mental impairment, reducing intellectual performance at home, in school and at work.

SOURCE: WHO, 2010c; WHO, 2014.

Table 6 contains the most recent estimates for the six indicators of childhood malnutrition considered and summaries of the public health significance, relying on the accuracy of these data. Not all data are as recent as those on anaemia for 2016. In particular, the vitamin A deficiency data refer to the years 1995–2005 and the median urinary iodine concentration data are for 2007–2015. Thus the estimates in Table 6 are imperfect and the older figures in particular should be viewed in this light.

Stunting for children under 5 has declined globally over the past 15 years. In the UNICEF (United Nations Children's Fund) Middle East and North Africa (MENA) region stunting has been declining since 1990 at 2 percent per year.[4] This is relatively low compared to other regions. In Latin America and the Caribbean and East and South–east Asia stunting fell by 3.9 and 3.3 percent per year over the same period (UNICEF–WHO–WB, 2019). Though stunting in the MENA region declined at a relatively low rate close to the average for all LDCs the greatest annual decline was in Palestine (8.3 percent), Saudi Arabia (7.3 percent), Jordan (4.2 percent) and Morocco (3.6 percent).

Overweight rates for children under 5, on the other hand, increased all over the world with the sole exception of sub–Saharan Africa. Among the Arab States, estimates show the largest annual increases in overweight were in the high income Gulf Cooperation Council (GCC) countries: Saudi Arabia (15.9 percent), Oman (7.7 percent) and middle income countries, such as Tunisia, Egypt, Iraq, Libya, Algeria and Syria.[5] An exception is Comoros, which, despite being low income, had an increase in overweight children between 1996 and 2012 of 4.4 percent per year. The countries with thegreatest annual decreases of overweight in under 5s were Mauritania (–6.4 percent), Yemen (–5.3 percent), Palestine (–4.7 percent) and Sudan (–4.2 percent), all low or lower middle income countries.

Table 6 shows the latest information on stunting and overweight for children under 5, as well as anaemia, vitamin A deficiency and iodine nutrition. The public health significance of childhood malnutrition can be assessed by comparing prevalence to internationally agreed cut–offs (Table 7).

To summarize the trends in Table 6, for all anthropometric and micronutrient deficiency indicators, the prevalence, level and public health significance are worse for conflict countries, with the exception of childhood overweight. These results are consistent with the undernourishment data in Table 4. Chronic food insecurity, as indicated by undernourishment, drives higher rates of stunting and wasting, as well as micronutrient deficiencies.

Based on the WHO classification of malnutrition severity as a public health problem, the Arab States have high levels of stunting and medium levels of overweight in children under 5. For anaemia and vitamin A deficiency, the Arab States present a severe public health problem.[6] However, the outdated figures make it impossible to assess public health concern about vitamin A deficiency considering the fact that some Arab States (Jordan, Mauritania, Morocco, Palestine, Yemen) began to fortify staples such as cereals and oil with vitamin A in early 2000, which may improve vitamin A status of the population. The iodine intake for school–age children in the region is adequate, except for a handful of countries, Algeria, Morocco, Lebanon and Sudan, where it is insufficient, as indicated by a median UI below 100 µg/l. Most middle income Arab States exhibit traits of being caught in a "double burden" of malnutrition with high levels of stunting *and* overweight.

[4] The UNICEF MENA region is similar to the Arab States, though there are some differences between the two: it includes the Arab States and Iran but not Comoros and Somalia.
[5] These countries were high and middle income during the end year, though some of them were classified differently before and after that year.
[6] Iron deficiency anaemia accounts for most of the anaemia in developing environments. However, there may be other causes, including haemolysis occurring with malaria, glucose–6–phosphate dehydrogenase deficiency, congenital hereditary defects in haemoglobin synthesis and others caused by deficits in various nutrients (WHO, 2001).

TABLE 6.
CHILDREN'S ANTHROPOMETRIC STATUS AND MICRONUTRIENT DEFICIENCY ESTIMATES FOR ARAB STATES

Country	Anthropometric status				Micronutrient deficiencies		
	Children, 0–5, prevalence, latest year data			Survey Year	Children, 0–5, prevalence, latest year data		School–aged children, latest year, 2007–2015
	Stunting (%)	Wasting (%)	Overweight (%)		Anaemia, 2016 (%)	Vitamin A deficiency, 1995–2005 (%)	Median urinary iodine concentration (µg/l)
Total Arab States	21.1	8.7	9.1	2012	40.1	22.3	138.3
Sub-regions							
Conflict countries	32.5	13.0	7.5	2012	50.0	28.8	148.6
Non–conflict countries	16.8	7.3	12.2	2012	32.9	16.9	133.4
Arab States low income	35.3	14.5	7.4	2011	63.4	30.5	226.8
Arab States lower middle income	24.5	10.0	11.1	2014	39.2	22.4	128.7
Arab States upper middle income	16.5	5.2	11.9	2011	27.2	21.3	67.1
Arab States high income	9.5	10.4	6.0	2007	35.3	3.8	146.9
Countries							
Algeria	11.7	4.1	12.4	2012	30.0	15.7	27*
Bahrain	13.6	6.6		1995	30.1		247
Comoros	31.1	11.3	10.6	2012	48.1	21.5	
Djibouti	33.5	21.6	8.1	2012	42.0	35.2	335
Egypt	22.3	9.5	15.7	2014	31.7	11.9	170
Iraq	22.1	6.5	11.4	2011	24.1	29.8	
Jordan	7.8	2.4	4.7	2012	31.1	15.1	203
Kuwait	4.9	3.1	6.0	2015	25.3		130
Lebanon	16.5	6.6	16.7	2004	25.0	11.0	66
Libya	21.0	6.5	22.4	2007	28.8	8.0	
Mauritania	27.9	14.8	1.3	2015	67.9	47.7	179
Morocco	14.9	2.3	10.7	2011	34.0	40.4	69*
Oman	14.1	7.5	4.4	2014	38.4	5.5	191
Palestine	7.4	1.2	8.2	2014			
Qatar	11.6	2.1	10.4	1995	26.3		341

Saudi Arabia	9.3	11.8	6.1	2005	37.8	3.6	133
Somalia	25.3	15.0	3.0	2009	55.8	61.7	417
Sudan	38.2	16.8	3.0	2014	57.2	27.8	66
Syria	27.6	11.5	17.9	2009	34.9	12.1	
Tunisia	10.1	3.3	14.2	2012	28.8	14.6	220
United Arab Emirates					27.2		162
Yemen	46.4	16.4	2.5	2013	83.5	27	122

SOURCES: Anthropometry from UNICEF–WHO–WB, 2019; anaemia in children, 0–5 years old from WHO Global Health, 2019; vitamin A deficiency in children 0–5 years old from WHO, 2009; iodine concentration in school–age children from Iodine Global Network, 2019. *Data before 2000.

TABLE 7.
PUBLIC HEALTH SIGNIFICANCE OF ANTHROPOMETRY MEASUREMENTS AND MICRONUTRIENT DEFICIENCIES IN CHILDREN

Indicator	Prevalence cut–off values for public health significance		Indicator	Degrees of public health significance	
Stunting (0–5 years)	<2.5 2.5–<10 10–<20 20–<30 >=30	Very low Low Medium High Very high	Anaemia (0–5 years) prevalence (blood haemoglobin concentration<110 g/L)	< 5 5–20 20–40 >=40	Normal Mild Moderate Severe
Wasting (0–5 years)	<2.5 2.5–<5 5–<10 10–<15 >=15	Very low Low Medium High Very high	Vitamin A deficiency (6–71 month) prevalence (serum retinol concentration <0.70 µmol/l)	2–9 10–19 20+	Mild Moderate Severe
Overweight (0–5 years)	<2.5 2.5–<5 5–<10 10–<15 >=15	Very low Low Medium High Very high	Iodine status (school–age children) (median urinary iodine concentrations (µg/L))	0–99 100–299 300+	Insufficient Adequate Excessive

SOURCE: UNICEF–WHO–WB, 2019; WHO, 2010; WHO, 2011; WHO, 1996.

BEYOND SDG 2: NUTRITION AND NCD TARGETS AGREED BY THE WORLD HEALTH ASSEMBLY

Child and maternal nutrition in the Arab countries

Child and maternal malnutrition are recognized worldwide as major risk factors of death and disease. In 2012 the WHA targets for six indicators (stunting, anemia, low birth weight, childhood overweight, breastfeeding and wasting) to improve child and maternal malnutrition by 2025 (Table 8). Half of Arab States have high or very high levels of stunting, about 40 percent of countries have a high level of wasting and 50 percent a high level of overweight in children under 5 (Tables 6 and 7). Every country in the region has either moderate or severe rates of anaemia in women of reproductive age (Table 9). The data show severe anaemia rates in two low income countries, Somalia and Yemen and two high income countries, Bahrain and Saudi Arabia. All other countries of the region have a moderate public health problem where anaemia estimates mostly exceed 30 percent (Algeria, Djibouti, Jordan, Lebanon, Libya, Mauritania, Morocco, Oman, Sudan, Syria and Tunisia). Anaemia during pregnancy is a known risk factor for maternal and foetal complications, which can lead to death or morbidity of the mother and infant.

TABLE 8.
MATERNAL, INFANT AND YOUNG CHILD NUTRITION: GLOBAL NUTRITION TARGETS SET BY THE 2012 WHA RESOLUTION 65.6

Indicator	Target (2025)
1.Stunting	40% reduction in the number of children under 5 who are stunted
2.Anaemia	50% anaemia reduction in women of reproductive age
3.Low birth weight	30% reduction in low birth weight
4.Childhood overweight	No increase in childhood overweight
5.Breastfeeding	Increase the rate of exclusive breastfeeding in the first 6 months by at least 50%
6.Wasting	Reduce and maintain childhood wasting to less than 5%

SOURCE: WHO, Global Targets, 2019.

TABLE 9.
MATERNAL AND INFANT NUTRITION INDICATORS FOR THE ARAB STATES (LATEST ESTIMATES)

	Indicators of maternal and infant nutrition		
Country	Prevalence of anaemia among women of reproductive age (15–49), 2016	Exclusive breastfeeding among infants for first six months (% of children, 0–6 months)	Survey year (breastfeeding)
Total Arab States	35.1	31.0	2012
Subregions			
Conflict countries	39.7	28.9	2012
Non–conflict countries	33.4	32.8	2013
Low income	52.7	17.7	2011
Lower middle income	31.8	40.2	2014
Upper middle income	32.8	22.2	2012
High income	38.4	32.0	2014
Countries			
Algeria	35.7	25.4	2012
Bahrain	42.0		
Comoros	29.3	11.4	2012
Djibouti	32.7	12.4	2012
Egypt	28.5	39.5	2014
Iraq	29.1	19.4	2011
Jordan	34.7	22.7	2012
Kuwait	23.8		
Lebanon	31.2		
Libya	32.5		
Mauritania	37.2	41.4	2015
Morocco	36.9	27.8	2011
Oman	38.2	32.8	2014
Palestine		38.1	2014
Qatar	27.7	29.3	2012
Saudi Arabia	42.9		
Somalia	44.4	5.3	2009
Sudan	30.7	54.6	2014
Syria	33.6	42.6	2009

Tunisia	31.2	8.5	2012
United Arab Emirates	27.8		
Yemen	69.6	9.7	2013

SOURCES: UNPD, 2019 (population data); WHO Global Targets, 2019 (anaemia and breastfeeding).

Table 9 also illustrates that less than one–third of mothers in the Arab States exclusively breastfed their infants for the first 6 months. Some of the poorest countries have the lowest rates of exclusive breastfeeding (Table 9).

The WHO Global Targets 2025 Tracking Tool (2019) tracks implementation of targets in most Arab States. There are ample data for the anaemia indicator but no country is on track to reduce anaemia rates by 50 percent by 2025. Among the seven countries with child overweight data (Egypt, Kuwait, Mauritania, Oman, Palestine, Sudan and Yemen), only Egypt and Kuwait are on track. For child wasting, only one state out of the seven where data are available, Palestine, is on track.

Non–communicable diseases in the Arab States

NCDs have become major public health problems in high income and some middle income countries in the Arab region. With the alarming global increase in NCDs, the WHA endorsed a Global Action Plan for the Prevention and Control of NCDs 2013–2020, providing policy options for countries to achieve a 25 percent reduction in NCD premature mortality by 2025 (Table 10) between 2013 and 2020.

TABLE 10.
NCD GLOBAL TARGETS SET BY THE 2013 WHA RESOLUTION A66.10

Framework element	Target (2020)
Outcome	
Premature mortality from NCDs	1. A 25% relative reduction in overall mortality from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases
Behavioural risk factors	
Harmful use of alcohol	2. At least 10% relative reduction in the harmful use of alcohol, as appropriate, within the national context
Physical inactivity	3. A 10% relative reduction in prevalence of insufficient physical activity
Salt/sodium intake	4. A 30% relative reduction in mean population intake of salt/sodium
Tobacco use	5. A 30% relative reduction in current tobacco use
Biological risk factors	
Raised blood pressure	6. A 25% relative reduction in the prevalence of raised blood pressure or contain the prevalence of raised blood pressure, according to national circumstances
Diabetes and obesity	7. Halt the rise in diabetes and obesity

National Health Systems Response	
Drug therapy to prevent heart attacks and strokes	8. At least 50% of eligible people receive drug therapy and counselling, including glycaemic control, to prevent heart attacks and strokes
Essential NCD medicines and basic technologies to treat major NCDs	9. An 80% availability of the affordable basic technologies and essential medicines, including generics, required to treat major NCDs in both public and private facilities

SOURCE: WHO, 2013.

The WHA global action plan on NCDs is particularly relevant to the Arab States. More than half of all deaths in the Middle East in 2012 were attributable to NCDs and several countries have the highest rates of diabetes, obesity and inactivity worldwide.[7]

With overweight and obesity being high NCD risk factors, 2016 statistics (Table 11) are alarming. The Arab States had the second highest prevalence of overweight and obesity in the world, after North America, Central America and South America. Furthermore, women in the Arab States are far more likely to be overweight or obese than in any other region. Of 20 countries with the highest obesity levels in 2016, 10 are from Oceania, 8 from the Arab States, one from Western Asia (Turkey) and one from the Americas (the United States of America) [WHO, 2019c]. Box 4 describes in more detail how to measure overweight and obesity.

BOX4.
WHO DEFINITIONS AND MEASUREMENT OF OVERWEIGHT AND OBESITY

WHO defines overweight and obesity as ''abnormal or excessive fat accumulation that presents a risk to health''. In classifying overweight and obesity, age needs to be considered for children and adolescents because they undergo a number of physiological changes as they grow. The body mass index (BMI) is a common anthropometric indicator of overweight and obesity, calculated using the formula: weight (kg) divided by height squared (m^2).

For children aged 0–5 years, the WHO child growth standards identify the extent of overweight in individuals and populations, defining overweight as a weight for height >+2 standard deviations above the WHO Child Growth Standards median (WHO Multicentre Growth Reference Study Group, 2006).

For children and adolescents aged 5–19 years, overweight is defined as a BMI for age >+1 standard deviation above the WHO Growth Reference median and obesity as a BMI for age >+2 standard deviations above the WHO Growth Reference median.

For adults (of either sex), the following BMI classification is used:

Underweight: <18.5

Normal range: 18.5–24.9

Overweight: ≥25

Obese: ≥30

SOURCE: WHO, 2019b.

[7] WHO EMRO, 2019a.

The position of the Arab States as the second most obese region in the world illustrates that overweight and obesity are not confined to the developed world but present in both developed and developing countries. A *Lancet* series on obesity in 2014 found that nearly two–thirds of the overweight and obese were in developing countries (Ng *et al.*, 2014). A look at the Arab States' sub-regions arrayed by per capita income in Table 11 along with the data illustrated in Figure 4 suggest that overweight and obesity are positively associated with increasing per capita income. In fact, overweight and obesity rise logarithmically as GDP per capita increases (Figure 2). The countries with the lowest rates of overweight and obesity are all low or lower middle income countries (Comoros, Somalia, Mauritania, Djibouti and Yemen). However, overweight and obesity rates in middle income countries such as Jordan, Iraq, Lebanon, Libya, Tunisia and Syria are nearly as high as high income countries such as Kuwait, Qatar and Saudi Arabia. After an initial jump in overweight and obesity, the rise is much more gradual as income per capita increases.

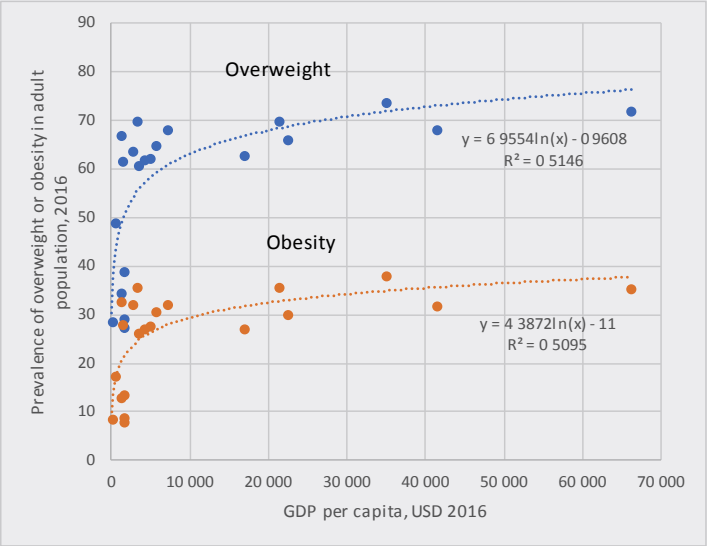
TABLE 11.
PREVALENCE OF ADULT OVERWEIGHT AND OBESITY IN THE ARAB STATES, COMPARATOR REGIONS AND THE ARAB STATES' SUB-REGIONS, 2016

	Prevalence of overweight in adults (%)			Prevalence of obesity in adults (%)		
Country	both sexes	males	females	both sexes	males	females
Total Arab States	61.7	57.8	65.6	27.0	20.6	33.6
Comparator WHO regions						
Americas	62.5	64.1	60.9	28.6	25.9	31.0
Europe	58.7	63.1	54.3	23.3	21.9	24.5
(WHO) Global	38.9	38.5	39.2	13.1	11.1	15.1
Africa	31.1	22.8	38.8	10.6	5.6	15.3
Western Pacific	31.7	33.7	29.6	6.4	6.0	6.7
South–East Asia	21.9	19.7	24.1	4.7	3.3	6.1
Arab States' Sub-regions						
Low income	48.2	43.0	53.2	18.5	13.0	23.9
Lower middle income	61.7	56.0	66.9	25.6	17.9	32.8
Upper middle income	64.3	60.7	67.8	29.8	22.7	36.8
High income	69.0	67.5	71.5	34.0	29.5	41.7
Arab States						
Algeria	62.0	57.8	66.1	27.4	19.9	34.9
Bahrain	65.8	64.0	68.5	29.8	25.5	36.8

Comoros	27.1	18.2	35.7	7.8	3.3	12.2
Djibouti	38.6	32.3	44.6	13.5	8.6	18.3
Egypt	63.5	57.2	69.5	32	22.7	41.1
Iraq	64.6	61.0	68.0	30.4	23.4	37
Jordan	69.6	67.0	72.2	35.5	28.2	43.1
Kuwait	73.4	72.4	75.1	37.9	33.3	45.6
Lebanon	67.9	66.9	69.1	32	27.4	37
Libya	66.8	63.4	70.0	32.5	25	39.6
Mauritania	34.4	26.0	42.3	12.7	6.6	18.5
Morocco	60.4	56.4	64.0	26.1	19.4	32.2
Oman	62.6	60.6	65.7	27	22.9	33.7
Palestine						
Qatar	71.7	71.0	73.3	33.9	31.9	41.8
Saudi Arabia	69.7	68.3	71.8	35.4	30.8	42.3
Somalia	28.4	20.3	35.9	8.3	3.9	12.3
Sudan	28.9	19.7	36.1	8.6	3.8	12.4
Syria	61.4	57.3	65.4	27.8	20.9	34.8
Tunisia	61.6	57.1	65.8	26.9	19.1	34.3
United Arab Emirates	67.8	66.3	71.1	31.7	27.5	41
Yemen	48.8	44.1	53.3	17.1	12	22

SOURCE: WHO, 2019c.

FIGURE 2.
PREVALENCE OF ADULT OVERWEIGHT AND OBESITY AND GDP PER CAPITA IN ARAB STATES, 2016



SOURCE: Data for overweight and obesity are based on WHO. 2019. Global Health Observatory (GHO) data repository. In: World Health Organization [online]; Geneva, Switzerland. http://apps.who.int/gho/data/node.main.A900A?lang=en Data on GDP are from World Bank. 2019. World Development Indicators. In: World Bank DataBank [online]. Washington, DC. https://databank.worldbank.org.

The steep slope of the logarithmic trendline in Figure 2 shows the rapid growth in obesity rates as per capita income rises for low income countries. With obesity rates rising steadily since 1990, halting that increase in the Arab States will require extensive changes in the food system to deliver healthy and sustainable diets. The WHA global target to halt these trends is highly ambitious. WHO obesity data between 2012 and 2016 show that none of the Arab States are on track to keep obesity constant. In every country of the region for which WHO has data, prevalence for males, females and both sexes rose between 2012 and 2016 (WHO, 2019c).

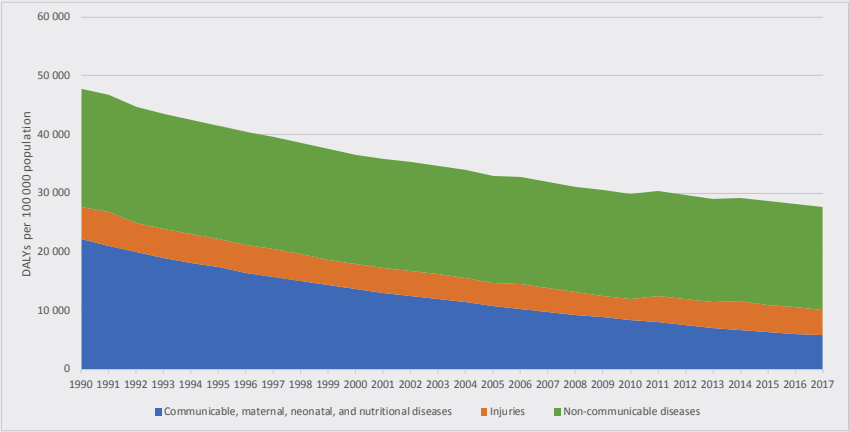
MALNUTRITION, MORTALITY AND MORBIDITY IN THE ARAB STATES

Hunger and malnutrition are important risk factors for premature death and disability. The WHO and the Institute for Health Metrics and Evaluation publish country level measures of overall disease burden in the form of disability adjusted life years (DALYs). The DALY of a specific disease or injury is the number of life years lost due to ill health, disability or early death from disease or injury (WHO, 2019d). Diseases or injuries are broadly divided into three categories: (a) communicable, maternal, neonatal, and nutritional diseases; (b) NCDs;

and (c) injuries. The burden of premature death from these different diseases can be calculated by summing up the DALYs from each individual disease. To compare the relative burden between countries, the DALYs figure is cited per 100 000 population.

Figure 3 indicates that between 1990 and 2017 there was a significant change in the causes of death and disability in the Arab States. Mortality from communicable, maternal, neonatal, and nutritional diseases has fallen dramatically, while that from NCDs has remained constant. These positive changes are associated with increased food supplies and distribution, better nutrition, improvements in medical and public health technology (such as immunizations and antibiotics), improved sanitation and personal hygiene and safer water supplies, which have curtailed the spread of many infectious diseases (UNICEF–WHO, 2019; GBD 2015 Healthcare access and quality collaborators, 2017).

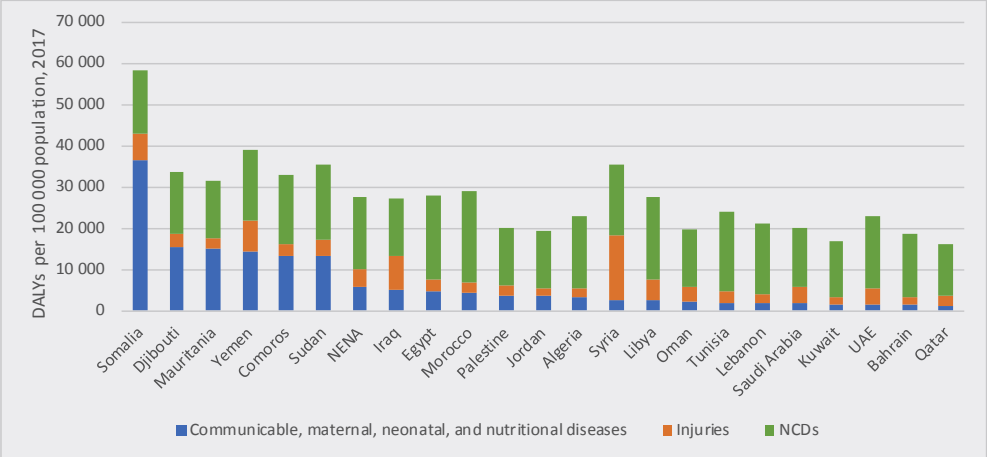
FIGURE 3.
PREMATURE DEATH AND DISABILITY BY CAUSE IN THE ARAB STATES, 1990–2017 (DALYS PER 100 000 POPULATION)



SOURCE: Calculated from data in IHME GBD, 2019.

However, the positive changes evident in Figure 3 are not distributed evenly throughout the Arab States. Six of the 22 countries still have a relatively high level of communicable, maternal, neonatal and nutritional diseases (Figure 4). These six countries, Somalia, Djibouti, Mauritania, Yemen, Comoros and Sudan, also have some of the highest rates of hunger and child undernutrition.

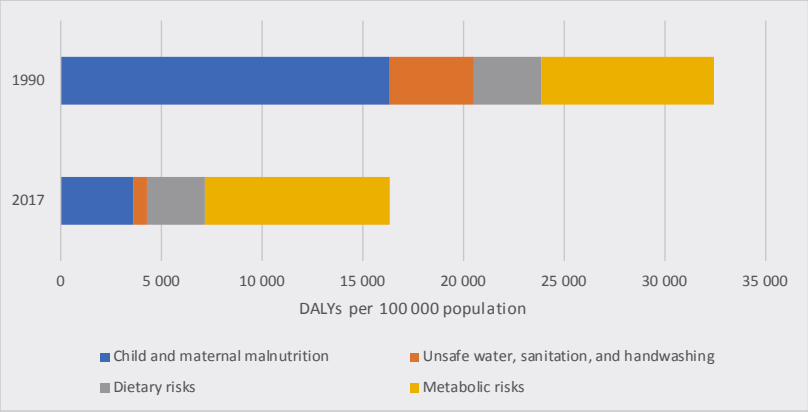
FIGURE 4.
PREMATURE DEATH AND DISABILITY BY CAUSE IN THE ARAB STATES, 2017 (DALYS PER 100 000 POPULATION)



SOURCE: IHME GBD, 2019.

Each cause of death is associated with various risk factors, conditions that are linked in epidemiological studies with diseases. Figure 5 indicates how the costs of death and disability by risk factors have changed between 1990 and 2017. Those that have fallen are associated with child and maternal malnutrition and unsafe water and sanitation. The costs of premature death and disability from these have fallen dramatically, while the costs from an unsatisfactory diet and metabolic factors, such as high BMI, high fasting plasma glucose, high LDL (low density lipoprotein) cholesterol and high systolic blood pressure, have remained more or less constant.

FIGURE 5.
THE COSTS OF PREMATURE DEATH AND DISABILITY FROM SELECTED RISK FACTORS IN THE ARAB STATES, 1990 AND 2017



SOURCE: Calculated from data in IHME GBD, 2019.

The change in the Arab States described here is profound. No longer are child and maternal malnutrition, unsafe water, inadequate sanitation and handwashing the threats to life they once were. Instead, the predominant risk factors are now dietary and metabolic.

SUMMARY

Part I of this *Overview* has argued that in the past 2–3 decades food systems in the Arab States have delivered two important but different nutrition outcomes. The first has been progress in reducing caloric deficiencies and child undernutrition. Between 2000 and 2014, prevalence of undernourishment declined steadily across most Arab States (Figure 1). Moreover, between 1990 and 2017, progress in reducing maternal and child malnutrition is seen in falling stunting rates and low rates of iodine deficiency across the Arab States (Table 6).[8] Though the decline in child wasting has not been as robust as stunting, there is little doubt that the non–conflict countries of the region have seen improvements in hunger and undernutrition since the 1990s. These changes have been part of a region–wide fall in mortality and morbidity rates from communicable, maternal, neonatal, and nutritional diseases (Figure 3).

The recent improvements in hunger and undernutrition in the Arab States, largely due to successes in food systems, are not without caveats. Ten percent of the adult population of the region still suffers from severe food insecurity and a third of the adult population faces such uncertain access to food during the year that they had to reduce the quality or quantity of food consumed (Table 2). Furthermore, children under 5 in Arab States still have a high level of stunting, and there is a severe public health problem related to anaemia among this population (Table 6). Despite progress in reducing undernutrition, death and disability from NCDs in the region have not declined as overweight and obesity rates have increased. For adult women, overweight and obesity rates in the Arab States are higher than in any of the WHO regions (Table 11). Finally, the long decline in the prevalence of undernourishment in the region stopped in 2014, to be followed by a gradual increase which has affected both conflict and non–conflict countries.

[8] Between 1996 and 2010 stunting rates in West Asia and North Africa fell by 2 percent per year (UNICEF–WHO–WB, 2019).

SYRIA
A woman prepares sorghum for her family in front of her home.
©FAO/Stefanie Glinski

PART 2
FOOD SECURITY AND NUTRITION POLICIES FOR ACHIEVING SDG 2 TARGETS

PART 2

FOOD SECURITY AND NUTRITION POLICIES FOR ACHIEVING SDG 2 TARGETS

Hunger continues to affect 55 million people in the Arab States, while 73 million adults in the region are obese and 168 million are overweight (Tables 3, 11). Among the most vulnerable to death and disease resulting from undernutrition are children. It is no coincidence, therefore, that food policies in the Arab States seek to transform food systems to address three factors: hunger, child and maternal undernutrition and overweight and obesity.

Governments in the Arab States have adopted many policies to address these challenges to shape food supply chains and food environments and consumer behaviour. Instead of a complete listing of these interventions, Part II explores a small number of well established policies for which data are available to assess their effectiveness. Assessing effectiveness is a critical part of understanding what further steps are needed to reshape food systems in the Arab States to ensure they deliver "sufficient, safe, affordable and nutritious" food. The discussion of policies and their effectiveness is divided into three parts: (1) Policies to address caloric deficiencies; (2) policies to address child and maternal undernutrition; and (3) policies to address overweight, obesity and NCDs. Each section reviews policies and case studies from countries in the region with an assessment of their success in affecting outcomes.

POLICIES TO ADDRESS CALORIC DEFICIENCIES (HUNGER AND FOOD INSECURITY)

Policies to address caloric deficiencies have long been a focus of policymakers in the Arab States region. The main policies to address hunger are risk management strategies for food security, domestic cereal production, food subsidies and social protection. Of these four, the first two seek to increase food security by reducing the hazard of unstable supplies, while the second two aim to reduce hunger.

The 2018 *Near East and North Africa Overview of Food Security and Nutrition* (FAO RNE, 2019) reviewed the first of these four well established policies believed to prevent hunger in the region. To summarize the discussion from that publication, *import risk management policies* are designed to reduce the risk of abrupt consumer price rises for staples in the event of sharply rising import prices (or shortages) when international harvest failures occur, accompanied by export restrictions. The most widespread arrangements in the region, found in low, middle and high income countries alike, are public stockholding programmes. These are a reasonable insurance policy against the pass through of import price hazard, considering the region's extremely high food import dependency. If sizeable cereal stocks decrease the likelihood that the Arab States will act unpredictably to increase demand when prices rise sharply, then they have probably already fulfilled part of their purpose.

Domestic cereal production policies

The most ambitious food security programmes in the region are to provide domestic production of cereals. About 59 percent of the harvested area in the Arab States was planted with cereals in 2017 (FAOSTAT, 2019). Several Arab States' governments encourage wheat production by offering domestic producers higher prices to than the cost of imported wheat and using state trading enterprises, high import tariffs, state procurement and input subsidies (FAO RNE, 2019). Statistically, the lower income per capita countries focus on cereal cultivation, while the richer ones focus on horticultural crops.[9] For example, the countries with the highest focus on cereals were Yemen, Morocco, Iraq and Mauritania, while those with the greatest focus on horticultural crops were Bahrain, United Arab Emirates, Qatar, Oman and Kuwait.

If the purpose of domestic cereal production policies is to ensure a more stable food supply than can be had from imports, then they seem ill–conceived. Droughts and climate change, to which the Arab States are particularly vulnerable, can result in more unstable supplies than sourcing food on international markets from geographically diverse growing regions. A more effective policy for reducing supply risk may be the public stockholding policies pursued by the GCC countries and others (cf. above).

Domestic wheat cultivation that is more costly than imported wheat comes at a price. It is not primarily the direct budget costs, an avoidable fiscal burden for the state. The main costs are in foregone farm income (ultimately, GDP) in producing crops and livestock for which the region has no comparative advantage. Arab States are generally well endowed with labour, except those in the GCC but have relatively scarce supplies of cultivable land and water. It is therefore to be expected they would have a comparative advantage in the production of crops and livestock products that are least intensive in land and water and more intensive in labour. Cereals and oilseeds require a great deal of land and water under the agroclimatic conditions of most Arab States. Horticultural crops, on the other hand, are labour–intensive, with economic use of water (revenue per square metre of water used in producing the crop) and land (revenue per square ha) that are much higher than those for cereals and oilseeds (Elbehri and Sadiddin, 2016). An agricultural policy that supports production of horticultural crops is more consistent with more efficient use of water (Santos and Ceccacci, 2015).

Policies that encourage wheat production in countries that hold a comparative advantage in horticultural products can also mean lost export opportunities. The export potential indicator (EPI) of the International Trade Centre, a joint development agency of the World Trade Organization and the UN, estimates the value of potential exports for which the exporting country is internationally competitive and which have good prospects of export success in a target market. The EPI identifies the potential export value, (within five years, for an exporter of a given product and target market based on an economic model combining the exporter's supply with the target market's demand and market

[9] The Pearson correlation coefficient between GDP per capita in 2010 USD and the portion of area harvested in cereals in 2017 was –0.55, while that of GDP per capita in 2010 USD and the portion of area harvested in horticultural crops was +0.55. Both correlations were significant at the 0.05 level.

access (tariff) conditions.[10] According to the EPI of the International Trade Centre, in 2017, countries such as Egypt, Morocco, Jordan and Tunisia had unexploited agriculture–related export opportunities of between USD 2 and 8 billion, enough to fully or almost fully cover the agricultural deficits in these countries (ITC, 2019).

In summary, agricultural policies encouraging domestic production of low value–added wheat, though successful in reducing dependency on wheat imports, reduce farm incomes and agricultural exports below the level they would be in the absence of such policies. According to estimates of the EPI of the International Trade Centre, an alternative policy to encourage horticultural crop exports could achieve a similar or even greater reduction in agricultural deficits while raising farmers' incomes. Given these facts, governments in the region may wish to consider gradually phasing out wheat support policies, replacing them with policies to assist farms produce and market horticultural crops. Many producers in the region are already successful in this in the high value markets of the GCC and the European Union (EU). Policies to exploit the region's comparative advantage could conceivably both save water and increase farm incomes.

Food subsidies and targeted social protection policies in the Arab States

Governments in the Arab States also provide subsidies to consumers either through general subsidies for staples, including wheat flour and bread, or targeted subsidies through social protection programmes (Box 5). Generalized food subsidies and price controls are long–standing policies in the region introduced from the 1940s through the 1970s (Verme and Araar, 2017). Social protection programmes are a more recent phenomenon, funded primarily by donors and administered by governments, international organizations or non–governmental organizations. There are many types of social protection interventions with food security and nutrition objectives that cover all the countries in the region. They range from anti–poverty programmes, such as the National Poverty Targeted Programme in Lebanon funded by the World Bank (Socialprotection.org, 2019), to school feeding programmes of the World Food Programme (WFP, 2017a), to cash–based or voucher–based programmes for children funded by governments and donors (Machado *et al.*, 2018), to donor–supported programmes for poverty alleviation involving self–employment and micro–enterprise employment (UNDP, 2019), and many others (IPC–IG, 2017). There are important efforts to align humanitarian assistance for food security and nutrition in the region to existing national social protection systems, particularly in Syria and Yemen (R–UNDG WGSP, 2018; Al–Ahmadi and De Silva, 2018). Though social assistance programmes are quite widespread in the region, they still remain primarily donor–driven efforts, rather than core government programmes.

As hunger reduction programmes, generalized food subsidies lower the price of staples, thus reducing the cost per calorie of food for the poor and rich alike. They also tend to create excess demand and food waste, so that staples sold at controlled prices are rationed. For example, low prices (about USD 0.01 per loaf, roughly one–tenth of the cost) for *Baladi* bread in Egypt are a mainstay of the domestic food subsidy programme (USDA FAS, 2017a), but each beneficiary is allowed only 150 loaves of bread per month at this price (USDA FAS, 2018a). In Iraq, the state–run public distribution system provides rationed wheat flour, rice, vegetable oil and sugar to citizens. In 2010–2011, 71 percent of Iraqi households received wheat products through this system and 64 percent received rice (Iraq Knowledge Network, 2011).

[10] Decreux and Spies (2016) describe the full methodology underlying the ITC export potential indicator.

BOX5

SOCIAL PROTECTION IN THE ARAB STATES

Arab States inherited formal social protection programmes established by former colonial powers: pension systems for government and formal sector workers. These are both highly subsidized and regressive, as they exclude large segments of the population engaged in the informal sector and in rural areas. Based on data ranging from 2008 to 2016, the World Bank calculated that 39.2 percent of the population of the World Bank MENA region receives no transfer payments at all and only 6.3 percent of the poorest 20 percent of the population receive social assistance payments (WB–ASPIRE, 2019). Perhaps partly because of the regressive nature of social protection in the region, universal fuel and staple food subsidies were assigned a social protection function. However, neither universal subsidies nor existing social protection systems have been targeted at those most in need. Thus, from the point of view of poverty and hunger alleviation they are tremendously inefficient (IPC–IG, 2017).

As governments in the region have moved towards phasing out universal subsidies to reduce budget entitlements, they have introduced a plethora of social protection programmes. A recent survey of non–contributory social protection programmes in the region recorded 117 programmes in 20 countries (Machado *et al.*, 2018). However, only a small proportion of the revenues once allocated to subsidies has effectively been diverted into targeted social protection (IPC–IG, 2017).

According to a recent mapping of non–contributory social protection programmes in the Arab States, ***unconditional cash transfer*** programmes are the most prominent form, present in all 19 of the Arab States surveyed. ***Subsidies*** for fuel and food are the next most prevalent programmes, followed by ***unconditional in kind transfers***. Most cash transfer schemes are unconditional (63), only 13 are conditional, mostly tied to children's school enrolment or attendance (IPC–IG, 2017).

Low income countries tend to have unconditional or conditional cash transfers, as well as cash for work programmes, phasing out subsidies. All types of non–contributory social protection programmes can be found in middle income countries, though cash transfers, subsidies and school feeding seem to be most common. The most common programmes in high income countries of the region are unconditional cash transfers, subsidies and housing programmes (IPC–IG, 2017).

Most programmes target poor households, generally identified through means testing. Children are the second most popular group to target. Women, people with disabilities and orphans are the predominant targets after the first two groups (IPC–IG, 2017).

The most prevalent targeting method is by category. This is most commonly used to identify families without a male breadwinner, such as those with widows or single mothers. Means testing is the second most popular means of targeting and geographiccal targeting the third most common, used for school feeding programmes in rural areas (IPC–IG, 2017).

SOURCES: IPC–IG, 2017; World Bank, 2019; Silva et *al.*, 2012; WB–ASPIRE, 2019; and Machado et *al.*, 2018.

Universal food subsidies create a sizeable fiscal burden, which is why they are being replaced by targeted assistance policies over much of the region (Verme and Araar, 2017). For example, in February 2018, Jordan replaced its generalized wheat bread subsidy programme with a targeted cash support programme (USDA FAS, 2018b). Morocco currently subsidizes common wheat flour, but the volume has shrunk in the past few years (USDA FAS, 2017b). The Government of Saudi Arabia also plans to phase out consumer subsidies by the end of 2020. Currently, 500 grams of samoli bread is sold for one Saudi riyal or USD 0.27, and bakeries purchase flour at a price below the cost of production from the Saudi Arabia Grains Organization (SAGO) (USDA FAS, 2018c).

There are no reliable estimates of the effects of food subsidies and targeted social protection policies on hunger in the region. A 2012 World Bank report noted that universal subsidies have reduced poverty by 6–30 percent in four countries, Jordan, Egypt, Iraq and Yemen, while the poverty reduction range with targeted social assistance policies was in the order of 3–8 percent by 2011. This is because public expenditure in generalized subsidies is much higher than on targeted programmes (Silva *et al.*, 2012).

POLICIES TO REDUCE CHILD AND MATERNAL UNDERNUTRITION AND MICRONUTRIENT DEFICIENCY

Though the burden of child and maternal malnutrition declined considerably since 1990, malnutrition among children and mothers is still a significant risk factor for death and disability in the Arab States (Figure 5). WHO recommends a set of essential nutrition actions to address malnutrition in all its forms, which can be prioritised based on the burden of a problem (severity and urgency), principles of equity and equality (e.g. groups with lower socioeconomic status) and a number of other considerations (WHO, 2019a). For example, some of the recommended actions to address stunting include: creating healthy food environment; scaling up coverage of stunting prevention actions; growth monitoring and assessment; appropriate micronutrient supplementation; policies to improve maternal nutrition and health; interventions for improved exclusive breastfeeding and complementary feeding practices; strengthening community-based interventions (e.g. water, sanitation and hygiene); promoting/protecting optimal infant and young child feeding (IYCF) in emergencies.

Two types of policies to reduce child and maternal undernutrition and micronutrient deficiency are considered in this chapter: (1) food fortification; and (2) policies to improve exclusive breastfeeding rates.

Many countries in the region have adopted policies to address child and maternal malnutrition, ranging from micronutrient fortification of staple foods and micronutrient supplements to promoting exclusive breastfeeding for the first six months of a child's life, to water and sanitation interventions, school feeding programmes and other interventions. Micronutrient supplements were cited by the Copenhagen Consensus in 2004, 2008, and 2012 as one of the most cost effective development investments (Spohrer, 2015)[11]. WHO and UNICEF recommend exclusive breastfeeding for the first six months of life, with continued breastfeeding up to two years of age or beyond, accompanied by solid foods (WHO, 2019e).

Food fortification

Food fortification, usually mandated by governments, could be an effective way to address micronutrient deficiencies in the population, when the fortified foods are consumed in adequate amounts by a large proportion of the target individuals in a population (FAO, 1995), as is the case with

[11]The Copenhagen Consensus Center is a think tank conceived to address a fundamental, but overlooked, topic in international development: with limited budgets, effective ways must be found to do the most good for the most people. The think tank investigates the best policies based on how much social good can be gained for every dollar spent (Copenhagen Consensus, 2019).

iodized salt. Widely used methods to deliver mass food fortification include salt, wheat flour, maize flour, rice, oil, milk and milk products, various condiments as well as infant formulas and complementary foods.

In the Arab States, wheat and salt are the main food vehicles for fortification with iron and folic acid and with iodine, respectively (Table 12). While fortification with iodine and folic acid have been found to reduce greatly the prevalence of goitre and neural tube defects, respectively, iron fortification has produced mixed results.

The region's food fortification policies can be divided into two types: (1) mandatory, or legislated by the government; and (2) voluntary, or private industry initiative to add one or more micronutrients to increase the nutritious value of food products. Table 12 shows 11 countries with mandatory wheat fortification programmes, six countries with voluntary wheat fortification and three with oil fortification. Half of the countries that voluntarily fortify wheat belong to the Gulf Cooperation Council, including Kuwait, Qatar, and the United Arab Emirates (Hoogendoorn et *al.*, 2017).

TABLE 12.
FOOD FORTIFICATION IN ARAB STATES

Country	Fortification		
	Flour	Oil	Salt
Algeria			ü 1990
Bahrain	Mandatory wheat, iron, folic acid		ü2007
Djibouti	Mandatory wheat 2013, iron, zinc, folic acid		
Egypt	Mandatory wheat 2008 stalled since 2011 Iron, folic acid		ü1996
Iraq	Mandatory wheat 2008, halted due to interrupted premix provision by government in 2014 Iron		
Jordan	Mandatory wheat 2002, iron, folic acid, niacin, riboflavin, thiamine, cobalamin, zinc, vitamin A		ü
Kuwait	Voluntary wheat, iron, folic acid, niacin, riboflavin, thiamine		ü2012 (adoption of law set in 2007)
Lebanon	Voluntary wheat		ü1995
Libya			ü
Mauritania	Mandatory wheat 2010, iron, zinc, folic acid, cobalamin, niacin, riboflavin, thiamine	Mandatory 2011, vitamin A	ü2005
Morocco	Mandatory wheat 1995, iron, folic acid, niacin, riboflavin, thiamine	Mandatory 2004, vitamin A, vitamin D	ü
Oman	Mandatory wheat 1996, iron, folic acid, niacin, riboflavin, thiamine		ü1995 (update in 2007)
Palestine	Mandatory wheat 2006, iron, folic acid, thiamine, riboflavin, niacin, zinc, vitamin A		ü1996

Qatar	Voluntary wheat, iron, folic acid, niacin, riboflavin, thiamine		ü2007
Saudi Arabia	Mandatory wheat, iron, folic acid, niacin, riboflavin, thiamine		ü2007
Sudan	Voluntary wheat, 2005, iron, folic acid		ü2003
Syria	Voluntary wheat, very low coverage iron		ü
Tunisia			ü1996
United Arab Emirates	Voluntary wheat, iron, folic acid, niacin, riboflavin, thiamine		ü2007
Yemen	Mandatory wheat 2001, iron, folic acid, niacin, riboflavin, thiamine, vitamin D	Mandatory, 2001 vitamin A, vitamin D	ü1996

SOURCES: Hoogendoorn et *al.*, 2017; WHO GINA, 2019; Wirth et *al.*, 2012.

Case studies of fortification from around the region show mixed results. In *Lebanon*, the salt iodisation programme that began in 1995 was unsuccessful in reducing iodine deficiencies in children according to the evidence of two surveys of school–aged children, one conducted in 1997 and the other in 2014. These surveys showed that iodine deficiencies of school–aged children during this period actually rose, rather than fell (Ministry of Public Health of Lebanon, UNICEF, WHO, American University of Beirut, 1994; Ministry of Public Health of Lebanon, UNICEF, 1997; Akik *et al.*, 2016; Ghattas *et al.*, 2017).

There are several possible explanations for these findings. The monitoring and enforcement system in Lebanon may be flawed, because, according to current law, ministry responsibility for monitoring and enforcing the law is not clearly stated, opening the door to poor compliance (Akik *et al.*, 2016). Secondly, manufacturers of iodized salt face significant challenges that reduce their ability to implement the law. The import of the iodine fortificant requires the salt producer to submit several technical documents to the Ministry of Public Health, which producers perceived as a very cumbersome and demanding task. In some instances, iodine fortificants were not available, and producers may lack knowledge as to when to add iodine – before or after roasting. In its current form, Lebanese salt iodization policy does not specify whether iodine levels in salt are to be measured at production or consumption level. Iodine content at consumption level is typically 20 percent less than at production level, because some of the iodine is lost due to the volatility of the supplement (WHO, 2007).

The Government of *Jordan* passed legislation to mandate fortifying *Mowahad* wheat flour in April 2002 to alleviate the burden of micronutrient deficiencies in the country (WHO, 2010a). At the time, it was the only type of flour subsidized in Jordan, representing approximately 93 percent of Jordan's wheat flour production. The government made critical efforts to ensure the success of the flour fortification programme. Among the measures:

a) it equipped flour mills with feeders to add the micronutrient premix to the flour and gave necessary technical training to millers (Wirth *et al.*, 2013); b) it introduced a mill monitoring system, both internal (millers) and external (the government) to ensure implementation of the programme, such as premix storage and addition rates, feeder maintenance and evaluating conformity of the end–product flour with the target goals; c) it allocated an annual state budget for free of charge provision of the micronutrient premix to all mills producing wheat flour in Jordan. The total annual cost to the government of procuring premix to millers was estimated at 1.2 million Jordanian dinar (Wirth *et al.*, 2013).[12]

[12] Approximately USD 1.7 million.

These efforts appear to have paid off to a certain extent. A comparison of results from two national micronutrient surveys in October 2002 and March-April 2010 showed a significant decline in the prevalence of iron deficiency (26.2 percent in 2002 to 13.7 percent in 2010) as well as iron deficiency anemia (10.1 percent in 2002 to 4.8 percent in 2010) among under 5 children (12-59 months). In contrast, little change was observed in the prevalence of anemia (16.5 percent in 2010 vs 20.2 percent in 2002) (Ministry of Public Health of Jordan, 2011; Serdula *et al.*, 2014).

Possible explanations for the limited effect of fortification programmes on anaemia prevalence in young children in Jordan are: a) diverse and complex aetiology of anaemia that requires investigation of its potential causes in order to develop appropriate interventions; and b) suboptimal implementation of the fortification programme.

While iron deficiency is the most common cause of anaemia, deficiencies in vitamins A, B2 (riboflavin), B6 (pyridoxine), B12 (cobalamin), C, D and E, folate and copper can also result in anaemia (Chaparro and Suchdev, 2019). In addition, disease, infections, and Hb disorders may also be directly responsible for anaemia, often in combination. The 2010 survey noted a suboptimal implementation of the fortification program, with coverage of only 47 percent of households. The adopted level of fortification, the types of fortificants used, and the amount of bread consumed should be sufficient to have an impact on micronutrient status (Hurrell *et al.*, 2010).

Oman has implemented a national iron and folic acid supplementation programme for pregnant women since 1990 in order to reduce the prevalence of spina bifida (Alasfoor *et al.*, 2010).[13] From 1997, the Ministry of Commerce mandated fortification of wheat flour with iron and folic acid. In 2004, the National Micronutrient Survey estimated coverage of fortified flour and products in Oman at 81 percent (Ministry of Health, Oman, 2014).

Alasfoor et *al.* (2010) found that the incidence of spina bifida in Oman declined sharply after wheat flour fortification with iron and folic acid began, while it did not change dramatically after the introduction of a national supplementation programme for pregnant women. This result is consistent with other published data from Nova Scotia that showed no impact on neural tube defect incidence after folate supplementation, but a 54 percent reduction following food fortification (Persad et *al.*, 2002). This indicates that fortification can have an important role in increasing intakes before women even know they are pregnant, a period during which spina bifida and other neural tube defects can occur, and thus before they receive supplements. It also underlines the importance of a comprehensive package of policies and actions.

The Kingdom of Bahrain began fortifying flour with iron and folic acid in 2001 as part of a national strategy to control and prevent iron deficiency anaemia. However, fortified flour supplied only 25 percent of daily iron requirements, while the other 75 percent had to come from other sources, particularly animal sources. The flour fortification campaign did not pretend to overcome the problem of anaemia and iron deficiency, but rather represented part of an overall national programme to reduce its magnitude. The strategy complemented other efforts at nutrition education and supplementation mainly for pregnant women.

A 2002 study provided a baseline for monitoring the status of iron deficiency anaemia and to explore whether the flour fortification programme had any effects on Bahraini women of childbearing age (14–49 years). The results did not indicate any improvement in iron deficiency anaemia in the Bahraini population since the launch of the programme. Large sectors of the population continued to consume inadequate amounts of iron, whether from fortified bread or other sources. It is possible that one reason for the lack of improvement in iron deficiency was that six months may not have been long enough to show results. It is also true that the fortification programme by itself was

[13] Spina bifida, a defective closure of the vertebral column occurring during the first months of pregnancy, is one of the most serious neural tube defects. *It has been connected to inadequate folate intake in women during the peri–conceptional period* (Berry et *al.*, 1999).

never envisioned as a complete solution to the problem. This underlines how important it is that fortification be integrated with other efforts to improve micronutrient status and underpinned by better access to diverse and good quality diets and to enhanced nutrition education.

Improving exclusive breastfeeding rates

WHO and UNICEF recommend early initiation of breastfeeding within one hour of birth, exclusive breastfeeding for the first six months of life, with continued breastfeeding up to 2 years of age or beyond, accompanied by appropriate complementary feeding (WHO, 2019e). Data from global reports show that exclusive breastfeeding rates for the first six months of an infant's life are 31 percent for the Arab countries, 26 percent for East Asia and the Pacific, 35 percent in Latin America and the Caribbean and 40 percent in sub–Saharan Africa (World Bank WDI, 2019).

The low exclusive breastfeeding rates in the Arab States are similar to those in other regions (Table 9). However, it is particularly worrying that some of the poorest countries of the region, Comoros, Djibouti, Yemen and Somalia, have the lowest rates of breastfeeding. While breastfeeding is the cornerstone of good health in infancy and later life in all economic contexts, the above indicator suggests that breastfeeding is particularly unpopular precisely in the countries where optimal infant and young child feeding are more important than ever.

The Government of Egypt has made numerous efforts to encourage breastfeeding by passing laws to increase paid leave after pregnancy, mandating free nursery school for children up to 6 in workplaces with 100 or more women and promoting breastfeeding in hospitals. Egypt has also taken many steps to improve infant feeding practices and prevent the substitution of infant formula for breastmilk. The government also prohibits the promotion of infant food, breastmilk substitutes and complementary feeding, which can be given by bottle in health care facilities and maternities and has endorsed into law the International Code of Marketing of Breastmilk Substitutes in Egypt.[14] It has also endorsed the WHO Baby Friendly Hospital Initiative (BFHI).[15]

Despite government efforts, data from the UNICEF global database of infant and young child feeding indicate that rates of exclusive breastfeeding of infants 0–6 months in Egypt have in fact declined in the period 1992 to 2014 from 61.2 to 39.5 percent (UNICEF, 2019). One factor that may contribute is government subsidies for powdered infant milk formula.

Egypt has a long history of providing subsidized food for its people including milk formula to infants (Kent *et al.*, 2017). Subsidizing formula milk is inconsistent with government legislation in support of breastfeeding. It was not until 2016 that eligibility criteria for fully subsidized infant powdered milk formula became more restrictive and smart cards were issued for eligible recipients to obtain their allowances.

These eligibility criteria for subsidized infant milk formula include the following: the mother is incapable of breastfeeding her infant, has died, she delivered more than one child, has a disease(s) that prevents her from breastfeeding, or takes medicines that can negatively affect the child through her milk.

The effectiveness of policies for reducing child and maternal undernutrition

The case studies on *food fortification* in Lebanon, Jordan, Oman and Bahrain suggest key differences between successful and unsuccessful fortification programmes. Successful fortification incorporated: (a) clear legislation outlining responsibilities for government enforcement,

[14] The International Code of Marketing of Breastmilk Substitutes is an international health policy framework for breastfeeding promotion adopted by the World Health Assembly of the World Health Organization in 1981. The provisions of the Code include restrictions on promoting breast milk substitutes, such as infant formula, in order to protect and support breastfeeding.

[15] WHO and UNICEF launched the Baby Friendly Hospital Initiative in 1992 as a global effort to implement practices that protect, promote and support breastfeeding. The Ten Steps to Successful Breastfeeding form the basis of the Initiative. It has been rolled out in almost all countries in the world (UNICEF, 2016). The latest revised version of the BFHI guidance appeared in 2018: Implementation guidance: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services (WHO, 2018d).

monitoring and evaluating fortification implementation, and technical assistance to mills on fortification protocol; (b) regular evaluation of programme results, with lessons integrated into programme revisions; and (c) wide stakeholder consultations at each stage of programme development, so as to adapt them to the behaviour of beneficiaries and implementation partners. A study by the WHO Regional Office for the Eastern Mediterranean on flour fortification in the region supports these conclusions, citing monitoring, enforcement and funding as some of the main factors for implementing effective fortification programmes (WHO EMRO, 2019b). The study also cites success stories from Morocco and Iraq with both countries having achieved a reduction in anaemia prevalence since introducing national flour fortification programmes[16]. The success was attributed to a combination of efforts undertaken to tackle anaemia, such as fortification programmes, along with supplementation and nutrition education and other public health measures. Fortification is only one of many measures required to tackle anaemia and to reduce iron deficiency. To achieve both short-term impact and long-term sustainability, efforts should be directed towards ensuring year-round availability of micronutrient-rich foods, access to diversified diets by households, particularly vulnerable groups, clean water and sanitation, promoting adequate heath/nutrition knowledge and better care and feeding practices.

Data on micronutrient deficiencies in the region suggest that salt iodization has enjoyed considerably more success in reducing iodine deficiencies in children than fortification of staples with iron or vitamin A, despite widespread efforts to reduce iron and vitamin A deficiencies in children (Tables 6 and 12). The reasons for this difference are unclear, but they point to the need to intensify efforts and diversify strategies to increase consumption and bioavailability of iron in particular. As a result of these deficiencies, the Arab States as a whole have a severe public health problem with anaemia in children under 5.

The case study on *improving breastfeeding rates* in Egypt illustrated the importance of consistent government policies on breastfeeding, including strict rules limiting the eligibility of women using powdered infant milk formula for government subsidies. It revealed the challenge of raising breastfeeding rates as more women enter the labour force. It thus underlined the importance of rigorous implementation and enforcement of the International Code, baby–friendly health systems as well as paid maternity leave and baby–friendly workplace policies, such as childcare and support for nursing, to further efforts to maintain or increase exclusive breastfeeding rates.

POLICIES TO REDUCE THE PREVALENCE OF OVERWEIGHT, OBESITY AND NCDS

Governments around the region have introduced programmes and policies to promote healthy diets and prevent overweight and obesity so as to address risk factors associated with NCD.

However, according to WHO (2018a), while most countries in all regions have acted to inform and educate consumers on healthy diets, the WHO Eastern Mediterranean region has lagged behind others in restricting the availability and marketing of foods and beverages high in salt, sugar, fat and saturated fat. Different countries are at different stages in the development and/or implementation of initiatives to eliminate trans–fatty acids and/or reduce sugar, salt and saturated fat. For example, between 2017 and 2019 Bahrain, Morocco, Qatar, Oman, Saudi Arabia and the United Arab Emirates have introduced various taxes on sugar–sweetened beverages (SSBs): energy drinks, carbonated drinks and/or non–carbonated drinks with added sugars. Many countries in the region (Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Qatar, Oman, Palestine) are developing legislation

[16] Iraq introduced a wheat flour fortification programme in August 2006 that has been mandatory since 2008. The prevalence of anaemia in women of reproductive age (15–49 years) decreased from 35 percent in 2008 to less than 20 percent in 2014 and the prevalence of anaemia among children under 5 years decreased from 26 percent in 2010 to 21 percent in 2014. In Morocco flour fortification started in 2004 and has been mandatory since 2006. The prevalence of anaemia in young children (2–5 years) decreased from 47.8 percent in 2006 to 29.9 percent in 2008.

or implementing initiatives and strategies to decrease salt intake, mostly by reducing salt in foodstuffs such as bread or cheese. A number of countries are also introducing legislation or undertaking progressive reformulation of foods and beverages to eliminate trans–fats (e.g. Saudi Arabia, Tunisia). However, the multiple risk factor nature of NCD implies that any single intervention tackling one aspect of the food system or food environment on its own is likely to have limited impact on its prevalence.

The broad roots of the NCD issue

The NCD crisis has proved particularly difficult to control, because of its complex aetiology. Poor diets are one of the major risk factors for NCDs at global level. Figure 5 demonstrates that dietary risks were also one of the leading risk factors for mortality and ill health in the Arab States in 2017. While there are no comprehensive indicators of poor diet, there are partial indicators that, taken together, support the data on risk factors suggesting that diets in the Arab States are less than healthy. To prevent NCDs the WHO recommends the following fat, sugar and salt–related dietary goals for healthy adult diets to prevent NCDs (WHO, 2002, 2015):

- total fat intake should not exceed 30 percent of total energy intake;
- saturated fat intake should not exceed 10 percent of total energy intake;
- trans–fat intake should not exceed 1 percent of total energy intake;
- free sugar intake should not exceed 10 percent of total energy intake with additional health benefits by reducing it to less than 5 percent;
- salt intake should be limited to less than 5 g per day, equivalent to sodium intake of less than 2 g per day.

Many countries in the Arab States exceed these recommended intake levels. Micha et *al.*, (2014) note that mean consumption of saturated fat in many Arab States, including Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, United Arab Emirates and Yemen, exceeds WHO recommendations. On trans–fats, all countries of the region exceed the WHO threshold level. For sugar and sweetener intake, the latest FAO figures on dietary energy supply for 2013 show that availability of sugar and other sweeteners exceeds 10 percent of total dietary supply for 10 of the 14 countries where data are available (FAO FAOSTAT, 2019).

The Arab States have some of the highest metabolic risk factors for NCD. The first of these is high BMI, a result of an imbalance in calorie consumption and physical activity. The Arab States had the second highest prevalence of overweight and obesity in the world, after North America, Central America, South America and the Caribbean (Table 11). Three countries in the region have the highest prevalence of insufficient physical activity among adults in the world, including Kuwait (67 percent), Saudi Arabia (53 percent) and Iraq (52 percent). Another six countries in the region also show high prevalence on this indicator: United Arab Emirates (41 percent), Libya (36 percent), Algeria (34 percent), Oman (33 percent), Tunisia and Egypt (31 percent) (WHO, 2019f).

A second metabolic risk factor is raised fasting blood glucose.[17] Based on 2014 data, many countries in the region had a prevalence of high blood glucose, exceeding 15 percent among adults, including Kuwait, Qatar, Egypt, Iraq, Saudi Arabia, Jordan, Libya and United Arab Emirates (WHO, 2019f).

A third metabolic risk factor is elevated blood pressure.[18] Based on 2015 estimates, some of the poorest countries of the region such as Somalia, Sudan, Yemen and Mauritania have the highest prevalence of elevated blood pressure.

[17] Raised fasting blood glucose (>=7.0 mmol/L or on medication) age–standardized estimate.
[18] Raised blood pressure (Systolic BP>=140 OR Diastolic BP>=90) age–standardized estimate.

Tobacco use, a risk factor for heart disease and cancer, was also high in the Arab States in 2015, with particularly high prevalence of smoking among males aged 15 and older in Jordan (70 percent), Egypt (50 percent), Bahrain (49 percent), Lebanon and Morocco (45 percent) and Mauritania (44 percent) (WHO, 2019f).

The need for comprehensive NCD action strategies

The broad roots of the NCD crisis confirm the need for comprehensive and coherent strategies to address policies in many areas, but Arab States' governments have been slow to adopt such strategies. Eleven of the 22 Arab States have a recent (2015 onwards) and/or up to date national NCD strategy, while seven countries do not have any strategy: Yemen, Sudan, Syria, Libya, United Arab Emirates, Morocco and Palestine.

Seven Arab States including Jordan and Kuwait have national nutrition policies, some of which address NCDs. However, these policies were last updated over 10 years ago, ranging from 1993–2009 (WHO GINA, 2019). Qatar has formulated one of the most comprehensive strategies featuring a number of policy tools, including dietary guidelines, food labelling, regulation of marketing energy–dense foods and beverages high in fat, sugar and/or salt to children, creation of healthy food environments in the workplace, media campaigns on healthy diets and nutrition, and counselling on healthy diets.

The effectiveness of policies to reduce overweight, obesity and NCDs

Policy progress in halting the rise in overweight and obesity in adults and children across the region has been limited to date, and the Arab States are not alone in this regard. Part of the difficulty in slowing the rise of diet–related NCDs is undoubtedly its broad roots and the need for comprehensive strategies and action. The increasing importance of poor diet and high BMI as risk factors for death and disability through NCD suggests the food system has a central role in the control of NCDs by ensuring nutritious, safe, affordable, and sustainable diets are available to all (Figure 5).

BOX6

REGULATION OF THE SCHOOL FOOD ENVIRONMENT AS A TOOL TO FIGHT OBESITY IN LEBANON

Lebanon has an increasing burden of obesity in all age groups. A 2009 national study showed that the prevalence of overweight and obesity among children and adolescents aged 6–19 years was 32.1 percent, while obesity rates in the same age group were 10.9 percent. This signified an increase over 12 years before (1997), when they were 27.3 and 7.3 percent, respectively (Nasreddine et *al.*, 2012). Of more concern was the significant increase in obesity among 10 to 19 year olds, where rates almost doubled in that period: 5.9 percent in 1997 to 10.2 percent in 2009 (Nasreddine et *al.*, 2012).

In response to the increasing obesity trend among Lebanese children, the Ministry of Education and Higher Education passed a decree (no. 1386/3/2012) in 2012 to regulate the type of food offered in state schools. The decree specifies the basic characteristics of food items allowed and not allowed in state school kiosks or cafeterias. In 2012, 75 percent of schools were compliant with the policy. Significantly, private schools (54 percent of the student body) were not required to observe this policy (BankMed – Market & Economic Research Division, 2014).

Two global school–based student health surveys (GSHS)[19] among 13–15 year olds took place in Lebanese schools in 2011 and 2017. They found a decreasing trend in consumption of carbonated soft drinks among these students, one of the major contributors to the obesity epidemic. Regular consumption of carbonated drinks fell from 66.7 percent in 2011 to 53.9 percent in 2017 (WHO, 2019g). Despite this overweight and obesity rates appear to continue to increase.

The Ministry of Education school cafeteria and kiosk decree is an important step towards better regulation of the food environment among school–aged children. It may have played a role in the fall in carbonated soft drinks' intake, although the rise of overweight in schoolchildren has yet to be halted. This case highlights the need for implementing a comprehensive package of measures to address the multifactorial nature of obesity.

[19] The GSHS is a school–based survey among students aged 13–15 years conducted in many countries around the globe to monitor trends and changes in the prevalence of various health related behaviours among school children. The survey was first developed in 2011 under WHO leadership in collaboration with many non–governmental agencies such as UNAIDS, UNESCO, UNICEF, and the United States Centers for Disease Control and Prevention (CDC). The survey is self–administered and includes a set of core questions used by all countries, to facilitate cross–country comparison. The questionnaire also includes optional context–specific questions designed for the specific priorities and needs of each country.

SUMMARY

Governments in the Arab States have a number of well established policies to address food insecurity in the region, with various degrees of success. Among those designed to *reduce caloric deficiencies* in the population, public stockholding programmes have proven to be a reasonable insurance policy against the pass through of import price hazard, considering the extraordinarily high food import dependency in the region. Wheat production support policies, though diminishing dependency on wheat imports, have had the unanticipated effect of reducing farm incomes and agricultural exports below their expected level in the absence of such policies. An alternative approach to encourage horticultural crop exports could achieve a similar or even greater reduction in agricultural deficits while raising farmers' incomes. Such a policy change would address poverty and food insecurity in rural regions where these problems are most severe (FAO RNE, 2019). Universal food subsidies create a sizeable fiscal burden and are being replaced by targeted social assistance policies in much of the region (Verme and Araar, 2017).

The second set of policies assessed in Part II concerns reducing child and maternal undernutrition and micronutrient deficiency. Despite falling undernourishment rates in the region, available data indicate that children still have high rates of iron and vitamin A deficiency and adequate iodine status (Table 6). This suggests salt iodization has had more success in reducing iodine deficiencies in children than fortification of staples with iron or vitamin A (Tables 6 and 12). However, a number of Arab States (Jordan, Mauritania, Morocco, Palestine, Yemen) have initiated fortification of staples (cereals, oil) with vitamin A during the early 2000s, which may have improved vitamin A status in these countries. We are therefore on firmer ground in calling attention to iron deficiency as the most severe micronutrient deficiency in the region.

The third set of policies assessed in Part II concern overnutrition and NCD. The prevalence of overweight and obesity in the Arab States is alarmingly high, second only to the WHO Americas region. There has been little, if any, progress in reducing overweight and obesity rates across the region. For women, overweight and obesity rates in the Arab States are higher than in any of the WHO regions (Table 11). On the policy side, there have been efforts in many countries to encourage healthier eating and more active lifestyles, the overall policy reaction seems to lag behind the gravity of the problem in the region (Rahim *et al.*, 2014). This is in spite of the fact that NCDs presented the largest burden of premature death and disability for all but three countries of the region in 2017, Somalia, Djibouti and Mauritania (IHME GBD, 2019; Figure 5). So far, governments in the Arab States have yet to successfully halt the growth of overweight and obesity in the region.

LEBANON
A woman prepares sorghum for her family in front of her home.
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PART 3
RETHINKING FOOD SYSTEMS FOR HEALTHY DIETS AND IMPROVED NUTRITION IN THE ARAB STATES

PART 3

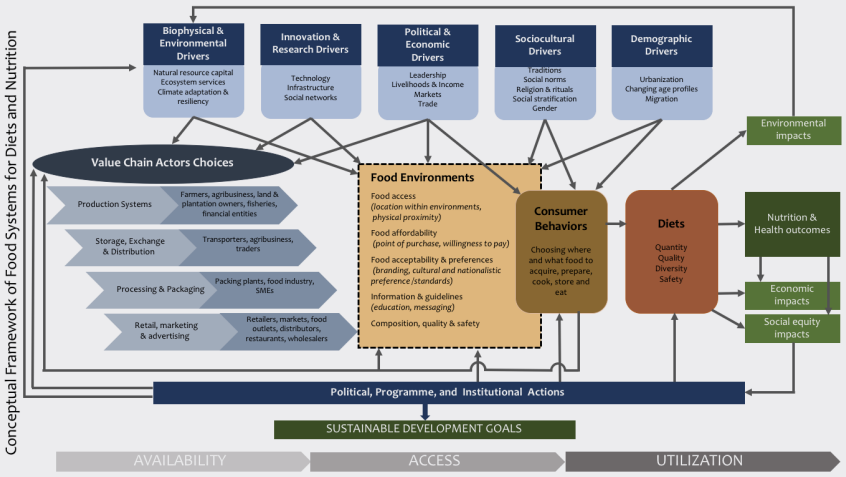
RETHINKING FOOD SYSTEMS FOR HEALTHY DIETS AND IMPROVED NUTRITION IN THE ARAB STATES

An advantage of a food systems approach lies in its holistic method to improving diets for populations that focuses on both policies and the supportive environment necessary for making a healthy diet the norm. The analysis of Part II illustrated that policies alone are not enough. They must be implemented, monitored, assessed and revised, based on stakeholder consultations. They must also be supported through training and investment in institutions and personnel. Individual interventions, such as those reviewed in Part II, that focused on the parts rather than the whole, and policies without the necessary strategies, preparation and follow up actions, have fallen short of supporting healthy diets in the long term. A holistic approach seeks to create supportive environments for the supply and consumption of nutritious foods of appropriate quantities and quality. It would also contribute towards achieving the ambitious and transformative vision of the *food system* in the 2030 Agenda.

A SIMPLIFIED CONCEPTUAL MODEL FOR FOOD SYSTEM CHANGE

Food systems have three main components: (1) the food supply chain; (2) the food environment; and (3) consumer behaviour. Each of these components impacts on consumer dietary quality and nutrition and health outcomes (Global Panel, 2014). The supply side food value chain plays a large part in influencing dietary patterns and overall diet quality by establishing the types of foods produced and imported, their nutritional quality, their transport from farm to fork, as well as their ingredients and production methods (HLPE, 2017). The food environment, "the local system elements including food supply, price, and promotion," also influences consumer behaviour by framing the choice set for consumers. Thus, consumers make food choices within the constraints of both the supply chain and the environment. Both food supply chains and food environments are dynamic, reacting over time to both consumer demand and supply factors and vice versa, creating and modifying consumer demand. However, there is no denying that producer supplies and the food environment shape and in the short run dictate consumer choice sets.

FIGURE 6.
CONCEPTUAL FRAMEWORK OF FOOD SYSTEMS FOR DIETS AND NUTRITION



SOURCE: HLPE, 2017.

Policies and programmes implemented in the Arab States to improve food security and nutrition and their food system entry points can be better understood by using the framework above developed by the CFS High Level Panel of Experts in 2017. At the heart of it is the food environment where consumers interact with and shape the food system composed of the supply side, the demand side and the governance mechanisms that regulate the interactions between all food actors.

FOOD SUPPLY: POLICIES TO REDUCE CHILD AND MATERNAL MALNUTRITION AND REDUCE DIETARY RISKS

Beyond food fortification and supplementation, important policies for changes in the food supply leading to improvements in child malnutrition include those around food safety. The WHO Eastern Mediterranean region ranks third in the world (after Africa and South–east Asia) on the rate of death and disability caused by foodborne diseases per 100 000 people. Many middle income countries in Eurasia, Latin America and the Western Pacific have lower rates of death and disability from foodborne diseases with equivalent or lower incomes per capita (WHO, 2015b). A well functioning food safety system not only reduces the risk of enteric infection but can make a healthier diet, composed of perishable products, such as fresh meat, milk, vegetables and fruits, more accessible by making them safer.

Dietary risks increase the likelihood of getting a disease, and usually focus on NCDs. Some examples of dietary risks are low consumption of fruits or vegetables, legumes, whole grains, nuts and seeds, fibre, calcium; or high consumption of red meat, processed meat, SSBs, trans–fats or sodium. Food reformulation is a prime area for action in policies designed to reduce dietary risks, particularly given the high levels of saturated fats, trans–fats and sugar and sweeteners in some foods available in the region (cf. discussion of policies to address overweight, obesity and NCDs in Part II). The food processing industry produces many foods high in salt, sugar, saturated fats, trans–fats not in line with international recommendations. Legislation to restrict industrially produced trans–fats and voluntary or government–led mandatory reformulation of processed foods can help reduce the level of salt, sugar and saturated fats.

A number of studies conducted in the region highlight bread and dairy products as major sources of sodium intake. In some countries (e.g. Lebanon, Oman) other processed food, canned food, sausages, fish, were also found to be one of the major dietary contributors to increased sodium intake among adults (Al Jawaldeh *et al.*, 2018).

The following list of policies is not meant to be exhaustive but rather examples of policies that have worked in particular contexts and countries in the region, and seem to hold promise for more widespread adoption in other countries.

Food safety

Food safety is essential to improve child nutrition because of its role in reducing foodborne diseases and making fresh and safe food more readily available. Enteric infections, such as diarrhoea, are still a significant cause of death and disability, primarily for neonatal infants,[20] in countries where communicable diseases still predominate and prevalence of undernutrition is high. Infection by foodborne pathogens contributes to undernutrition and poor health outcomes through poor absorption of nutrients, leading to infant and child weight loss, loss of micronutrients, including iron, loss of appetite, as well as wasting and stunting. On the other hand, undernutrition (stunting, wasting, and underweight) compromise the immune function of children and increase susceptibility to various infections, including diarrhoeal diseases, leading to increased frequency and duration of diarrheal illnesses. Childhood undernutrition is one of the leading risks of diarrhoea in under 5 children (GBD 2016 Diarrhoeal Diseases Collaborators, 2018).

In 2016, diarrhoea was the eighth leading cause of mortality globally in individuals of all ages and the fifth leading cause in under 5 children.

There are large disparities among the Arab States in terms of diarrhoea mortality. Under 5 mortality rate due to diarrhoea is highest in Somalia and Djibouti (150–199 per 100 000), followed by Sudan and Yemen (100–149 per 100 000), while it is lowest in Kuwait, Oman and United Arab Emirates (<1 per 100 000) and comparable or better than rates in many developed countries.

[20] Based on WHO (2019a), exclusive breastfeeding during the first six months of life has the single largest potential impact on child mortality of any preventive.

Somalia and Comoros are among the worst in the world for diarrhoea mortality among adults older than 70 years (>=500 per 100 000) (GBD 2016 Diarrhoeal Diseases Collaborators, 2018).

In the WHO Eastern Mediterranean subregion (EMR)21 that includes the Arab States of Djibouti, Egypt, Iraq, Morocco, Somalia, Sudan and Yemen diarrhoeal disease agents are responsible for approximately 70 percent of the total burden of foodborne diseases (FBDs). The subregion has the third highest FBD burden per population delimited on the basis of child and adult mortality, following subregions of Africa and South–East Asia (WHO, 2015b). While FBD affects individuals of all ages, children under 5 are particularly vulnerable. The FBD estimates include enteric, parasitic, chemical and toxin hazards transmitted through different exposure pathways, including contaminated food, environment (water, soil, air) and contact with infected animals, humans or a variety of potential lead exposure sources. Contaminated food as well as water are the most important transmission routes for major diarrhoeal disease agents. Salmonella Typhi, aflatoxin and hepatitis A virus are among other important hazards in the subregion.

Infection by foodborne pathogens contribute to undernutrition and poor health outcomes, causing poor absorption of nutrients, leading to infant and child loss of weight, loss of micronutrients, including iron, loss of appetite, as well as wasting and stunting. Many FBDs in developing countries come from consuming fresh, perishable, and nutrient–rich foods sold in markets or on the street. The lack of a proper cold chain in the transport, storage and marketing of these foods increases the risk of disease precisely from consuming some of the most nutritionally beneficial foods. Inadequate refrigeration and unsuitable transport and handling during hot weather present a high risk of toxic bacterial growth, as exemplified by foodborne illness outbreaks in Saudi Arabia and United Arab Emirates (Faour–Klignbeil and Todd, 2018).

To control food safety and maintain its nutritional value throughout the entire supply chain, countries need qualified national professionals to educate, cultivate, and promote a food safety culture that upholds rigorous food safety standards. Modern food control systems based on risk analysis are essential to enhance such a culture. The safety of the food on the consumer's table depends on a series of good practices and risk control along the food supply chain, from production to processing, transportation, handling, and preparation.

A modern national food control system to ensure food safety in local markets hinges on effective food laws and regulations, food control management, inspection services, laboratory services for food monitoring and epidemiological data alongside trained professionals. Food control systems vary greatly in capacity and effectiveness from one country to another in the region. Some are still traditional in approach while others are aligned with the latest thinking in food safety. GCC countries have invested in modernizing their food control systems, introducing quality assurance systems like hazard analysis and critical control points (HACCP) to food production, developing their own food standards to facilitate intraregional GCC trade. Jordan and Morocco have also adopted risk analysis principles for their food control systems, investing in infrastructure and human capacity. Other middle income countries still have a way to go. On the other hand, low income countries still suffer from the low capacity and effectiveness of their food control systems.

In the United Arab Emirates, several emirates (Abu Dhabi, Dubai, Sharjah) have used food quality assurance systems like HACCP for almost two decades. The Emirate of Sharjah is developing an electronic monitoring system to help identify, control, prevent and trace FBD outbreaks. The United Arab Emirates was among the first states in the region to introduce a standard transportation guide in 2013, addressing cold chain transportation.

[21] The study on global burden of foodborne diseases (WHO, 2015b) divided the WHO EMR region into two subregions on the basis of child and adult mortality: a) EMR subregion characterized by high child and adult mortality includes Djibouti, Egypt, Iraq, Morocco, Somalia, Sudan and Yemen and three non-Arab states, Afghanistan, Pakistan and South Sudan; b) EMR subregion with low child mortality and very low adult mortality included most Arab States such as Bahrain, Jordan, Kuwait, Lebanon, Libya, Oman, Qatar, Saudi Arabia, Syria, Tunisia and United Arab Emirates as well as Iran.

The Saudi Food and Drug Authority (SFDA), established in 2003, is responsible for enforcing mandatory standards and regulating food safety and quality in Saudi Arabia. The SFDA plays a major role in food safety education, maintenance of inspection machinery and testing facilities, and informs consumers of a product recall. The SFDA draws on the know–how of experts from several government bodies and academic advisors in food safety. The SFDA's role in advancing food safety has positive effects on public confidence and united efforts across organizations and agencies to move towards one central authority to control the food system.

Saudi Arabia's food system still faces major obstacles to improving food safety, particularly in HACCP implementation at small and medium food establishments, and maintaining the cold chain during transportation, storage and distribution of perishable foods. In 2015, more than 2 000 restaurants in Jeddah were found to use ingredients past their expiry date or contaminated with pathogenic bacteria, moulds, and yeasts in poor storage conditions. The SFDA shut down these food establishments for four months for violation of food safety norms. Regular food safety inspections, licensing and certification systems tighten compliance with food safety regulations and prevent unlicensed outlets from operating without adhering to SFDA sanitation and hygiene standards (Todd, 2016).

The Saudi Epidemiological Bulletin reports data from the integrated national surveillance system ensuring identification of disease outbreaks and rapid response (Faour–Klingbeil and Todd, 2018).

The Sudan presents an example of an outdated food control system that is currently undergoing revision. The existing food control laws date from 1973 and are outdated in light of the advances in food safety and risk analysis. Sudan is now renewing and updating its food laws. In April 2019 the country hosted the Sudan International Food Safety Conference to prompt the government to update food safety legislation along regional and international standards so as to improve the possibility of Sudan's food industry competing in regional and global markets (AOAD, 2019).

Food reformulation

Reformulation is the subtraction or substitution of one or more ingredients to arrive at a more nutritious and healthier product that enhances overall dietary quality (Global Panel, 2016). The focus of reformulation efforts is on processed food ingredients, such as salt, sugar, saturated fats and trans–fats, known risk factors for NCDs. Reformulation can either be voluntary, co–regulatory (e.g. salt reduction initiatives), based on agreements between governmental bodies and the private sector, or mandatory, e.g. compulsory labelling to disclose high salt content, limits on sugar content, or banning trans–fats (FAO, 2017a).

The WHO recommends salt reduction as a cost effective policy to counter the rising trend in NCDs, cardiovascular diseases (CVDs) and associated financial burdens (Al Jawaldeh et *al.*, 2018). Bahrain, Jordan, Qatar, Kuwait, Morocco, Tunisia, Libya, and Syria have some of the highest levels of salt consumption in the region (Al Jawaldeh et *al.*, 2018). Jordan passed legislation to limit salt content in regularly consumed food products in 2016. Kuwait, Qatar, and Oman revised standards to reduce the salt content in bread (Al Jawaldeh et *al.*, 2018). In 2016, the government of Bahrain also introduced a mandatory reformulation policy to reduce salt content in bakery products (FAO, 2017a).

Another subject of reformulation that has had some success in the Arab States is trans–fats. Hydrogenation is a chemical process in which hydrogen is added to liquid oils to turn them into a solid form at room temperature. Partially hydrogenated fat molecules have trans–fats that raise the level of LDL ("bad") cholesterol in the blood, a known risk factor for CVD. The removal of trans–fats from processed foods could save thousands of lives every year by preventing heart attacks and deaths. WHO recommends elimination of industrially produced trans–fats from the global food supply (WHO, 2018c). In 2016, the Jordanian government imposed a ban on partially hydrogenated oils in processed dairy products including cheeses

or other products with milk fat replacers (USDA FAS, 2017e). In 2015, Saudi Arabia approved a regional GCC standard limiting trans–fatty acids of 2 percent in fats and oils and 5 percent for other foods. In December 2018, the Saudi Food and Drug Authority announced a ban on partially hydrogenated oils, which becomes mandatory in 2020 (NCD Alliance, 2019).

FOOD ENVIRONMENTS AND CONSUMER BEHAVIOUR: POLICIES TO REDUCE DIETARY RISKS AND THE PREVALENCE OF NCDS

The reduced prevalence of communicable, maternal, neonatal and nutritional disease and the rise of NCD as the main cause of premature death and disability in the region (Figure 3) have raised the importance of limiting NCD–related risk factors to prevent death and ill health in the Arab States (Figure 5). Examples of important NCD–related risk factors are dietary risks, high BMI, high LDL cholesterol, high fasting glucose levels and high blood pressure. All these risks can in some way be related to food intake, often combined with other factors.

The food environment and consumer behaviour determine diets and are therefore the primary setting for policies to affect behavioural risk factors for NCDs. Part II focused on the broad roots of NCD and regulation of school food environments as an example of a policy to reduce the prevalence of overweight and NCDs. However, an effective NCD strategy should include a much wider array of policies to address the broad roots of the NCD issue. Additional policies aiming to transform food environments to enable healthy consumer behaviours and consumption may include: (1) social protection programmes, including nutritionally appropriate subsidy policies and school feeding programmes, and their nutrition effects; (2) nutrition labelling; (3) taxation policies to discourage consumption of foods high in fat, sugar and/or salt (Global Panel, 2016); (4) creation of healthy food environments through the regulation and control of marketing foods and beverages to children; (5) nutrition education. As in the previous discussion of the food supply, this list of policies is not exhaustive but rather composed of examples that have worked in selected countries inside and outside the region, and which seem to hold promise for more widespread adoption.

Social protection programmes and nutrition

Part II analysed social protection programmes in connection with their livelihood aim to reduce poverty and hunger. Here they are analysed in regard to their ability to effect social inclusion, through investment in human capital, such as supporting child nutrition. The Arab States are generally moving away from food subsidies and establishing targeted food assistance and cash transfer programmes as part of their social protection strategies (Loewe and Jawad, 2018). The most common are unconditional cash transfer programmes (IPC–IG, 2017). Where affordability limits consumer demand for diverse nutritious foods, social protection programmes can influence food consumption (FAO, 2017a) and consequent nutritional status across the life cycle (IPC–IG, 2017). Social protection instruments which impact on nutrition include supplementary feeding, school feeding and food voucher or cash transfer programmes. This section focuses on cash transfer social protection programmes.

The global evidence for the impact of social protection programmes on nutritional outcomes shows mixed results. For example, the positive effects on child height for age outcomes were found to be small and not statistically significant, and conditional cash transfers have worse nutritional outcomes than unconditional transfers (Manley et al., 2013).

It should be noted that due its multifactorial nature, child stunting cannot be addressed with a single nutrition intervention. Some of

the most successful efforts to reduce stunting have been connected with programmes aimed at reducing poverty and socio-economic inequities. These programmes also focused on raising the education level of girls and increasing overall maternal schooling in adulthood (WHO, 2018b). Mothers with a low level of education and a low income are more likely to have stunted children due to their limited knowledge and capacity to obtain food that will provide a diverse and nutritious diet. For instance, two-thirds of the decline in stunting in Brazil from 37 to 7 percent between 1974 and 2006/7 can be attributed to improvements in maternal schooling, family purchasing power, maternal and child health care, and coverage of water supply and sanitation services (WHO, 2018b). Cash transfer social protection programmes can support the reduction of stunting by making cash payments directly to girls and women, thus raising their socio-economic status.

A recent meta-analysis of social protection programmes highlights improvements in both food quantity and quality among recipients (Hidrobo et al., 2018). There was an 8 percent average increase in caloric intake and significant increases in consumption of animal source foods (where this is low at baseline), largely as a result of cash transfer based social protection programmes. The meta-analysis also highlighted the role of the conditionality of the transfer and the gender of the recipient on effect size. These results highlight that the potential impact of these programmes on dietary intake, nutrition and health depend on various factors including the modality and conditionality of the transfer, its relative size and the gender of the recipient.

As part of a series of economic reforms in Egypt, the government initiated the Takaful social protection programme in 2015. Takaful targets conditional cash transfers to vulnerable households with financing from the government and the World Bank (Breisinger et al., 2018).

By December 2017, there were 1.9 million households in the programme, with cash transfers conditional on educational, health, child growth and nutritional conditions as follows:

- attendance of at least 80 percent of the school days by children aged 6 to 18 years;
- attendance of two visits per year to health clinics by mothers and children below 6 years;
- maintaining child growth monitoring records; and
- attendance at nutrition awareness sessions that promote good child feeding practices, regular immunization and antenatal and postnatal care.

In 2018, a mixed methods evaluation conducted by IFPRI showed the overall positive impact of the Takaful programme (Breisinger et *al.*, 2018). Beneficiaries were found to have a significant increase in expenditure on higher value food groups, particularly fruits, meat and poultry, but there were no changes in any measures of dietary diversity. Takaful programme data also show no significant change in weight gain for children and mothers. While there was no impact on child stunting prevalence (a measure of chronic malnutrition), there was an increase in weight for height z-scores[22] for children under 2 and a reduction in the probability of under 5 year olds requiring treatment for malnutrition. It is worth noting the low rates of wasting in Egypt and the increase in weight for height score may be indicative of increases in overweight among this age group.

Humanitarian and development organisations have introduced various other programmes in the region. For example, the IFAD Programme to Reduce Vulnerability in Coastal Fishing Areas (PRAREV)[23] in Djibouti aims to reduce vulnerability to climate change and poverty among coastal rural communities.

[22] Weight for height is one of the child growth indicators. The Z-score (or standard deviation score) system expresses the anthropometric value as a number of standard deviations or Z-scores below or above the reference mean or median value.
[23] PRAREV seeks to reach 29 000 household members and strengthen the capacities of 13 rural organizations along various points of fish value chains. For more

The programme seeks to improve the sustainability of Djibouti's coastal communities, build the capacity and skills of fishers, particularly women and young people, to develop the sector and educate women selling fish on the nutritional benefits of fish consumption over staples, as their diets lack diversity. Women are key stakeholders within fishing value chains, they account for 80 per cent of fish sales and support production by making small loans to fishers who, in turn, provide them with fish. Nutritional outcomes have been improving in the areas covered by PRAREV as a result of awareness raising campaigns for households focusing on the optimal conservation conditions of seafood, appropriate hygiene in preparing and consuming food, the repair or acquisition of cold storage equipment, in addition to nutrition education. A key innovation of the PRAREV is the collaboration between the Rome-based agencies, FAO, IFAD and WFP, which helped improve access to healthy and balanced diets for about 9 000 vulnerable people so far.

Such collaborative interventions are paramount to encouraging sustainable project interventions, as well as shaping relevant policies contributing to nutrition-sensitive outcomes.

The millions of internally displaced persons and refugees resulting from conflicts in the Arab States have received support almost exclusively through humanitarian assistance, because conflicts have undermined the states' ability to provide social protection for their citizens[24] (IPC-IG, 2017). In pre-war Yemen, for example, the Social Welfare Fund served nearly a third of the population, but when conflict broke out in March 2015, payments were suspended, leaving those who received help before as well as those made vulnerable as a result of the conflict without assistance (IPC-IG, 2017). As of 2018, the food security status of 15.9 million people in Yemen was classified at the "crisis, emergency or catastrophe" level (IPC phases 3, 4 or 5) for acute food insecurity (FSIN, 2019). In Iraq, 2.5 million people are food insecure and in need of assistance, while in Sudan 6.2 million people were IPC phase 3 or above in 2018 (FSIN, 2019). Some of these populations are also affected by different forms of malnutrition, including overweight and obesity, and conflict can seriously impair efforts to improve long-term nutrition.

Food subsidies

Part II reviewed food subsidy policies and social protection programmes in the Arab States in the context of undernutrition. This section reviews food price policies related to their nutritional effects.

Controlled prices for subsidized food and imports of cheap processed foods have led to cheap, high calorie foods and expensive nutritious foods. Healthier dietary options such as fruits, vegetables and animal source proteins are often less affordable than staple foods and highly processed foods rich in refined sugars and fats. Food prices, therefore, act as barriers to healthy diets, particularly for vulnerable subpopulations (FAO, 2017a).

Traditional food subsidy policies focused on subsidizing energy rich foods (e.g. bread, oil and rice), especially staples, to ensure access to sufficient calories. However, in the context of the global nutrition transition, there is evidence such policies increase overweight and obesity. An unintended effect of the Egyptian food subsidy programme has been to encourage the overconsumption of highly refined carbohydrates leading to overweight. Ecker, et *al.* (2016), Asfaw (2006) and Powell and Chaloupka (2009) have illustrated a correlation in Egypt between the value of household consumer food subsidies and the mother's BMI. Many countries in the region employ similar programmess to subsidize consumer staple foods. Though there

information, see: https://www.ifad.org/documents/38714170/41421401/fisheries_advantage.pdf/ec8dfedf-441b-f8af-047f-ea1df28e72a2 .

[24] The Syrian conflict has resulted in over 12 million people becoming refugees or internally displaced (FAO RNE, 2017). Turkey, Lebanon, Jordan, Iraq and Egypt host around 5.6 million registered Syrian refugees, though estimates of all registered and unregistered Syrian refugees in those countries are far higher: 7.2 million (FSIN, 2019). In Yemen in June 2019, the WFP reached 10.95 million people with food assistance, 8.22 million of whom received in kind food assistance, 2.48 million received food vouchers and 0.2 million cash assistance (WFP, 2019c). In Syria in June 2019 WFP fed 3.5 million people (WFP, 2019b).

are many reasons for poor nutrition in the region, consumer subsidies for white flour, bread, vegetable oils and sugar are a concern. Ramadan and Thomas (2011) showed that there are other ways to design social protection food programmess with potentially less direct support for an energy–dense or high sugar diet.

A recent report on healthy diets and sustainable food systems cited evidence indicating that diets with reduced sodium and increased intake of whole grains, fruits, nuts, and vegetables had the potential to reduce mortality (Willett et *al.*, 2019). Reforming subsidies to increase access to fruits, vegetables, nuts, and whole grains rather than refined grains and simple carbohydrates could shift food systems to produce healthier dietary patterns and better health outcomes (FAO, 2017a; Willett et *al.*, 2019). For example, the Egyptian study showed that a one percent decrease in the price of fruit, eggs and dairy products could translate into in a 0.08 percent to 0.12 percent reduction in mothers' BMI (Asfaw, 2006).

School feeding programmes

Across the Arab States, ten countries with varying degrees of food insecurity (Morocco, Algeria, Tunisia, Egypt, Sudan, Lebanon, Syria, Jordan, Iraq, and Yemen) implement school feeding programmes supported by WFP or NGOs[25]. Evidence shows these programmes play an important role in alleviating short–term hunger, addressing micronutrient deficiencies among children, increasing height, improving dietary habits, diet diversity, school enrolment, attendance and performance (WFP, 2013).

In middle income countries, where childhood overweight rates are high and wasting is almost negligible, programmes need to consider energy balance and diet quality when selecting the composition of food offered. This is supported by a review of Nutritional Guidelines for School Feeding Programmes which states that the composition of school meals needs to respond to the nutritional needs of the target population (Aliyar et *al.*, 2015). A recent review by the WFP and University College, London emphasized the need for such programmes to consider the double burden of undernutrition and overweight/obesity in the Middle East and North African region, and to include fruit and vegetables along with behavioural change interventions when these programmes target overweight reduction (Burrell, 2016).

The major objectives of current school feeding programmes in the region relate to food security, but none of them have explicit nutritional objectives, despite the documented nutritional burdens for children in these countries. Thus, the nutritional impacts of many programmes have not been evaluated. Outside the region, in Iran, providing nutritious snacks and nutrition education to students alongside a community media campaign for schoolchildren on healthy eating habits significantly reduced the prevalence of underweight (BMI for age <5 percent) and significantly increased the IQ and grade point average among girls (Rahmani et *al.*, 2011; Joulaei et *al.*, 2013). Embedding nutritional research into the design of school feeding programmes in the region is highly recommended (Burrell, 2016). Policies setting nutritional standards or guidelines for the available school meals programme need to be implemented in parallel with restricting sales of energy–dense foods high in fat, sugar and/or salt at school to address multiple nutritional burdens.

School feeding programmes in the region have often relied on external funding, particularly in conflict countries. This is a common issue in low income countries. A global WFP survey of school feeding programmes in 2012 noted that 83 percent of funding in low income countries came from donors. However, the situation is entirely different in middle and high income countries, where 95 to 100 percent of funding came from governments (WFP, 2013). One successful example of the transition from donor to government funding is that of the Government in Morocco, which took over responsibility for managing and funding its

[25] As part of food aid, WFP manages school feeding programmes to protect conflict affected children from nutritional deprivation. The Middle East and North Africa Initiative for School Meals and Social Protection, a joint programme of WFP, other UN organizations, non-governmental organizations and the World Bank, supports school feeding programmes in the conflict-affected Syria and Yemen and conflict spill-over countries of Lebanon, Jordan, as well as refugees and displaced children, particularly girls, in Algeria, Egypt, Jordan, Lebanon and Sudan (WFP, 2017c).

school feeding programme from WFP in 1997. It was designed to promote the education of children under the age of 15 in rural areas and benefits an increasing number of primary and secondary school students each year, with around 1.4 million beneficiaries in 2012. WFP still provides technical assistance to the government, supporting improvements in regulatory frameworks, capacity building and nutrition related actions (WFP, 2017a).

Another model which could contribute to sustainable school meals is the home grown school feeding (HGSF) framework, which sources school meals from local farmers and producers similar to the Tunisian and Lebanese examples cited above. In this way, school meals can contribute to the development of local economies and livelihoods. Jordan has implemented this on a small scale, where school gardens provide income generating potential to vulnerable women who produce healthy meals for schools (WFP, 2019a). These and other models to ensure sustainability of these programmes should be considered more widely and tested in the Arab States, particularly as they relate to nutrition and health outcomes.

Food labelling regulatory frameworks

The increasing risk of overweight and obesity has stimulated policies on promoting nutrition information, or nutrition literacy, as an entry point to healthier food behaviours and environments. Food labelling regulations alsoencourage food producers to offer higher quality foods and contribute to safe, nutritionally balanced diets. The WHO endorses nutrition labelling as an effective approach to improved diet, physical activity, and health.

Nutrition labelling, either voluntary or mandatory, is an increasingly important way to empower consumers to make better choices. In Morocco, Jordan, and Lebanon nutrition labelling follows state guidelines in terms of nutrients that should be listed on the food label. However, labelling is not mandatory unless a health or nutrition claim is made or the food is for special dietary uses (EUFIC, 2018). The countries of the GCC follow a standard nutrition labelling regulated by the Gulf Standardization Organization (GSO) of the GCC. It requires nutrition fact panels on foods for dietary use. This labelling is also used in Jordan. In Egypt, nutrition labelling requires visible values for energy, salt, fats, and sugar, but complete nutrition labelling is only enforced if a claim is filed (Hawkes, 2010).

Front of pack labelling is also used to provide information on specific ingredients, such as salt or sugar, to limit consumption. In Kuwait, there is a voluntary programme to control the salt content of foods, with plans for front of pack labelling. Likewise, Morocco, is planning front of pack labelling for salt content and holds industry meetings to discuss reformulation efforts (Trieu et *al.*, 2015) and is investigating nutri-score front of pack nutrition labelling (Al Jawaldeh et *al.*, 2020). The Global Panel on Agriculture and Food Systems for Nutrition advises using the Codex Alimentarius to implement guidelines for sugar content labelling. Several Arab States lie in the GCC where alcoholic drinks are restricted, thereby increasing demand for globally marketed sweetened beverages. Like salt content labelling regulations, governments can set standards for labelling sugar content of foods and drinks.

Food taxes

Health related food taxes have been proposed as a means to reduce consumer demand for energy dense foods high in sugar and fat. The strongest evidence comes from SSB taxation which is more easily demarcated than other foods for taxation purposes, thus facilitating policy implementation (Hagenaars et *al.*, 2017). Evidence from early adopters such as Mexico, which implemented an SSB tax in 2014, shows significant reductions in per capita sales of SSB, particularly in subpopulations with high pre–tax purchasing habits (Colchero et *al.*, 2016; Ng et *al.*, 2018). There is a growing body of evidence that these types of fiscal measures can play a role in reducing consumption and thus improving public health.

In the Arab States, five countries have adopted SSB taxation: Bahrain, Morocco, Saudi Arabia, United Arab Emirates and Qatar. Saudi Arabia

was the first country in the Middle East to impose taxes on sugary drinks by introducing a 50 percent excise tariff on soft drinks and 100 percent tariff on energy drinks in June 2017[26]. The United Arab Emirates and Bahrain followed suit in October and December 2017 (Backholer et *al.*, 2018; Burki, 2017). Morocco and Qatar introduced SSB taxes in 2019 (Al-Jawaldeh et *al.*, 2020). It should be noted that in Morocco the government proposal to apply direct VAT (value added tax) to soft drinks was cancelled due to pressure from manufacturers; domestic tax on consumption is now being implemented gradually based on the sugar content per hectolitre (Euromonitor International, 2020).

The impact of sugary drink taxes on consumption or consumer health is hard to ascertain at this point due to the lack of studies. However, assessments from market research organizations related to the sales of carbonated drinks in some Arab States suggest signs of success for the above regulations. For example, in Saudi Arabia sales of carbonated drinks have contracted by 5.1 percent year on year in 2017 (Fitch Solutions, 2019). In the United Arab Emirates , the research suggests that sales of carbonates declined steeply following the imposition of excise tax and VAT tax in 2017-2018 (Euromonitor International, 2019). In Morocco, consumers have shifted their spending away from carbonated drinks towards other categories, notably bottled water (Euromonitor International, 2020).

With an adult diabetes rate of 14.4 percent, the Saudi Vision 2030 explicitly highlights prevention and has set specific targets with key performance indicators to reduce diabetes and obesity (Government of the Kingdom of Saudi Arabia, 2000). With global evidence of the effectiveness of such policies in reducing consumption of taxed foods, it will be important to build evidence on the impact of such policies on diets from the Arab States over time and to expand the adoption of SSB policies.

Regulation of advertising and marketing foods and beverages targeted at children

The aggressive marketing of food products high in saturated fats and trans–fatty acids, free sugars or salt has been identified as a challenge to establishing healthy diets in childhood, particularly as multiple marketing techniques and channels are used. There is strong evidence of the influence of advertising and marketing foods and beverages high in fat, sugars and/or salt on children's food choices and intakes (Hastings *et al.*, 2006; WHO, 2015a). In an effort to provide guidance for the design or support of policies to regulate marketing of food to children, the WHO published a "Set of recommendations on the marketing of foods and non–alcoholic beverages to children", endorsed by the WHA in 2010. These highlight the need for restrictions on the "exposure of children to, and the power of, marketing of" energy–dense foods high in fat, sugars and/or salt, and a complete ban on this type of marketing to children in schools, playgrounds, child clinics and other settings where children gather. Despite a clear set of recommendations, with policy development, implementation and monitoring guidelines, not a single Arab State has adopted the recommended comprehensive policies to restrict marketing energy–dense foods high in fat, sugars and/or salt to children (WHO EMRO, 2014). However, a few Arab States, including Bahrain, Oman and Tunisia, have begun planning to align national regulations with the recommendations.

One example from outside the region shows the need for political commitment to this alignment. Iran's High Council of Health and Nutrition Security comes directly under the supervision of the President, and has ratified a law banning advertising of unhealthy goods and services. The latter are defined by an expert committee (including representatives of different ministries, consumer protection organizations and media) which defines a food as "healthy" or "unhealthy", based on its composition in regards to sugar, salt, fat and harmful additives. "Unhealthy foods" defined according to the criteria of the expert committee may not be advertised nor served in school canteens (WHO EMRO, 2014). Broadcast advertising of soft drinks has been prohibited in Iran since 2004. There are no similar mandatory regulations on broadcast food

[26] In 2019, Saudi Arabia added a 50 percent tax on sugary drinks not previously covered.

advertising to children in the Arab States to date (WCRF, 2018).

Some countries have begun to prohibit marketing certain food categories to children. A regional nutrient profile model dividing food into subcategories that can or cannot be marketed to children was tested in several Arab States including Bahrain, Kuwait, Lebanon, Morocco, Oman and Tunisia (WHO EMRO, 2014).

An additional issue of concern for the region is cross–border marketing because of the reach of media channels and content, including digital marketing, across different countries of the region. If not addressed these may undermine individual country efforts to restrict food marketing to children.

Nutrition education, public nutrition information and social marketing

Nutrition education has been found to support behaviour change and the adoption of healthy attitudes and practices, particularly when implemented alongside interventions that provide enabling environments. Efforts to tackle childhood obesity through schools in the region have largely focused on shorter term behaviour change interventions (Burrell, 2016). However, data from the region show that nutrition education programmes were more effective if they ran for one year or longer, were integrated into school activities and curricula, involved parents and were combined with school feeding programmes that provided fruits and vegetables (Burrell, 2016).

One example of a school–based educational intervention in Tunisia consisted of an interactive programme integrated into the school curriculum to improve nutrition among students aged 12 to 16, including increasing daily fruit and vegetable consumption and decreasing consumption of fast foods. This resulted in a significant and positive change in knowledge and behaviour. Compared to the control group, the intervention group showed higher scores in most of the variables measured. For instance, the intervention group included significantly fewer schoolchildren consuming fast food at least three times a week than the control group. In addition, the intention to eat breakfast daily improved more significantly among the intervention group (Kebaili *et al.*, 2014). This evidence shows that school–based dietary intervention programmes can play a role in improving students' food consumption patterns, and the need to integrate such interventions into both school and afterschool activities (Kebaili *et al.*, 2014).

There have also been studies examining the impact of school–based programmes on obesity among schoolchildren in Tunisia, revealing an increase in fruit and vegetable consumption and a decrease in overweight (Kebaili *et al.*, 2014) and in Lebanon a decrease in the purchase and consumption of high energy snack foods and beverages (Habib–Mourad *et al.*, 2014). These outcomes illustrate entry points for integrating such programmes into curricula to ensure longer term, positive changes in health behaviours and outcomes, particularly in combination with other strategies that modify children's food exposures.

Policies and programmes to improve nutrition, such as food fortification, supplementation and social safety net programmes, are more effective when combined with nutrition education (Bhutta et *al.*, 2013). For example, an evaluation of the impact of nutrition education as part of an anaemia screening and treatment programme in Bahrain indicated that supplementary iron programmes complemented by nutrition education for mothers were more likely to lead to improvements in children's anaemia status (Al Alawi, 2015). In the Bahraini programme health care providers offered nutrition education to mothers and carers of children with low haemoglobin levels, including leaflets on diet and iron supplementation, alongside supplementation, with positive effects on children's haemoglobin status (Al Alawi, 2015).

Public nutrition information efforts have not been very effective in engaging the public and in shaping perceptions and behaviour. To address this issue, social marketing efforts in some

countries of the region have begun to transition from a traditional, top–down approach to a more interactive communication model which leverages channels that promote feedback and participation. Communications professionals and academics confirm that these two–way models engaging with the public in communications efforts can facilitate understanding of knowledge, attitudes, and behaviours around food consumption (Shan *et al.*, 2015).

To this end, there has been a rise in the use of social media channels for promoting food safety and nutrition (Shan et *al.*, 2015). Considering the high use of social media in the Arab world, including seeking health information, this may be a potential entry point for influencing food choice among consumers (Bahkali et *al.*, 2015). In the global literature, evidence points to the benefits of social media marketing and interventions in shaping public perception and behaviours (Overbey et *al.*, 2017). However, evidence on the efficacy of such efforts in influencing consumer behaviours, food choices and food safety are limited and inconclusive (Shan et *al.*, 2015; Overbey et *al.*, 2017), pointing to the need for more research to structure such communications efforts (Overbey et *al.*, 2017). As with other policy areas, it is important that education is part of a comprehensive package of measures within a food systems approach.

SUMMARY

Part II evaluated well established policies in the Arab States region aimed at eradicating caloric deficiencies, undernutrition and NCDs. Part III describes more recent policies aimed at improving nutrition in the region by altering the two main facets of the food system: the food environment and consumer behaviour. The main justification for considering these less traditional policies is that they have been shown to be effective in improving child and adult nutrition in other countries. The food systems paradigm provides a conceptual framework illustrating how these less traditional policies can improve child and adult nutrition. Hence, the suggestion at the beginning of the section to rethink nutrition policies to improve their effectiveness.

Most of the policies in Part III have only recently been introduced in countries of the region, and not in all. The effectiveness of these programmes has not been thoroughly established in the Arab States and they will need to be evaluated. However, given their positive record in other regions, their likelihood of success, if implemented conscientiously, would appear to be good.

IRAQ
A worker shows off a chicken at his house.
©FAO/Cengiz Yar

OMAN
A woman prepares sorghum for her family in front of her home.
©FAO/Stefanie Glinski

CONCLUSIONS

ACHIEVING SUSTAINABLE FOOD SYSTEMS FOR HEALTHY DIETS AND IMPROVED NUTRITION

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ACHIEVING SUSTAINABLE FOOD SYSTEMS FOR HEALTHY DIETS AND IMPROVED NUTRITION

A food system that delivers food that is "sufficient, safe, affordable and nutritious" for all, as envisioned in Agenda 2030 and embodied in SDGs 2 and 3, represents an immense challenge in the Arab States. Meeting that challenge will take time and a willingness to expand the scope of policies that shape the food system, in order to improve its nutritional and health outcomes stemming both from overweight/obesity and undernutrition. This report has focused on the policies and programmes in the countries of the region that can significantly transform the current food system in the Arab States, starting with the food supply and extending to the food environment and consumer behaviour. Though the food systems are successful in feeding the overwhelming majority of the population of the region, and have had some success in reducing undernutrition, they created food environment that steer people towards unhealthy diets compromising their health and nutrition status. Low-quality diet is an important cause of all forms of malnutrition, whether overweight and obesity, undernutrition or micronutrient deficiencies, and one of the leading causes of death and disability. Eradication of hunger and prevention of all forms of malnutrition cannot be achieved without enhanced food systems that provide adequate, safe, diversified and nutrient-rich foods for a healthy diet that is accessible all year-round to everyone. This report highlighted four main challenges of food systems in the region that raise preventable death and disability from lack of access to healthy diets or from malnutrition.

Conflict, though not a constituent part of the food system, continues to shape it through the destruction of livelihoods and disruption of production, trade and social protection systems. Millions of refugees and the internally displaced persons rely on aid because conflict has crippled states' ability to care for their citizens. Hunger continues to be an abiding issue in countries affected directly by conflict (Iraq, Libya, Somalia, Sudan, Syria and Yemen), in the conflict spillover countries of Jordan and Lebanon, as well as in least developed countries such as Djibouti and Mauritania. In comparison, the prevalence of hunger in non-conflict countries affects around five percent of the population, while in conflict countries that reaches nearly 28 percent of the population. This underlines the primacy of conflict as the region's most destructive issue without which most indicators of hunger and nutrition would be much better.

Lack of coherence in sectoral policies across the food system for nutrition in the region is a problem. Policies that affect the region's food system, from production to consumption, are not aligned towards improved nutrition and health outcomes. Incoherent policies are largely responsible for preventable death and disability caused by NCDs, often associated with overweight and obesity. Previous sections have identified instances of policy incoherence: agricultural policies that subsidize wheat, crowding out horticultural crops with higher returns and export opportunities; subsidies for infant formula that inhibit efforts to promote exclusive breastfeeding; and consumer subsidies that promote cheap bread, vegetable oil and

sugar, all linked to obesity.

Stunting and micronutrient deficiencies in children under 5 are two further nutrition outcomes that require a more coherent policy approach. A more holistic approach to reducing micronutrient deficiencies or stunting should accept that socio-economic status has a major influence on these forms of malnutrition. Thus, strategies to reduce micronutrient deficiency or stunting should incorporate a focus on poverty reduction, to include raising the socio-economic status and education of girls and women and providing better maternal and child health care.

A complex problem of stunting can only be addressed through multiple and coordinated nutrition-sensitive and nutrition-specific interventions across many sectors. Efforts to reduce stunting should focus on mothers with low education and low incomes since they are more likely to have stunted children.

Micronutrient deficiencies also often exist in the context of deprivation and are frequently multiple in nature. The predominant interventions to solve these problems are food-based approaches leading to dietary diversification, supplementation, fortification, and complementary public health control measures (sanitation and water improvement).

A third example of a nutritional intervention that can benefit from a more comprehensive and coherent approach is the promotion, support and protection of exclusive breastfeeding for the first six months of life. Awareness of the nutritional benefits of breastfeeding within the community and of the need for community support to facilitate infant and child feeding practices have been shown to be cost effective nutritional interventions that extend the impact of area development programmes. Such efforts need to be underpinned by supportive policies on marketing of breastmilk substitutes, baby-friendly health systems and maternity protection laws. UNICEF promotes its IYCF guidelines to provide the community basis for better feeding practices (UNICEF, 2019).

Development agencies, international financial institutions and donors can support government policies to address child and maternal malnutrition by mainstreaming nutrition into their field programmes.

Agricultural and food security policy is disconnected from existing nutritional challenges in the region. Cereal production policies favour energy-rich staple food production, without sufficient attention to nutrient-rich foods. As noted in Part II, such policies depress rural incomes and export revenues, continuing a legacy of rural poverty. Refocusing farm subsidies away from staple crops towards fruits, vegetables and other high value export crops, along with assistance in ensuring compliance with food quality and safety demands, could potentially raise rural incomes and help to reduce rural poverty. Some producers already export fresh and dried fruits and vegetables to high value markets, such as the European Union and the GCC countries. A more supportive environment for horticulture and for meeting food quality and safety requirements is one way the region could use policy to raise farm incomes, preserve scarce water supplies and promote the production of diverse, safe and nutrient-rich foods that contribute to healthy diets.

Poor quality diets comprising foods with high levels of saturated fats, trans-fats and sugar contribute to poor nutritional outcomes in the region (cf. the section on the broad roots of the NCD issue in Part II). Robust food reformulation policies, taxes on foods or beverages high in fat, sugars and/or salt, regulation of advertising to children, nutrition education, food labelling and enhanced regulation of food environments in schools and other public institutions have been shown in countries outside the region to be an effective means to discourage consumption of high energy density foods with minimal nutritional value. Finally, generalized and even targeted food subsidies have had unintended side effects, stimulating consumption of bread made with highly refined wheat flour, displacing healthier alternatives such as coarse grains and pulses. Studies have found that bread subsidies contribute to overweight in the region (Ecker et *al.*, 2016; Asfaw, 2006; Powell and Chaloupka, 2009). Ramadan and Thomas (2011) showed that there are other ways to design social protection food programmes with potentially less direct support for a diet dominated by highly refined carbohydrates and free sugars.

A true transformation of the food system includes resolute pursuit of food policies that take a "farm to fork" approach (from production to consumption) aimed at enhanced food safety and nutrition, including increased investment from the public and private sectors. Robust policies addressing these four challenges of food systems in the Arab States can go a long way towards transforming these systems to deliver "sufficient, safe, affordable and nutritious" food for all, as envisioned by the 2030 Agenda.

TUNISIA
Fresh Tajik puff cakes being prepared as part of a project supporting inclusive agriculture and food security initiatives.
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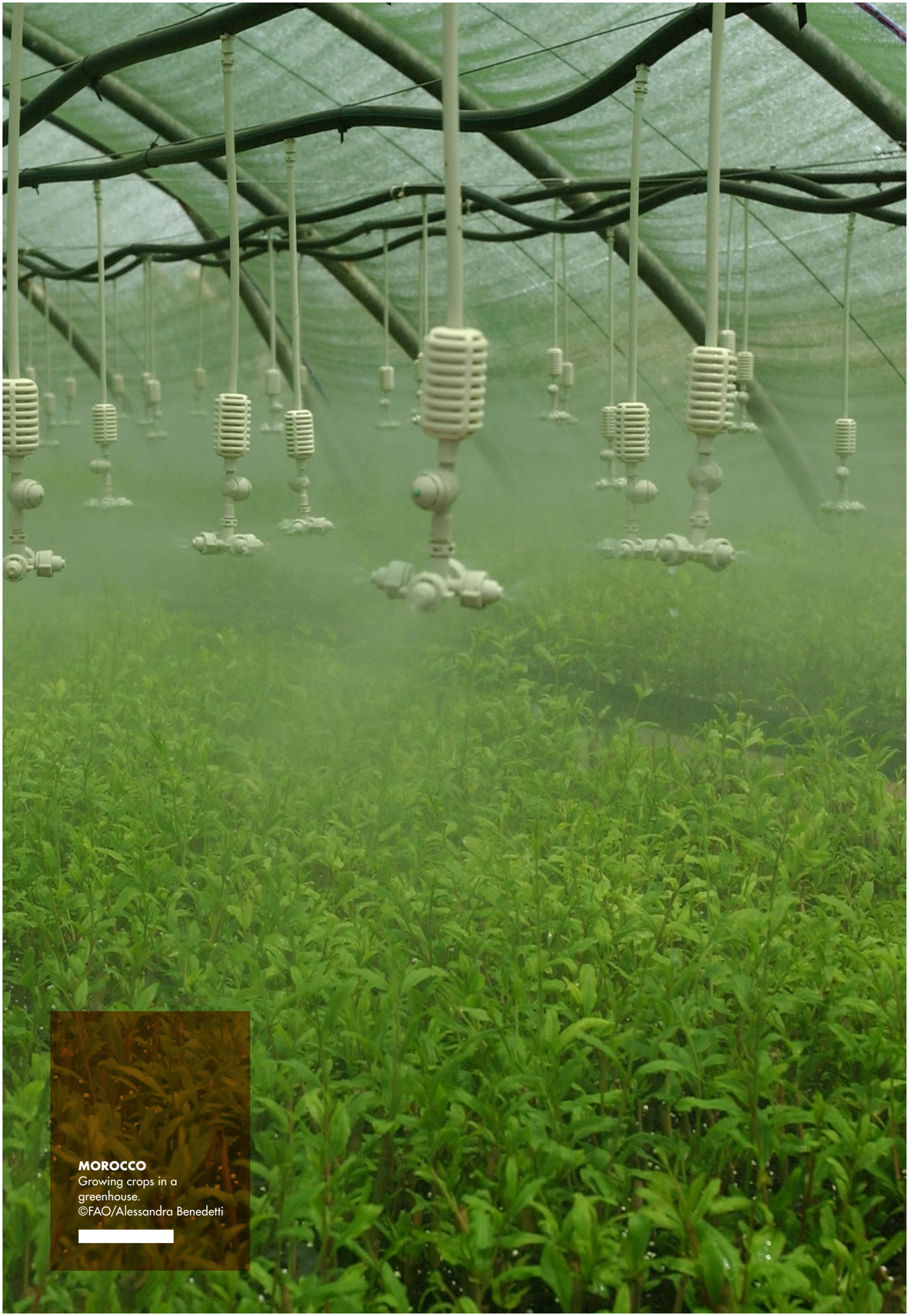

MOROCCO
Growing crops in a greenhouse.
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2019

NEAR EAST AND NORTH AFRICA

REGIONAL OVERVIEW OF FOOD SECURITY AND NUTRITION

The past few decades have seen dramatic improvements in the region in access to food, reduction in stunting rates, in premature death and disability caused by communicable, maternal, neonatal, and nutritional diseases. However, the gains in the fight against hunger and malnutrition have reversed in the wake of conflicts and violence that have spread in many parts of the region in the last decade.

Today, nearly 55 million people in the Arab States, 13.2 percent of the population, are hungry and the situation is particularly worrying in countries affected by conflicts and violence: Iraq, Libya, Somalia, Syria, the Sudan, and Yemen. Displacements and forced migration are widespread in the region, especially among the growing youth population segment.

Many countries carry a double burden of malnutrition, including overweight and obesity and undernutrition. A high or very high prevalence of stunting in children under the age of five persists in nearly half of the Arab States, while anaemia is a severe public health issue in certain countries. The trends of overweight and obesity continue to worsen for children and adults.

Beyond these numbers, the report explores food systems in the Arab States and the policies that support them. It also explores how the latter have contributed to poor nutritional outcomes by failing to make safe and diversified healthy diets available to all. While there has been significant progress in policies designed to reduce caloric deficiencies in the population, the policy reaction to address existing malnutrition problems, particularly in relation to overweight and obesity, has not been adequate considering the gravity of the problem.

Working for #ZeroHunger

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