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Climate change, food security and nutrition in the Arab region: linkages and implications

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Outline

- Climate change expected impact
- Food insecurity, hunger and malnutrition prevalence and trends in the Arab States
- Vulnerability of Arab region to climate-related hazards
- Arab States: selected macroeconomic and other indicators
- Main channels through which climate change can adversely affect food security and nutrition

Climate change expected impact



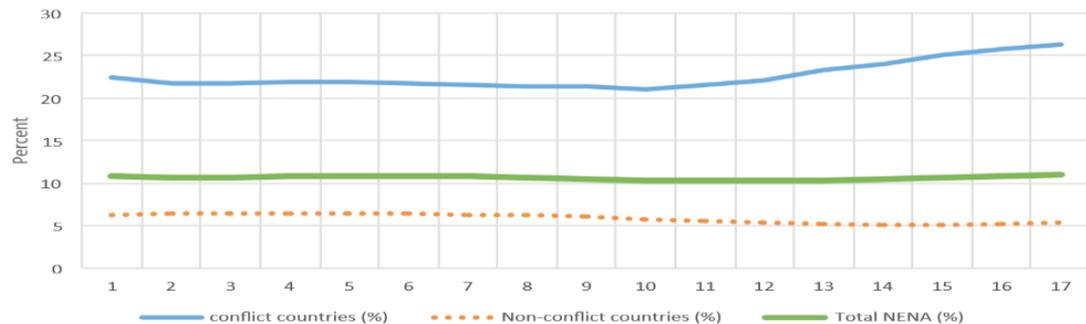
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The Intergovernmental Panel on Climate Change (IPCC) reports indicate that:

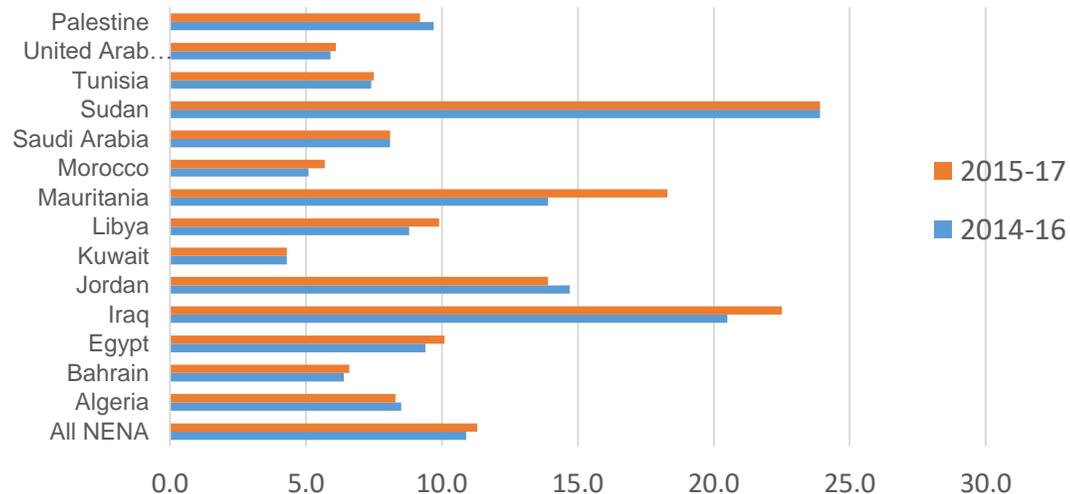
- Climate-related risks to water supply, food security, livelihoods, health, and economic growth are projected to increase due to increase in global temperature, change in precipitation patterns and greater frequency of some extreme events
- Populations at disproportionately higher risk of adverse consequences with global warming of 1.5°C and beyond are those who live in communities dependent on agricultural or coastal livelihoods

Food Insecurity and Hunger in Arab States

Hunger in the NENA: PoU Trends (1991-2015/17)



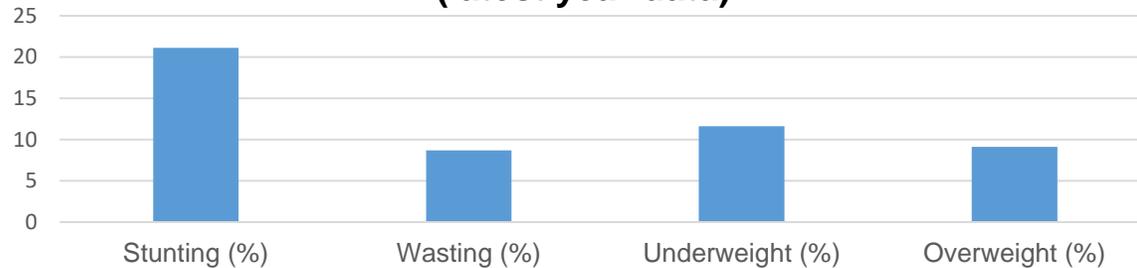
Prevalence of Severe Food Insecurity



- **11% of population experienced hunger and 11.3% were in severe food insecurity**
- **Prevalence of hunger is higher in conflict countries (27%) compared to non-conflict (5%)**
- **Sudan, Iraq and Mauritania have the highest rates of severe food insecurity in the region (data available for 14 countries only)**

Malnutrition in the Arab States

NENA: malnutrition prevalence among U5 children (latest year data)

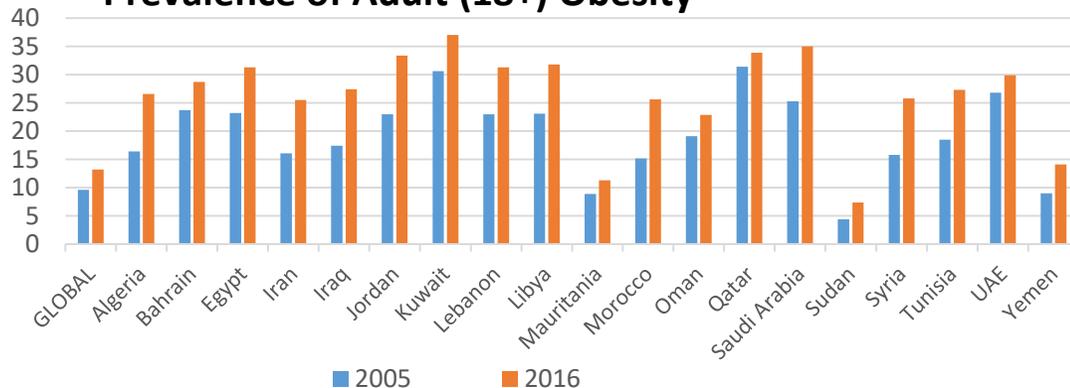


FAO, NENA Regional Overview, 2018

Malnutrition in Under-5 children:

- Public health significance in the region: **High** for stunting; **Medium** for Wasting, Underweight and Overweight
- Child (0-5 years) undernutrition** indicators (stunting, wasting and underweight) are far worse in conflict countries
- Child (0-5) undernutrition is highly correlated with rural transformation (rates are higher in countries with low or medium levels of rural transformation)

Prevalence of Adult (18+) Obesity



Source: SOFI 2017 and 2018

- Micronutrient deficiencies** (Under-5) : **Severe** anemia prevalence in conflict countries (50%) and low-income countries (63.4%)
- Adult obesity** regional prevalence is double of the global indicator (**27%** vs 13.2%) and the rates are increasing; Egypt, Jordan, Lebanon, Libya, Kuwait, Qatar, Saudi Arabia and UAE have the highest prevalence

Arab States: macroeconomic and other indicators

Climate is an essential input in agricultural production as they impact agricultural productivity, farm incomes and prices.

- ❖ The share of agriculture in GDP < 6%, but the sector employs 20% of the labour force
- ❖ The fresh water resources in the region are among the lowest in the world;
 - agriculture uses appr. 85% of the total available freshwater
- ❖ High import dependency (40% of the region's overall food supply);
 - Low Food SSR (2011-2013) for: cereals (46%), veg oil (25%), sugar & sweeteners (37%)
- ❖ 80% of domestically produced food comes from small-scale farmers
- ❖ 60-70% of the region's poor live in agriculture-dependent rural areas
- ❖ Environmental hazards (risk factors air, water and soil pollution, chemical exposures, climate change and radiation) are responsible for about 22% of the total burden of disease in the Region
 - The top 5 “environmental” causes of death in the Region: heart disease, stroke, unintentional injuries, respiratory infections and diarrheal diseases

Vulnerability to climate-related hazards (extreme events and variability phenomena)

Arab States: High exposure to climate extremes (2011-2016)

Arab countries	Number of years with exposure to climate extremes (2011–2016)	Multiple types of climate extremes (2011–2016)
Lebanon	4	DFSH
Libya	4	DH
Morocco	4	DSH
Somalia	5	DSH
Sudan	4	DSH
Tunisia	4	DH
Yemen	5	DSH

- Seven Arab States had high exposure to climate extremes in 2011-2016
 - Drought and heat spell were the most common climate extremes
- Increased frequency of hot days over agriculture cropping areas in 2011-2016 (at least in 2 out of 5 years in all Arab States; 4 out of 5 years in Yemen) [SOFI, 2019)
- The temperature in the Arab region is projected to increase by up to 4.8 °C by the end of the century (RCP 8.5 upper limit), while precipitation trends are largely decreasing. (RICCAR, 2017)

D- drought; F - flood; H - heat spell; S – storm

Source: FAO, 2019

Implications of Climate Change for Food Security



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Climate change can have negative effects on all dimensions of food security

➤ **Food availability:**

- Decline in agricultural production due to: land degradation; lack of fresh water (50% reduction projected by 2050); reduced yields, pest damage to crops
- Reduced livestock productivity due to: diseases, decline of water and feed resource base.

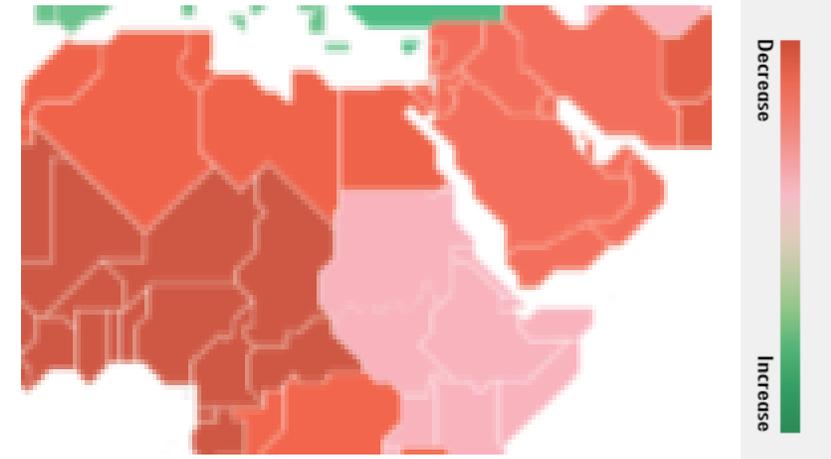
➤ **Food access:**

- Increased dependency on food imports, hence vulnerability to food prices spikes and volatility
- Reduced labour productivity (globally labour capacity diminished by 5.3% between 2000 and 2016, FAO, 2019)

➤ **Food utilization:**

- Reduced quality and safety of food and disease outbreaks (higher rates of microbial growth under higher temperatures)
- Reduced nutritional quality of crops (associated with increased carbon dioxide concentrations and more variable and warmer climate)
- Increased contamination of water used for irrigation

Arab States: Changes in agricultural production by 2050



Source: FAO, *The State of Agricultural Commodity Markets*, 2018

Climate Impacts on Health and Nutrition

Climate change impact underlying causes of malnutrition related to child care and feeding, access to food, safe water and sanitation

- Increase in morbidity and mortality due to rising temperatures and heat waves:
 - Vulnerable/ high risk groups: elderly people, children < 12 months, people with obesity and diet-related NCDs (diabetes, hypertension and cardiovascular disease)
- Increase in diseases (water-borne, vector-borne and zoonotic) that are strongly associated with the nutritional status of children
- Increased workload of women farmers to affect child feeding and caregiving practices (breastfeeding, complementary feeding, frequency and quality of food offered to young children);
- Impaired nutrient quality and dietary diversity of foods produced and consumed:
 - ✓ Diminished nutritional quality of the food supply due to degraded soil
 - ✓ Disruptions of transport infrastructure, resulting in spoilage and/or reduced access to fresh fruit and vegetables, meat and dairy products

Summary

- ✓ Climate change adds more challenges to the already limited natural resources in the NENA Region.
- ✓ Extreme climate events can adversely impact food security as they pose critical challenges to agriculture and food production, affect food prices, labour productivity, water supplies and livelihoods
- ✓ Climate variability and extremes can affect human health and nutrition directly, through natural hazards, as well as indirectly: greater exposure to diseases, food safety risks, diminished quality of diets, poorer child care and feeding practices, particularly among vulnerable farming households

Sources of information

- IPCC, Special 1.5 C report, 2018
- FAO, The State of Agricultural Commodity Markets, 2018 (Global report)
- FAO, The State of Food Security and Nutrition in the World, 2018 (Global report)
- FAO, Near East and North Africa Regional Overview Of Food Security And Nutrition, 2018 and 2019 (forthcoming)
- FAO, Impacts Of Climate Change On Farming Systems And Livelihoods In The Near East And North Africa (with a special focus on small-scale family farming), 2018
- The environmental health nexuses within the Strategic Roadmap: regional work priorities for the WHO Eastern Mediterranean Region, 2018

Thank you