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2022

# EUROPE AND CENTRAL ASIA
# REGIONAL OVERVIEW OF FOOD SECURITY AND NUTRITION

## REPURPOSING POLICIES AND INCENTIVES TO MAKE HEALTHY DIETS MORE AFFORDABLE AND AGRIFOOD SYSTEMS MORE ENVIRONMENTALLY SUSTAINABLE

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**COVER PHOTOGRAPH** © FAO/Oleksandr Mliekov

**VODIANE, UKRAINE.** A woman transports a sack of potato on her bicycle during a distribution of seeds and potato starter kits in the village of Vodiane.

# 2022
# EUROPE AND CENTRAL ASIA
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Food and Agriculture Organization of the United Nations
International Fund for Agricultural Development
United Nations
United Nations Children's Fund
United Nations Development Programme
United Nations World Food Programme
World Health Organization Regional Office for Europe
World Meteorological Organization

**Budapest, 2023**

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# FOREWORD

The 2022 *Regional Overview of Food Security and Nutrition in Europe and Central Asia* is the eighth Europe and Central Asia (ECA) report monitoring and analysing regional trends and progress made towards reaching SDG 2 (Zero Hunger)[1] food security and nutrition targets. Governments support food and agriculture through various polices, fiscal subsidies to producers and consumers, and general services support. These policies impact all stakeholders, food environments and the availability and affordability of healthy diets (FAO *et al.*, 2022). The report includes studies on repurposing policies and incentives to make healthy diets more affordable and agrifood systems more environmentally sustainable in the ECA region.

Seven years after the world committed to ending hunger, food insecurity and all forms of malnutrition, neither the world as a whole nor the ECA region in particular is on track to achieve this objective by 2030. There are many obstacles to making progress and achieving the SDGs. Previous editions of the *Regional Overview of Food Security and Nutrition in Europe and Central Asia* and *The State of Food Security and Nutrition in the World* have shown that extreme climate variability, war and conflicts, economic slowdowns and downturns, and the rising costs of nutritious foods undermine efforts to end hunger, food insecurity and malnutrition.

In 2022, food security and nutrition throughout the world and in the ECA region have been challenged by the ongoing COVID-19 pandemic and the war in Ukraine. Both the pandemic, which started in early 2020, and the war in Ukraine, which began in early 2022, have been undermining efforts to end hunger and improve food security and nutrition. Causes include higher food, agricultural input and energy prices; increased production, transportation and transition costs; higher unemployment; reduced incomes; and the rising costs of (and thus diminishing access to) healthy diets. Many of these costs, which hamper increasing access to healthy diets, are at all-time highs. Consistent with previous reports, the most recent estimates for 2021 generally reveal that the ECA region has enjoyed a low prevalence of hunger and food insecurity compared to the world average. However, the COVID-19 pandemic has added 25.5 million people in the region to the ranks of the moderately or severely food insecure, leaving them without access to safe, nutritious and adequate food.

Progress has been made in reducing various forms of malnutrition in most countries of the ECA region, including child stunting, child wasting and low birthweight. However, the region is in a worse position overall regarding the prevalence of childhood overweight, exclusive breastfeeding and adult obesity. In particular, the region is seeing alarmingly high – and rising – rates of overweight and obesity. The evidence shows that nearly 27 percent of children aged 6–9 years were overweight in 2015–2017, a much higher prevalence than among children under 5 years of age. Adult obesity is on the rise in all subregions and all countries in the ECA region. This report shows that more work must be done for the ECA region to fully reach the SDG 2.2 targets to end malnutrition.

Healthy diets that contain balanced, diverse, nutritious and appropriately selected foods protect against the effects of malnutrition in all its forms and against non-communicable diseases. This 2022 edition of the *Regional Overview of Food Security and Nutrition in Europe and Central Asia* provides updates on the cost and affordability of a healthy diet for 2020 in the region. The evidence shows that the ECA region and almost all ECA subregions were experiencing increased costs and reduced affordability of healthy diets in 2020 because of inflation in consumer food prices, stemming from the economic impacts of the COVID-19 pandemic and the measures implemented along food supply chains to contain it. The situation is even worse in 2022 due to the added impacts of the ongoing war in Ukraine.

While ECA countries are working to achieve the SDGs, the promotion of healthy diets has been challenging. The 2021 United Nations Food Systems Summit provided global momentum to act to achieve the SDGs through an agrifood system lens while ensuring that all people are able to enjoy their right to a decent and safe life. One of the necessary building blocks in the agrifood systems transformation is the repurposing of food and agricultural policies, which means replacing inefficient, unsustainable and/or inequitable support measures with support measures that are the opposite (FAO *et al.*, 2022). Repurposing implies the reforming of agricultural policies to make them better suited to addressing the "triple challenge" of current agrifood systems: achieving food security and good nutrition for a growing world population and for better health; providing livelihoods to farmers and others connected to the sector; and reducing the nature and climate footprint of the sector.

Government support to food and agriculture in the ECA region has been increasing, in particular in middle-income countries, affecting the availability, accessibility, diversity and prices of foods. However, a significant portion of this support distorts market prices – which may impact the affordability of a healthy diet – and is destructive to the environment and harmful to small-scale producers and Indigenous Peoples. Making agrifood systems more environmentally sustainable will require more support for agricultural research and development, education, extension, pest and disease control actions, and public food safety control systems. It also is necessary to develop, disseminate and adopt climate-smart agriculture and more emission-efficient technologies, policies and practices to reduce overall emission from agriculture. While 20 percent of total support to food and agriculture globally was for general services, which can create an enabling environment, the figure was just 11 percent among high-income countries and 15

percent among middle-income countries in the ECA region. Moreover, in response to the COVID-19 pandemic and the war in Ukraine, the goal of self-sufficiency in agrifood commodities has been getting more attention in many countries in the region, and this has led to import and export restrictions that have imposed extra costs on food for consumers. Policies need to be reshaped to apply a more balanced approach to designing agrifood trade polices without undermining people's access to healthy diets.

A healthy, sustainable, equitable and efficient agrifood systems transformation will need policy options, interactions and the coordination of multisectoral policies within and outside of agrifood systems. Some farmers – especially small-scale farmers and women – who are facing resource constraints and a lack of knowledge and who do not have access to markets are not in a position to specialize in the production of priority nutritious foods. Therefore, policy measures will be needed to protect the poor and vulnerable and promote their market access and specialization when considering the repurposing of resources to prioritize food consumers and incentivize sustainable production.

It is important to take into account synergies and trade-offs between the affordability of a healthy diet and the environmental sustainability of agrifood systems when considering the implications of agricultural policies. The Global Framework for Climate Services can help accelerate, coordinate and promote the development and application of climate services to assist decision-making at all levels in support of addressing climate-related risks. The Integrated Global Greenhouse Gas Information System can support decision-makers with information to guide valuable and additional emission-reduction actions and build confidence in the role of atmospheric composition measurements.

The current state of food security and nutrition in the ECA region requires holistically developed regional and national programmes and projects to make healthy diets more affordable while making agrifood systems more environmentally sustainable. These programmes should encompass agrifood systems, health, nutrition education, climate, trade, investment, innovation, social protection and state support for acceleration towards achieving the SDGs.

As with previous editions of the *Regional Overview of Food Security and Nutrition in Europe and Central Asia*, we hope that this report provides valuable knowledge and evidence and contributes to identifying options for informed dialogue and concerted action by all partners as we work together to accelerate progress towards the goal of a hunger-free and healthy Europe and Central Asia. Our organizations stand firmly committed and ready to support governments and bring additional allies on board to achieve policy coherence at regional and national levels. ■

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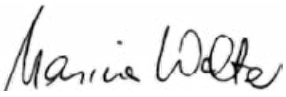

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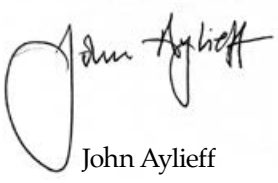

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# ACRONYMS AND ABBREVATIONS

| | |
|---|---|
| BT | budget transfer to individual producer |
| CIS | Commonwealth of Independent States |
| CFS | Committee on World Food Security |
| CNPC | consumer nominal protection coefficient |
| COSI | Childhood Obesity Surveillance Initiative |
| COVID-19 | coronavirus disease 2019 |
| CPI | consumer price index |
| EAEU | Eurasian Economic Union |
| EBRD | European Bank for Reconstruction and Development |
| ECA | Europe and Central Asia |
| ECLAC | Economic Commission for Latin America and the Caribbean |
| EECCA | Eastern Europe, Caucasus and Central Asia |
| EFTA | European Free Trade Association |
| ESCAP | Economic and Social Commission for Asia and the Pacific |
| ESCWA | Economic and Social Commission for Western Asia |
| EU27 | the 27 Member States of the European Union |
| FAO | Food and Agriculture Organization of the United Nations |
| FIES | Food Insecurity Experience Scale |
| GDP | gross domestic product |
| GFCS | Global Framework for Climate Service |
| GFF | Global Financing Facility |
| GHG | greenhouse gas |
| GSSE | general services support estimate |
| HIC | high-income country |
| HLPE | High Level Panel of Experts |
| ICP | International Comparison Programme |
| IFAD | International Fund for Agricultural Development |
| IFPRI | International Food Policy Research Institute |
| IHME | Institute for Health Metrics and Evaluation |
| ILO | International Labour Organization |
| IPARD | instrument for pre-accession assistance for rural development |
| LMIC | lower-middle-income country |
| MPS | market price support |
| NCD | non-communicable disease |
| NPC | nominal protection coefficient |
| NRP | nominal rate of protection |
| OECD | Organisation for Economic Co-operation and Development |
| PIP | poverty and inequality platform |
| PoU | prevalence of undernourishment |
| PPP | purchasing power parity |
| PSCT | producer single commodity transfer |
| PSCTP | gross farm receipts from the commodity |
| RASFF | Rapid Alert System for Food and Feed |
| SDG | Sustainable Development Goal |
| TBSE | total budgetary support estimate |
| TCT | transfer to consumer from taxpayer |
| TSE | total support estimate |
| UMIC | upper-middle-income country |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| UNECE | United Nations Economic Commission for Europe |
| UNICEF | United Nations Children's Fund |
| WFP | World Food Programme |
| WHA | World Health Assembly |
| WHO | World Health Organization |
| WMO | World Meteorological Organization |
| WTO | World Trade Organization |

# KEY MESSAGES

## PART I: OVERVIEW OF FOOD SECURITY AND NUTRITION IN EUROPE AND CENTRAL ASIA

- While the worldwide prevalence of undernourishment (PoU) increased from 8.4 percent in 2019 to 9.9 percent in 2020 and rose further in 2021, the PoU in the Europe and Central Asia (ECA) region has remained below 2.5 percent in recent years. However, by subregion, the PoU was above 2.5 percent and experienced increases from 2019 to 2021 in the Caucasus, Central Asia and the Western Balkans. With the impacts of the COVID-19 pandemic on national economies and households, the level of undernourishment is expected to increase but remain below 2.5 percent in some countries of the region.

- After increasing sharply in 2020, the regional prevalence of moderate or severe food insecurity increased again in 2021 (from 9.8 percent in 2019 to 11.3 percent in 2020 to 12.4 percent in 2021), reflecting a deteriorating situation for people facing serious hardships as a result of the COVID-19 pandemic. Overall, around 116.3 million people in the ECA region were moderately or severely food insecure in 2021, with 25.5 million added in just two years. Four subregions had a higher prevalence than the ECA average: Central Asia (20.2 percent), the Western Balkans (19.8 percent) and the Caucasus (16.9 percent). Severe food insecurity rose even higher, with more than 13 million people becoming severely food insecure in the region from 2019 to 2021.

- Overall in the ECA region in 2020, an estimated 7.3 percent of children under 5 years of age were stunted (22 percent globally), and 1.9 percent were wasted (6.7 percent globally). Both indicators were much lower than the world average. The prevalence of stunting and wasting declined continuous from 2015 to 2020. As of the latest data available (from 2016), adult obesity was on the rise in all subregions, and the regional prevalence of adult obesity was well above the global average.

- The prevalence of overweight among children under 5 years of age in the ECA region was estimated at 7.1 percent, much higher than the world average of 5.7 percent. Among boys and girls aged 6–9 years, 26.9 percent were overweight, much more than among children under 5 years of age.

- The prevalence of anaemia among women aged 15–49 years was 17.4 percent in the ECA region in 2020, while globally, nearly one in three women were affected by anaemia. However, the prevalence of anaemia in the Caucasus was higher than the global average. The global prevalence of low birthweight declined at a slow pace from 2000 to 2015. The data for the ECA region show the same slow pattern, with a prevalence of about half the world average. As it has worldwide, steady progress has been made on exclusive breastfeeding in the ECA region, though the prevalence remains below the global average.

- The average cost of a healthy diet in the ECA region and in almost all ECA subregions increased in 2020 due to a sharp increase in consumer food prices resulting from the COVID-19 pandemic. In 2020, the Western Balkans had the costliest healthy diet in the region (USD 3.87 per person per day, much higher the world average of USD 3.54 and regional average of USD 3.14).

- On average, the ECA region in 2020 had a much lower percentage of people unable to afford a healthy diet (roughly 3.6 percent) than the world (42.0 percent). However, three of the study countries had a very high percentage of their populations who were unable to afford a healthy diet. In 2020, 49.6 percent of the population were unable to afford a healthy diet in Kyrgyzstan, 42.9 percent in Armenia, and 42.1 percent in Tajikistan.

## PART II: REPURPOSING POLICIES AND INCENTIVES TO MAKE HEALTHY DIETS MORE AFFORDABLE AND AGRIFOOD SYSTEMS MORE ENVIRONMENTALLY SUSTAINABLE

- The lingering effects of the COVID-19 pandemic continue to impact global and regional economies. In addition, the ongoing war in Ukraine, which began in 2022, is disrupting regional and global food markets and whole supply chains. Most countries in the ECA region – especially middle-income countries – are highly affected and have limited capacity to help mitigate the crisis through food production, export, and investment in agrifood systems. This is the time for governments to start examining their current support to food and agriculture and to evaluate whether the current money can be reallocated more cost-effectively and efficiently to reduce hunger, food insecurity and malnutrition in all its forms.

- Food and agriculture policies need to be repurposed to make them better suited to addressing the "triple challenge" of current agrifood systems – increasing the affordability of healthy diets, ensuring better livelihoods for farmers and improving environmental sustainability.

- The countries in the ECA region have very different levels of development and also different levels of budgetary support to food and agriculture. The level of support in high-income countries is much higher, but the share of support in the region's total support is decreasing from high-income ECA countries and growing from middle-income countries.

- The lion's share of the support to food and agriculture in the ECA region, on average, is targeted to farmers individually through trade and market policies and fiscal subsidies tied to production or unconstrained use of variable production inputs. Budget support to general services aimed at creating an enabling environment is limited in most ECA countries. Making agrifood systems more environmentally sustainable will require more support for agricultural research and development, education, extension, pest and disease control actions, public food safety control systems, and climate-smart agriculture and emissions-efficient technologies and practices.

- Trade and market interventions can act as trade barriers for nutritious foods, undermining the availability and affordability of healthy diets. Overall in the ECA region, support to agricultural production largely is concentrated in meat (70 percent) and milk production, while cereals and oil crops in major producing countries receive disincentives as a result of explicit and implicit export restrictions. The support structure encourages food consumption towards more meat and livestock products, which already are overconsumed, making relatively more expensive the consumption of unsubsidized or less-subsidized commodities such as fruits, vegetables and pulses in the ECA region.

- When repurposing public support to make healthy diets more affordable, policymakers will have to avoid – and in some cases manage – potential inequality trade-offs, since farmers (in particular small-scale farmers, women and youth) may not be able to become specialized in the production of priority nutritious foods due to knowledge and resource constraints. The ECA region offers some good examples (as provided in this report) of agricultural investments for inclusive and nutritious food supply chains.

- A healthy, sustainable, equitable and efficient agrifood systems transformation will require the coordination of policies within and outside of agrifood systems. Complementing policies that are needed to ensure that repurposing efforts are impactful in the region: shifting agricultural support to priority food groups, supporting nutrition-sensitive production systems and food supply chains, developing and disseminating and adapting climate-smart agriculture or more emission-efficient technologies and practices, improving the food environment, empowering consumers to choose healthy diets, making responsible investments to achieve food security and better nutrition, and repurposing agricultural support to better benefit farmers and others connected to the sector.

- Complementing policies in health, education for nutrition, and trade facilitation, climate and environment, and programmes for children in the ECA region can support shifts in food supply chains and consumer behaviour towards healthy diets and ease or mitigate trade-offs.

- There are differences and gaps in social protection in the ECA region. Some lower-middle-income countries have extremely low social assistance payments. Policies and programmes have a strong focus on infants and children younger than 5 years of age and on women of reproductive age but not on nutrition or overweight and obesity among adolescents, which have become severe issues.

- Significant commodity-specific support is linked to the overuse of inputs and land and water resources. In the ECA region, emissions intensities indicate that greater potential reductions in greenhouse gas emissions can be gained by restructuring food production systems between crop and livestock sectors and within crop and livestock products and by using climate-smart and energy-efficient technologies and practices along agrifood value supply chains. The risks of climate variability and change and adaptation to climate change can be better managed by the development and incorporation of science-based climate information and coordination systems.

- The success of repurposing efforts will need to consider the diversity of each country's context (political, social, governance, balance of payments, etc.) at local and national levels and engage with stakeholders from the public and private sectors and international organizations.

# INTRODUCTION

The Sustainable Development Goals (SDGs), adopted by all United Nations Member States in 2015, renewed and revitalized the commitment to ending hunger and malnutrition. This 2022 edition of the *Regional Overview of Food Security and Nutrition in Europe and Central Asia* is the eighth regional analysis aligned to SDG 2 (Zero Hunger) food security and nutrition indicators in Europe and Central Asia (ECA), in line with *The State of Food Security and Nutrition in the World 2022*. Regional overviews for the ECA region have been issued annually since 2015.

As the previous editions of the *Regional Overview of Food Security and Nutrition in Europe and Central Asia* have shown, many countries in the region face challenges related to food insecurity and malnutrition in one form or another. However, the magnitudes of these problems vary throughout subregions and countries, as the region encompasses great diversity in income levels and other social and economic characteristics. The ongoing COVID-19 pandemic, the war in Ukraine and climate change have worsened food security and nutrition and highlighted the fragilities of agrifood systems and the inequalities of our societies. These issues are manifested through three main transmission channels: rising food prices, rising energy prices and tightening financial conditions.

Previous regional reports have shown that undernourishment, or hunger, is not a major issue overall in most ECA countries. However, the rate of decline in the prevalence of undernourishment (PoU) has slowed and even reversed in the past several years in some countries of the region. The prevalence of severe food insecurity – another indicator to measure food security, based on the Food Insecurity Experience Scale (FIES) – indicates that severe food insecurity is low in the region. However, the prevalence of food insecurity at moderate or severe levels, taken together, is not negligible in the region, including in high-income countries, indicating a lack of access for all people to nutritious and diverse foods throughout the entire year. There also is a disparity between women and men at the moderate or severe level.

In Part I, this report contains a new assessment and presents an up-to-date picture of food security in the region, using the latest 2021 PoU and FIES data. In particular, this report reviews and assesses the impacts of the COVID-19 pandemic on food security and nutrition (SDG 2.1: undernourishment and food insecurity) at regional, subregional and country levels within the ECA region.

Target 2.2 of SDG 2 calls for an end to "all forms of malnutrition" by 2030. The nutrition and health targets in the SDGs build on those set by the 2012 World Health Assembly, which approved six global targets to be met by 2025 for improving maternal, infant and young child nutrition. To align with the deadline of the 2030 Agenda for Sustainable Development, the 2025 targets were subsequently extended to 2030. In previous editions, the *Regional Overview of Food Security and Nutrition in Europe and Central Asia* reviewed key indicators related to malnutrition and discussed trend analyses. The findings have highlighted that many in this region face the multiple burdens of malnutrition.

This 2022 edition includes reviews and updates on the following indicators of malnutrition: stunting among children under 5 years of age; wasting among children under 5 years of age; overweight among children under 5 years of age; anaemia among women aged 15 to 49; and the additional World Health Assembly nutrition indicators adult obesity, prevalence of exclusive breastfeeding during the first six months of life, and prevalence of low birthweight. This edition

contains, for the first time, an overview and analysis of child overweight among boys and girls aged 6–9 for 36 ECA countries, based on the WHO European Childhood Obesity Surveillance Initiative (COSI). In addition, this issue – also for the first time – reports the prevalence of obesity among adults by sex for 51 countries in ECA region.

As discussed in the *Regional Overview of Food Security and Nutrition in Europe and Central Asia 2020*, diet quality is a critical link between food security and nutrition outcomes. Consuming healthy diets can help achieve the SDG 2 targets of ending hunger, achieving food security and improving nutrition – in particular, in reducing overweight and obesity and health problems stemming from diet-related non-communicable diseases. Healthy diets, on average, are five times more expensive than staple, cereal-based diets in the ECA region, and the high costs of healthy diets make them unaffordable for poor households. The sharp increase in global- and country-level consumer food prices in 2020 because of the COVID-19 pandemic may be translated into higher costs of healthy diets, negatively affecting their availability and affordability. This report provides a 2020 cost and affordability update for ECA countries.

Many factors may be involved in the slowdown or reversal of progress on food security and in challenges related to the multiple burdens of malnutrition. Each year, an important priority issue for the region is highlighted in the thematic portion of the *Regional Overview of Food Security and Nutrition in Europe and Central Asia*.

The 2020 edition explored the transition to healthy diets by examining their costs and affordability in the fight to end hunger and malnutrition in the ECA region. The 2019 edition assessed the structural transformations of agriculture for improved food security, nutrition and environment. An in-depth assessment of labour migration, remittances and food insecurity and malnutrition was the primary focus in 2018. The 2017 report appraised the region's exposure to environmental degradation and climate change and the trends and features observed related to the triple burden of malnutrition. This 2022 edition contains studies on the repurposing of public policies and incentives to make healthy diets more affordable and more environmentally sustainable. Given the constraints of government budgets and, in particular, financial crises due to the impacts of war, it becomes an urgent necessity to allocate existing public budgets and price incentives in a different manner and more cost-effectively and efficiently to achieve development objectives, including reducing the costs of healthy diets and making food systems more environmentally sustainable in the ECA region. Part II of this report includes the following sections: stocktaking and analysis of national food and agricultural policies for the affordability of healthy diets in ECA countries; repurposing food and agricultural support and complementing polices within and outside agrifood systems to address the "triple challenge" of agrifood systems in the region (improving the affordability of healthy diets, providing livelihoods to farmers and others connected to the sector, and improving environmental sustainability); and a special analysis of the impacts of food and agricultural production on environments and reorienting agricultural production in the ECA region for a healthier planet.

The lingering effects of the COVID-19 pandemic continue to impact global and regional economies and have worsened the food security situation. The war in Ukraine, which began in 2022, is disrupting regional and global food markets and whole supply chains because the Russian Federation and Ukraine are two of the world's largest producers of staple cereals and oilseeds and play a pivotal role in the supply of food, energy and finance to the economies of the region. The war is affecting grain, fertilizer and energy prices, leading to shortages in most countries of the region and limiting financial resources, particularly in middle-income ECA countries. Most countries in the region have limited capacity to help mitigate the crisis through food production and food export, as the financial resources available for investment in agrifood systems are very limited. As shown in *The State of Food Security and Nutrition in the World 2022*, governments can invest in agrifood systems equitably and sustainably even with the same level of public resources. Governments throughout the region will need to evaluate whether the current money can be reallocated more cost-effectively and efficiently to achieve development objectives.

The 2021 United Nations Food Systems Summit provided global momentum to act to achieve the SDGs through an agrifood systems approach. Agrifood systems need to be transformed and food and agriculture policies repurposed to make them better suited to addressing the "triple challenge" of current agrifood systems, as well to improve the affordability of healthy diets, make trade-offs for a better life, and improve environmental sustainability (including environmental indicators such as biodiversity loss, greenhouse gas emissions intensity, land use change, eutrophication, water use and others).

The options available to transform agrifood systems need to be carefully considered, with the aim of using limited resources in the most cost-effective and efficient ways to achieve development objectives. This report presents the results of a simulated scenario involving the repurposing of food and agricultural policies among lower-middle-income, upper-middle-income and high-income countries. The report identifies the benefits of repurposing agricultural support based on both quantitative and qualitative evidence, provides an analysis of the potential trade-offs and synergies, and shares guidance for countries on how to repurpose agricultural policies.

A healthy, sustainable, equitable and efficient agrifood systems transformation will need policy options and the coordination of multisectoral policies within and outside of agrifood systems. This report provides reviews and detailed analyses of complementing policies within agrifood systems that are needed to ensure repurposing efforts are impactful in the region: shifting agricultural support to priority food groups, supporting nutrition-sensitive production, improving the food environment and empowering consumers to choose healthy diets, making responsible investments to achieve food security and better nutrition, and repurposing agricultural support to better benefit farmers and others connected to the sector.

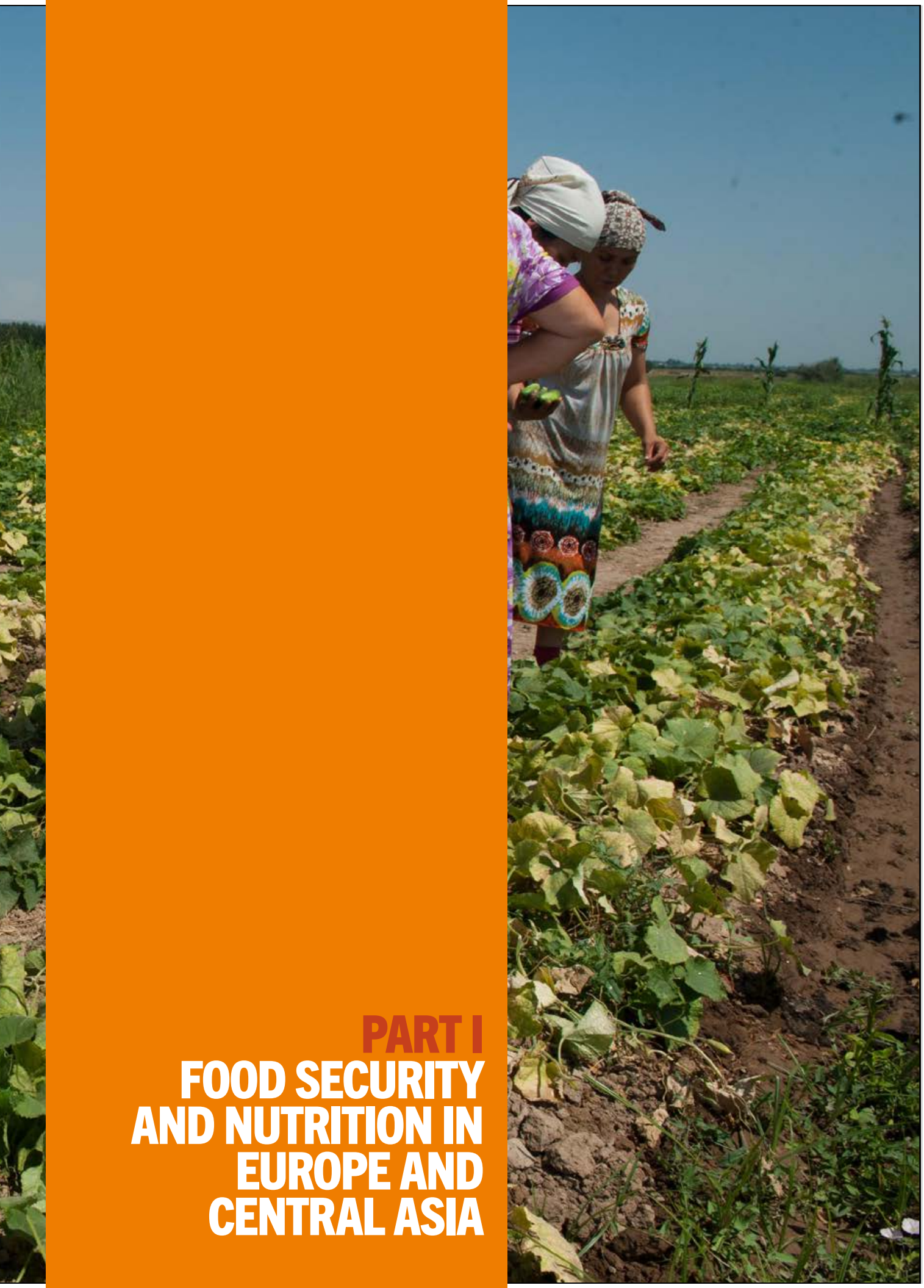
Complementing policies in health, education for nutrition, social protection, trade facilitation, climate and environment, and programmes for children are reviewed to see whether they can provide incentives to support shifts in food supply chains and consumer behaviour towards healthy diets and ease or mitigate the unintended consequences or trade-offs from repurposing support for vulnerable and disadvantaged population groups.

The most important synergies and trade-offs between the affordability of a healthy diet and the climate (greenhouse gas emissions from agriculture) are observed when budgetary transfers are repurposed. Ensuring affordable healthy diets and pursuing environmental and climate goals can offer important synergies with the repurposing of food and agricultural support. This report provides a detailed analysis of polices and incentives to achieve environmental and climate-related goals in the ECA region and includes a data-based analysis of the impacts of agricultural production on the environment. Three impacts are analysed: greenhouse gas emissions, biodiversity impacts from food crops and pastures, and water footprints.

Climate change is impacting the ability to produce food. Adapting to a changing climate and building resilience to adverse climate events increase production costs. Sufficient agro-environmental payments are necessary to increase the environmental sustainability of production. Agricultural support by commodity groups with different emissions intensities has varying impacts on nature and climate footprints. Climate-smart agriculture is an approach that helps guide the transformation of agricultural systems to support development and ensure food security in a changing climate. This report analyses these issues in ECA countries.

The risks of climate variability and change and of adaptation to climate change can be better managed by the development and incorporation of science-based climate information and prediction into planning, policy and practices at global, regional and national scales. This report presents as an example the Global Framework for Climate Services, which can enable the development and application of weather, water, climate and related environment services to assist decision-making at all levels in support of addressing related risks. ■

**KYRGYZSTAN**
Farmers, harvesting cucumbers.
©FAO/Sergey Kozmin



# PART I
# FOOD SECURITY AND NUTRITION IN EUROPE AND CENTRAL ASIA

# 1.1 SUSTAINABLE DEVELOPMENT GOAL 2.1: UNDERNOURISHMENT AND FOOD INSECURITY

## Key messages

- While the global prevalence of undernourishment (PoU) increased from 8.4 percent in 2019 to 9.3 percent in 2020 and to 9.8 percent in 2021, the PoU in the Europe and Central Asia (ECA) region has remained below 2.5 percent for nearly two decades. However, in the Caucasus, Central Asia and the Western Balkans, the PoU is above 2.5 percent but still well below the world average. The latest results show the persistence of undernourishment in the countries of the region most vulnerable in terms of food security to various shocks. It is expected to increase but remain below 2.5 percent in some countries of the region.
- After increasing sharply in 2020, the regional prevalence of moderate or severe food insecurity increased again in 2021 (9.8 percent in 2019, 11.3 percent in 2020 and 12.4 percent in 2021), reflecting a deteriorating situation for people already facing serious hardships due to the COVID-19 pandemic. Around 116.3 million people in the ECA region were moderately or severely food insecure in 2021, an increase of 10.7 million (10.1 percent) from 2020. In all, that is 25.5 million (28.1 percent) added to the numbers from 2019, before the COVID-19 pandemic. The increase was across all subregions but most prevalent in Central Asia and the Western Balkans.
- Compared to the world average, the ECA region has a relatively low prevalence of severe food insecurity, similar to the prevalence of moderate or severe food insecurity. However, severe food insecurity rose in 2021 from 2020, after an earlier increase from 2019 to 2020. An estimated 27.4 million people in Europe and Central Asia experienced severe food insecurity in 2021, a jump of 5.9 million people (27.4 percent) from 2020 and 13.1 million people (91.6 percent) from 2019.
- Sex-disaggregated estimates across the region show that moderate or severe food insecurity was experienced more by women (12.5 percent) than by men (10.3 percent) in 2021.

### NOTE

Another crisis is unfolding as this report is being written with potentially sobering implications for global food security and nutrition: the war in Ukraine. Although the statistics presented in this report refer to the period up until 2021 and, therefore, represent the state of food security before the onset of the war, it is likely that the direct and indirect effects

of the war will have multiple implications for global agricultural markets through the channels of trade, production and prices over time. Ultimately, this casts a shadow over the state of food security and nutrition for many countries – in particular those that are already facing hunger and food crisis situations – and poses an additional challenge for achieving the Sustainable Development Goal (SDG) 2 targets of ending hunger and ensuring access to adequate food for all (SDG Target 2.1) and eliminating all forms of malnutrition (SDG Target 2.2).

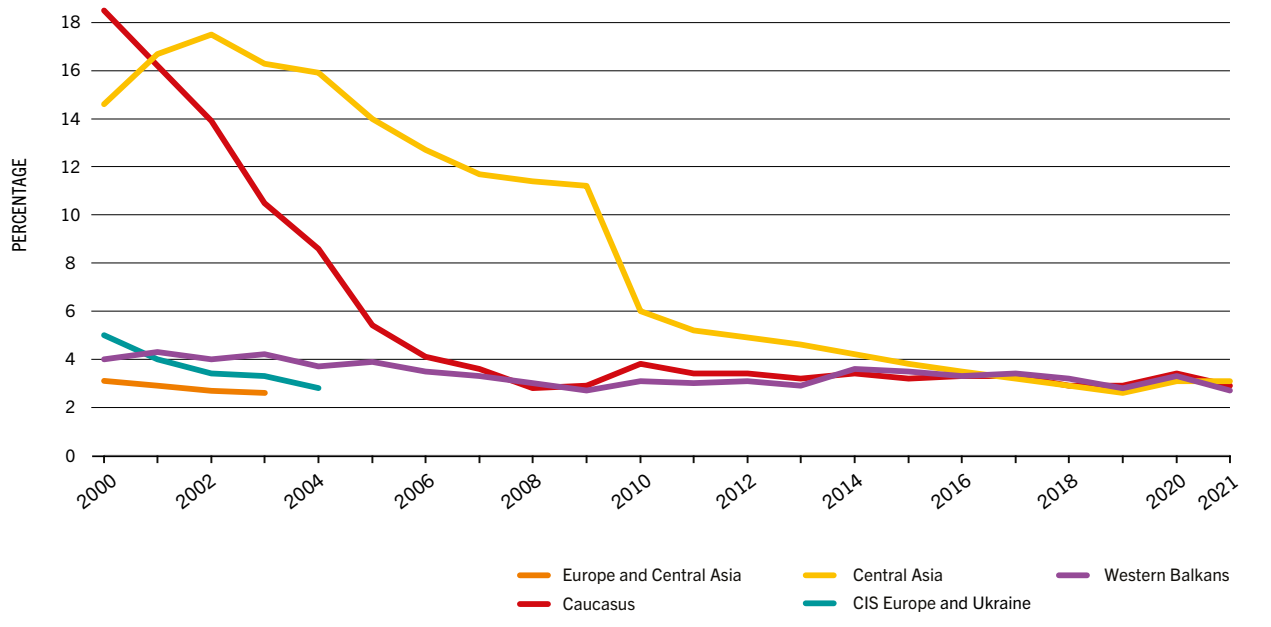
## PREVALENCE OF UNDERNOURISHMENT

The Food and Agriculture Organization of the United Nations (FAO) PoU indicator is derived from country data on food supply, food consumption and energy needs, while taking into consideration demographic characteristics such as age, sex and levels of physical activity. Designed to capture a state of energy deprivation lasting over a year, it does not reflect the short-lived effects of temporary crises or a temporarily inadequate intake of essential nutrients.

FAO strives always to improve the accuracy of the PoU estimates by taking into account new information; the entire historical series is updated for each report. For this reason, only the current series of estimates should be used, including for values in past years (FAO *et al.,* 2019).

In the past two decades, countries in the Europe and Central Asia (ECA) region have made significant progress in combating undernourishment. In 2000, the PoU in the entire region was 3.1 percent, and it has since fallen to below 2.5 percent (FIGURE 1).

**FIGURE 1**
Prevalence of undernourishment in Europe and Central Asia by subregion




NOTE: Projected values based on the middle of the projected range for 2020 and 2021.

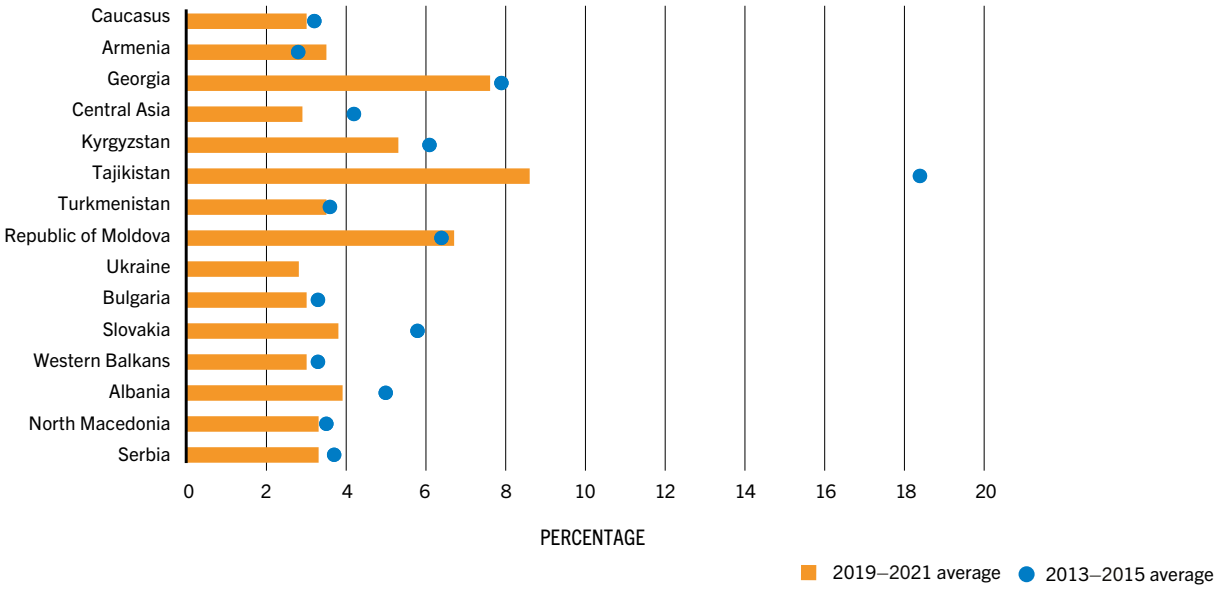
SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO.* Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

The undernourishment trends by subregion show that the low PoU levels – and the stable trends – at the regional level since 2000 are mainly driven by sustained progress in hunger eradication in the Commonwealth of Independent States (CIS) Europe and Ukraine, Europe Free Trade Association (EFTA), the European Union and the United Kingdom of Great Britain and Northern Ireland (EU27 and the United Kingdom) and the Western Balkans and by rapid declines in undernourishment in the Caucasus and Central Asia. The Caucasus and Central Asia have been negatively impacted by the ongoing COVID-19 pandemic; in 2020, the PoU increased by 0.5 percentage points in both subregions, to 3.4 percent in the Caucasus and to 3.1 percent in Central Asia. By 2021, the PoU in the Caucasus fell to 2.9 percent, while in Central Asia it remains at 3.1 percent. The PoU in all subregions was still lower than the world average of 9.8 percent in 2021.

The data in FIGURE 2 for 2013–2015 and 2019–2021 show the persistence of the PoU in some countries. According to 2019–2021 data, the countries that have a higher prevalence of undernourishment in the ECA region are Tajikistan, Georgia and the Republic of Moldova. Tajikistan has achieved significant progress in the reduction of PoU, from 18.5 percent in 2013–2015 to 8.6 percent in 2019–2021. During the same period, there was slight decrease in Georgia (from 8 percent in 2013–2015 to 7.5 percent in 2019–2021) and a slight increase in the Republic of Moldova (from 6.5 percent in 2013–2015 to 7 percent in 2019–2021). There was a slight increase of the PoU in Armenia as well, and the PoU was reduced in Albania, Bulgaria, Kyrgyzstan, North Macedonia, Serbia, Slovenia and Turkmenistan.

Since the early 2000s, most countries in the region have achieved the target of eradicating hunger. In 2000, the number of undernourished in the ECA region was 26.6 million (TABLE 1), and

**FIGURE 2**
Prevalence of undernourishment in Europe and Central Asia by country




NOTE: The estimates referring to the middle of the projected ranges for the years 2020 and 2021 were used to calculate the three-year averages. The PoU is less than 2.5 percent for Ukraine in 2013–2015.

SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

**TABLE 1**
Number of undernourished people, millions

| | 2000 | 2010 | 2015 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| **WORLD** | **796.2** | **601.3** | **588.6** | **618.4** | **721.7** | **767.9** |
| **Europe and Central Asia** | 26.6 | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Caucasus** | 2.9 | 0.6 | 0.5 | 0.5 | 0.6 | 0.5 |
| **Central Asia** | 8.1 | 3.7 | 2.6 | 1.9 | 2.3 | 2.3 |
| **CIS Europe and Ukraine** | 10.4 | n.r. | n.r. | n.r. | n.r. | n.r. |
| **EFTA countries** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **EU27 and the United Kingdom** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Other** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Western Balkans** | 0.8 | 0.6 | 0.6 | 0.5 | 0.6 | 0.5 |

NOTE: Projected values based on the middle of the projected range for 2020 and 2021. n.r. = not reported, as the prevalence is less than 2.5 percent.

SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

this has fallen significantly. The numbers are not reported for 2021 due to the PoU being lower than 2.5 percent in many countries.[2]

The number of undernourished in Central Asia was reduced from 8.1 million in 2000 to 3.7 million in 2010 and to 1.9 million in 2019, a drop of 49 percent from 2010 to 2019. The number of undernourished then increased to 2.3 million in 2020, where it remained through 2021 as well. Similar to Central Asia, the number of undernourished in the Caucasus was reduced significantly from 2000 (2.9 million) to 2010 (600 000). Since then, the number has remained around 500 000 to 600 000 through 2021. There was a 72 percent drop from 2000 to 2021 in Central Asia and an 83 percent drop in the Caucasus during that same period. The number of undernourished in the Western Balkans was 800 000 in 2000, and that number experienced only minor changes, staying at around 500 000 through 2021. The number of undernourished in the other subregions is not reported, as the PoU in those places is below 2.5 percent.

Country data show that in comparison with 2000–2002, in 2019–2021 there was a decrease in the number of undernourished in most of the countries. Large reductions were seen in Tajikistan (from 2.6 million to 800 000), Armenia (from 800 000 to 100 000) and Kyrgyzstan (from 700 000 to 300 000). The number of undernourished has not changed in Georgia and Serbia (300 000 in 2000–2002 and 2019–2021 in both countries). There was an increase in the number of undernourished in the Republic of Moldova (from 100 000 in 2000–2002 to 300 000 in 2019–2021).

The worsening food security situation in Europe and Central Asia is reflected in both the prevalence of undernourishment and in the prevalence of moderate or severe food insecurity.

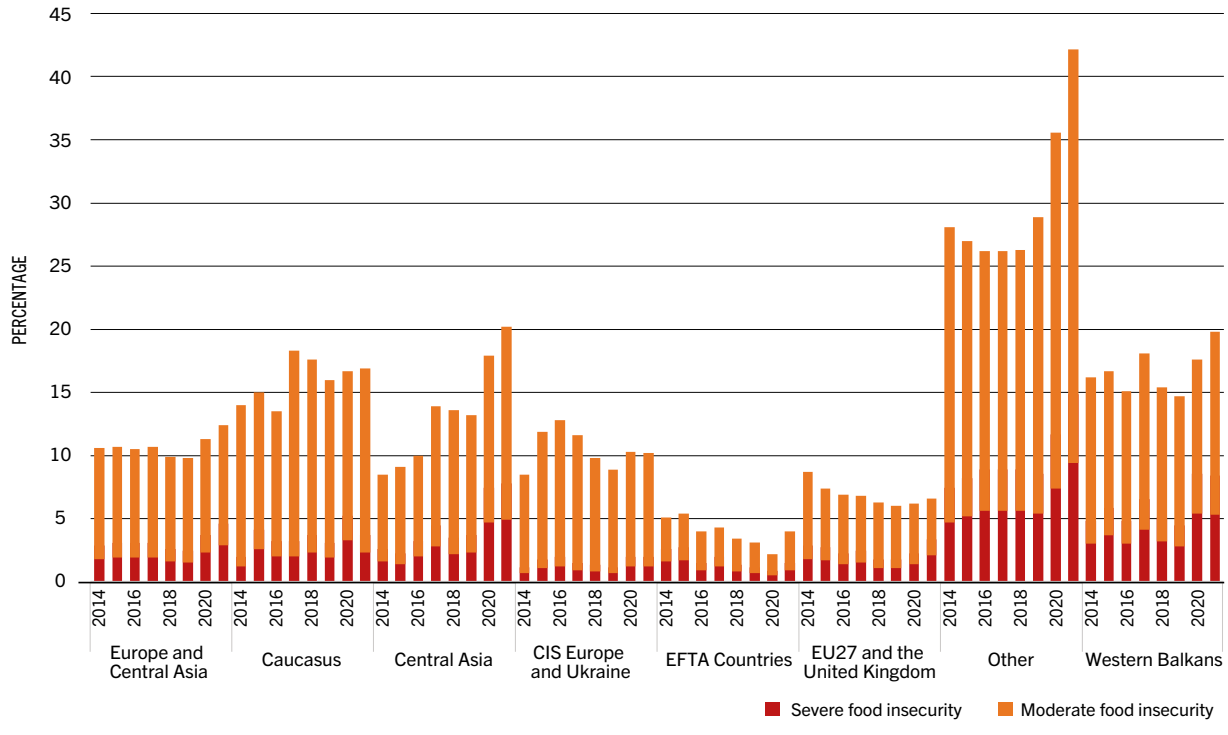
## PREVALENCE OF FOOD INSECURITY BASED ON THE FOOD INSECURITY EXPERIENCE SCALE

The prevalence of moderate or severe food insecurity based on the Food Insecurity Experience Scale (FIES) is an estimate of the proportion of the population facing moderate or severe constraints on their ability to obtain sufficient food over the course of a year. People face moderate food insecurity when they are uncertain of their ability to obtain food and have been forced to reduce, at times over the year, the quality and/or quantity of food they consume due to lack of money or other resources. Severe food insecurity means that individuals have likely run out of food, experienced hunger and, at the most extreme, have gone for days without eating, putting their health and well-being at serious risk.

Severe food insecurity affected 2.9 percent of the people in the ECA region in 2021 (far lower than the world average of 11.7 percent), up from 1.8 percent in 2014 and 1.5 percent in 2019 (FIGURE 3, TABLE 2). By subregion in 2021, 5.3 percent of people were affected by severe food insecurity in the Western Balkans, 4.9 percent in Central Asia, 2.3 percent in the Caucasus, 1.2 percent in CIS Europe and Ukraine, 2.1 percent in the EU27 and the United Kingdom and 0.9 percent in EFTA countries. Only the EFTA subregion saw a decrease from 2014; in all other subregions, the percentage of severely food insecure people increased. However, the percentage of severely food insecure people was below the world average in all subregions.

The prevalence *of* moderate or severe food insecurity in the ECA region was 12.4 percent in 2021, up from 10.6 percent in 2014 (FIGURE 3, TABLE 2). There was an increase in 2021 of 1.1 percentage points over 2020 (11.3 percent). In 2021, the global average was 29.3 percent. As for subregions, in Central Asia, 20.2 percent of the people were severely or moderately food insecure in 2021, compared to 19.8 percent in the Western Balkans, 16.9 percent in the Caucasus and 10.2 percent in CIS Europe and Ukraine.

**FIGURE 3**
Prevalence of food insecurity in Europe and Central Asia by subregion




SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

**TABLE 2**
Prevalence of food insecurity, percent

| | Moderate food insecurity | | | | Severe food insecurity | | | | Moderate or severe food insecurity | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2014 | 2019 | 2020 | 2021 | 2014 | 2019 | 2020 | 2021 | 2014 | 2019 | 2020 | 2021 |
| **WORLD** | **13.5** | **16.1** | **18.6** | **17.6** | **7.7** | **9.3** | **10.9** | **11.7** | **21.2** | **25.4** | **29.5** | **29.3** |
| **Europe and Central Asia** | 8.8 | 8.3 | 9.0 | 9.5 | 1.8 | 1.5 | 2.3 | 2.9 | 10.6 | 9.8 | 11.3 | 12.4 |
| **Caucasus** | 12.8 | 14.1 | 13.4 | 14.6 | 1.2 | 1.9 | 3.3 | 2.3 | 14.0 | 16.0 | 16.7 | 16.9 |
| **Central Asia** | 6.9 | 10.9 | 13.2 | 15.3 | 1.6 | 2.3 | 4.7 | 4.9 | 8.5 | 13.2 | 17.9 | 20.2 |
| **CIS Europe and Ukraine** | 7.8 | 8.2 | 9.1 | 9.0 | 0.7 | 0.7 | 1.2 | 1.2 | 8.5 | 8.9 | 10.3 | 10.2 |
| **EFTA countries** | 3.5 | 2.4 | 1.7 | 3.1 | 1.6 | 0.7 | 0.5 | 0.9 | 5.1 | 3.1 | 2.2 | 4.0 |
| **EU27 and the United Kingdom** | 6.9 | 4.9 | 4.8 | 4.5 | 1.8 | 1.1 | 1.4 | 2.1 | 8.7 | 6.0 | 6.2 | 6.6 |
| **Other** | 23.4 | 23.5 | 28.2 | 32.8 | 4.7 | 5.4 | 7.4 | 9.4 | 28.1 | 28.9 | 35.6 | 42.2 |
| **Western Balkans** | 13.2 | 11.9 | 12.2 | 14.5 | 3.0 | 2.8 | 5.4 | 5.3 | 16.2 | 14.7 | 17.6 | 19.8 |

SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO.* Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

In 2021, only the EFTA countries and the EU27 and the United Kingdom saw decreases from 2014. Other subregions experienced increases, with the largest being in the Central Asia subregion (8.5 percent in 2014 up to 20.2 percent in 2021).

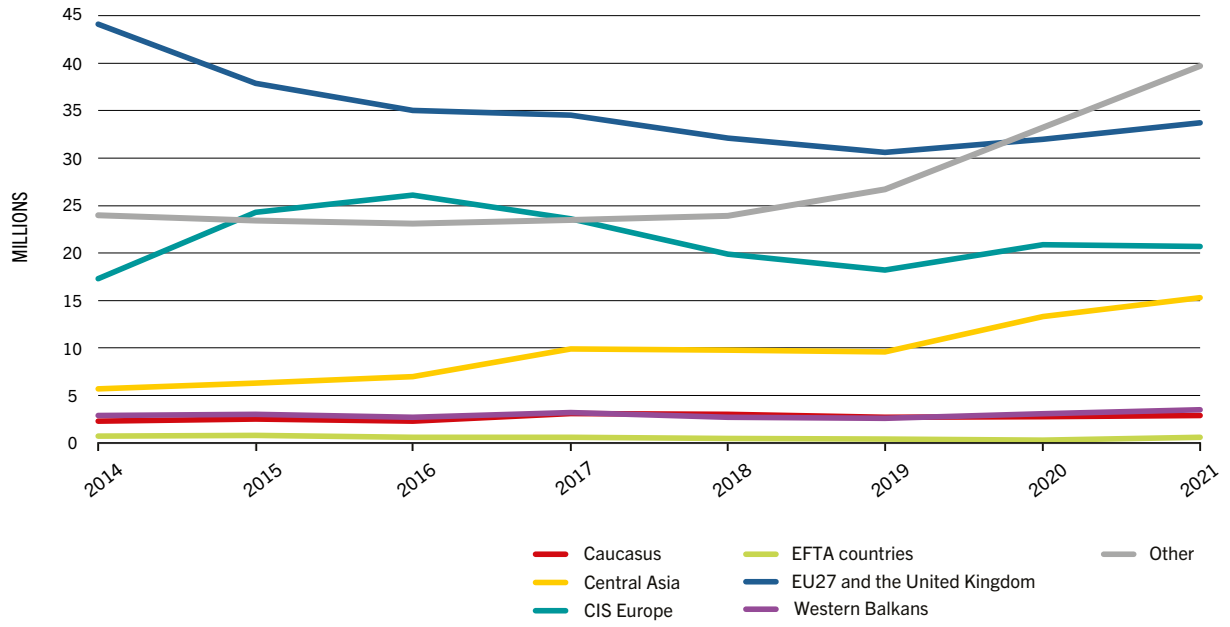
An estimated 27.4 million people in Europe and Central Asia experienced severe food insecurity in 2021 (FIGURE 4), a 27 percent increase from 2020, when the number was 21.5 million, and a 64 percent jump from 2014. The number had decreased from 2014 to 2019, by 2.4 million, but started to grow in 2020. The region accounted for 2.5 percent of the global total of 850.1 million in 2020, and in 2021, the ECA region accounted for 3 percent of the global total.

The number of severely food insecure people decreased between 2020 and 2021 in the Caucasus, which is consistent with the observed decrease in the PoU. In EFTA countries and the Western Balkans, the number of severely food insecure people remained unchanged from 2020 to 2021. In the other subregions, the number of severely food insecure people increased.

In the ECA region, 116.3 million people were estimated to be moderately or severely food insecure in 2021, which accounts for 5 percent of the global average (TABLE 3). Despite that the global prevalence of moderate or severe food insecurity remained mostly unchanged from 2020 to 2020 after increasing sharply in 2020, the ECA region saw an increase of 10.7 million. The global average annual growth was below 1 percent, and in the ECA region, the annual growth was 10 percent. There was a decrease in the number of moderately or severely food insecure people only in the CIS Europe and Ukraine (FIGURE 4, TABLE 3); in the other ECA subregions, the number grew.

**FIGURE 4**

Number of moderately or severely food insecure people in Europe and Central Asia by subregion




SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

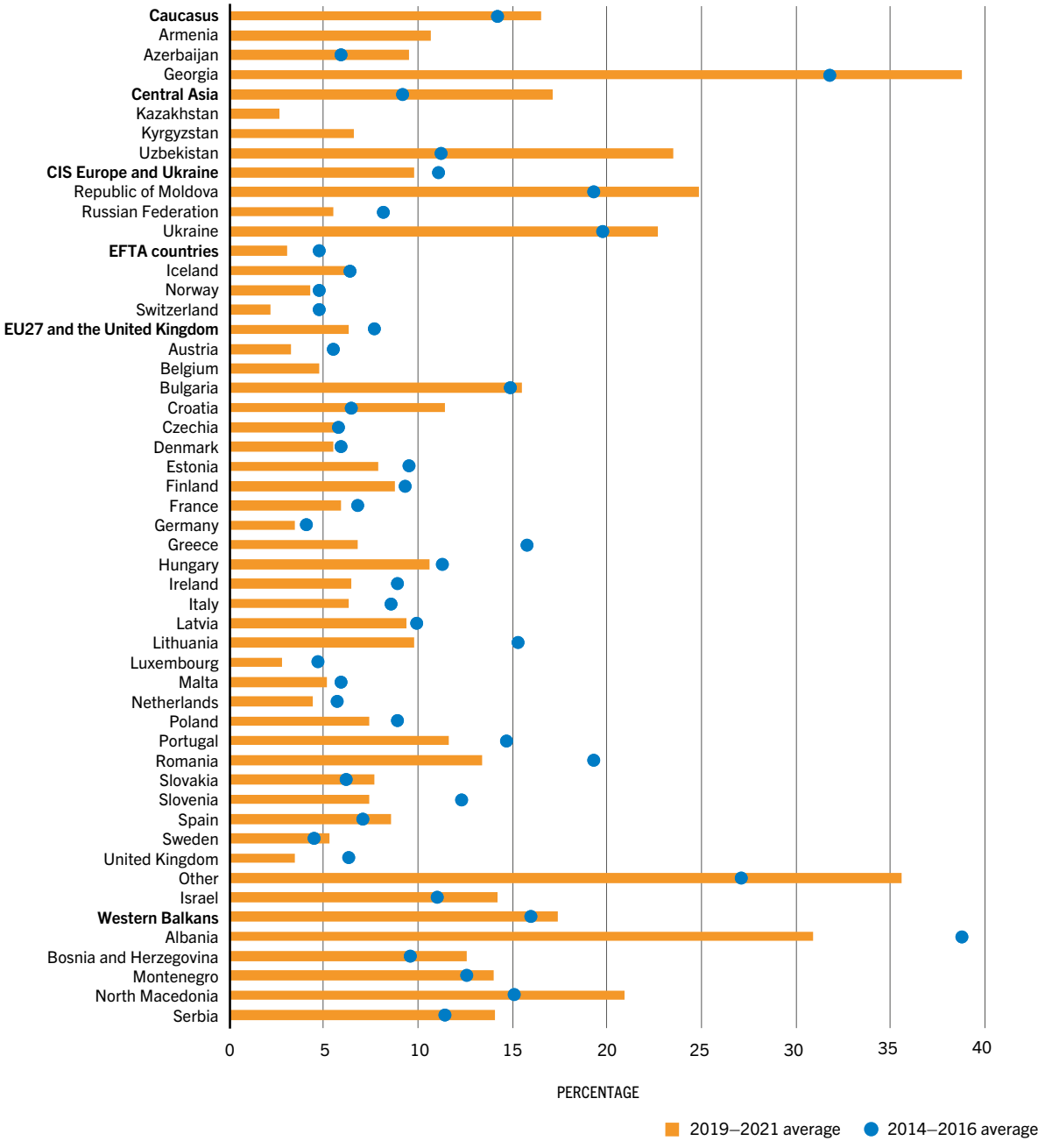
**TABLE 3**

Number of moderately or severely food insecure people, millions

| | 2014 | 2016 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|
| **WORLD** | **1 543.9** | **1 693.4** | **1 955.9** | **2 297.8** | **2 308.5** |
| **Europe and Central Asia** | 97.0 | 96.7 | 90.8 | 105.6 | 116.3 |
| **Caucasus** | 2.3 | 2.3 | 2.7 | 2.8 | 2.9 |
| **Central Asia** | 5.7 | 7.0 | 9.6 | 13.3 | 15.3 |
| **CIS Europe and Ukraine** | 17.3 | 26.1 | 18.2 | 20.9 | 20.7 |
| **EFTA countries** | 0.7 | 0.6 | 0.4 | 0.3 | 0.6 |
| **EU27 and the United Kingdom** | 44.1 | 35.0 | 30.6 | 32.0 | 33.7 |
| **Other** | 24.0 | 23.1 | 26.7 | 33.2 | 39.7 |
| **Western Balkans** | 2.9 | 2.7 | 2.6 | 3.1 | 3.5 |

SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

**FIGURE 5**
Prevalence of moderate or severe food insecurity in Europe and Central Asia by country



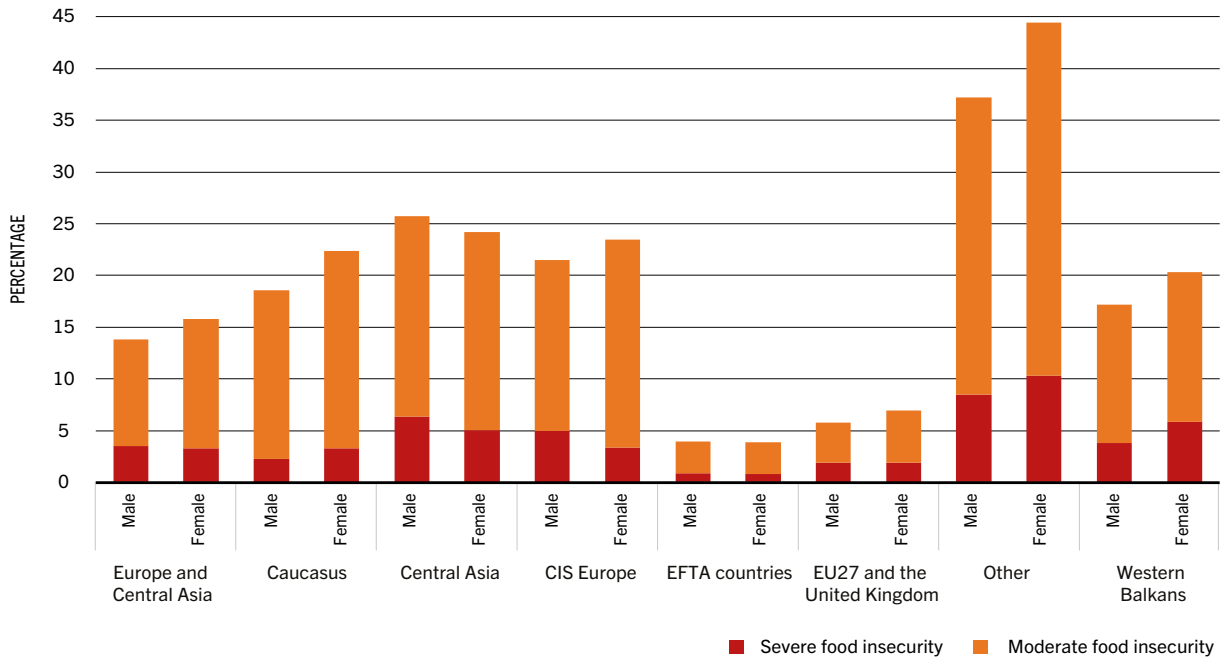

SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

Among the countries with a high prevalence for the period 2019–2021, the largest number of moderately or severely food insecure people (6.5 million) lived in Uzbekistan. But, as indicated in the breakdown by subregion, many countries with a low prevalence had significant numbers of people affected by moderate or severe food insecurity in 2019–2021: France (3.9 million), Germany (2.9 million), Italy (3.8 million), the Russian Federation (8 million) and Spain (4 million).

The data show that in many countries, the prevalence of moderate or severe food insecurity was high and trending upward even before the pandemic. FIGURE 5 shows that in comparison with 2014–2016, in 2019–2021 the prevalence of moderate or severe food insecurity increased in many countries in the ECA region, including by large amounts in Uzbekistan and Georgia. During same period, significant progress was achieved in Albania, Armenia, Greece, Lithuania and Romania (although in Albania the prevalence remains high, at more than 30 percent).

In the ECA region, women are more likely than men to be food insecure. FIGURE 6 shows that in 2021, the prevalence of moderate or severe food insecurity was higher for women in the region (15.8 percent) than it was for men (13.8 percent). This gender bias in access to food was widespread across all subregions, although the difference in some of them is within the margin of error. In 2021, 34.1 percent of women in the rest of ECA were food insecure, 5.4 percentage points higher than men (28.7 percent). In CIS Europe and Ukraine, the prevalence among women (20.1 percent) was 3.6 percentage points higher than the prevalence among men (16.5 percent), and in the Caucasus, where 19.1 percent of women and 16.3 percent of men were food insecure, the difference was 2.8 percentage points. ■

**FIGURE 6**
Prevalence of moderate or severe food insecurity in Europe and Central Asia by sex, 2021




SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

# 1.2 SUSTAINABLE DEVELOPMENT GOAL 2.2: MALNUTRITION

## Key messages

- In the ECA region in 2020, among children under 5, an estimated 7.3 percent were stunted, 1.9 percent wasted and 7.1 percent overweight. The prevalences of stunting and wasting were much lower than the world average (22 percent for stunting, 6.7 percent for wasting) and higher than the world average for overweight (5.7 percent). Progress was made towards 2030 targets on stunting and wasting, while childhood overweight was worsening.
- In all subregions and in almost every ECA country, the prevalence of stunting declined continuously from 2015 to 2020. By 2020, in ECA as well as in all subregions, the prevalence of stunting was below the global average of 22 percent. Countries with a higher prevalence of stunting in 2020 in the region are Azerbaijan (16.3 percent), Ukraine (15.9 percent), Tajikistan (15.3 percent) and Kyrgyzstan (11.4 percent).
- Among the ECA subregions, the prevalence of wasting is highest in the Western Balkans; the Caucasus and Central Asia also had a prevalence higher than the average of the ECA region. In all, 11 of the 17 countries already have recently met the 2030 target of reducing and maintaining childhood wasting to less than 3 percent, while Armenia, Bulgaria, Kazakhstan, North Macedonia, Tajikistan and Turkmenistan still have a prevalence higher than 3 percent.
- The regional prevalence of overweight among children under 5 was reduced significantly between 2010 and 2015 (from 10.4 percent to 8.5 percent) and between 2015 and 2020 (to 7.1 percent). Sixteen countries of the ECA region had a reduction from 2000 to 2020, including significant progress in Georgia and Uzbekistan.
- The results of overweight for boys and girls aged 6–9 show that overweight among children in this age range for both genders is more common and severe than among children under 5. The prevalence of overweight among children aged 6–9 was 26.9 percent in 2015–2017, compared with 7.1 percent for children under 5 in 2020.
- The prevalence of anaemia among women aged 15 to 49 years has always been below the world average. However, the region is not making progress; except for slight variations in some years, the prevalence was 17.4 percent in 2000 and remained the same in 2019. In the Caucasus, the prevalence of anaemia among women aged 15 to 49 years was higher than the global average.

This section reports on four global nutrition indicators: **stunting**, **wasting** and **overweight** in children under 5 and **anaemia** in women aged 15 to 49 years. ■

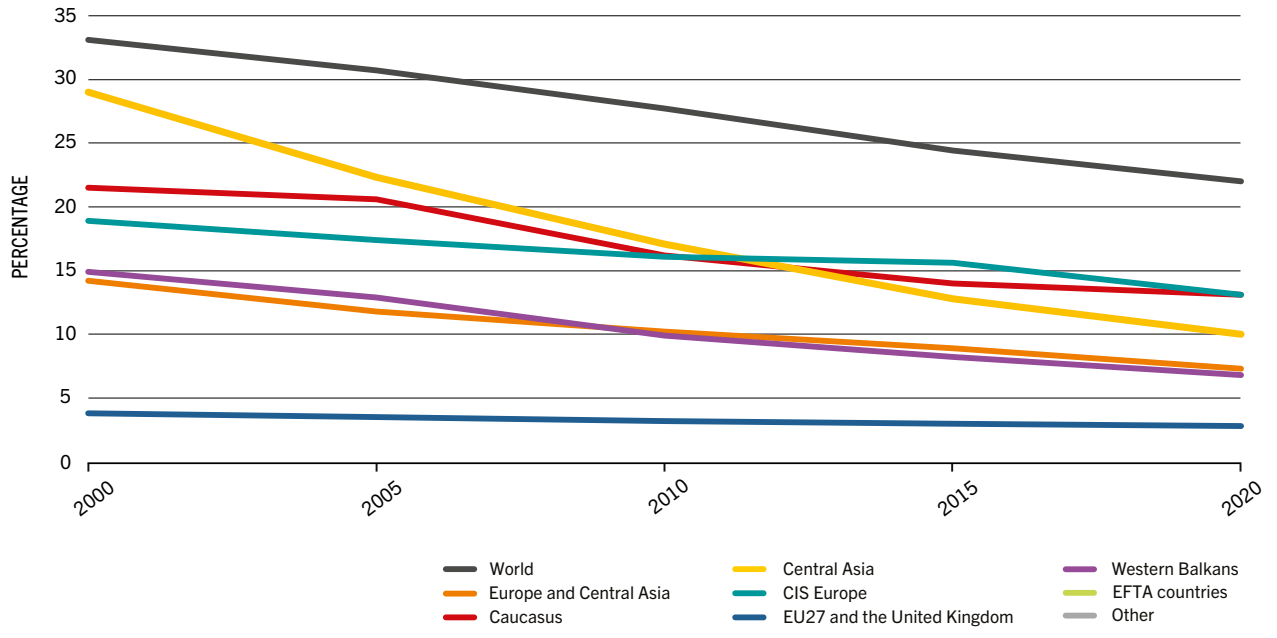
## STUNTING AMONG CHILDREN UNDER 5

The prevalence of stunting among children under 5 in the ECA region was 7.3 percent in 2020, down by almost half from 14.2 percent in 2000 and reduced by 2.7 percentage points in comparison with 2015 (FIGURE 7). In all subregions and in almost every ECA country, the prevalence of stunting declined continuously from 2015 to 2020. By 2020, in ECA as well as in all subregions, the prevalence of stunting was below the global average of 22 percent.

However, the prevalence varies significantly by subregion. While the prevalence has been especially low in the EU27 and the United Kingdom, the prevalence in both the Caucasus and in CIS Europe and Ukraine remained relatively higher, at 13.1 percent – well above the regional average. In Central Asia, the prevalence (10 percent) also was higher than the ECA regional average, while in the Western Balkans subregion, the prevalence of stunting (6.8 percent) was lower than the ECA average.

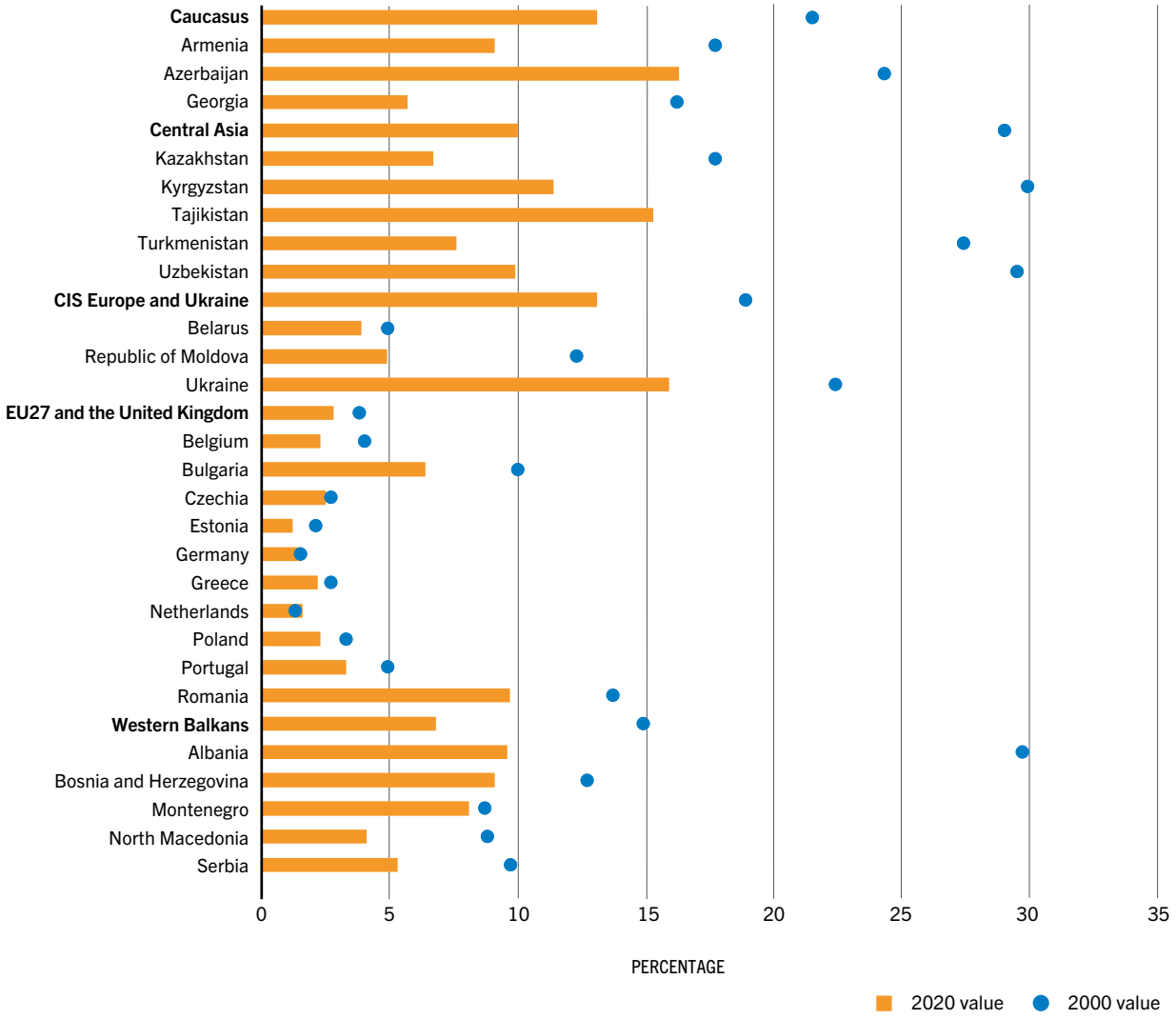
During the past two decades, most countries in the ECA region have reduced child stunting at a faster rate than has the world at large, and the prevalence of stunting in most countries in the region in 2020 was less than half the world average. As shown in FIGURE 8, the prevalence has declined greatly in Albania, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Tajikistan, Turkmenistan and Uzbekistan. Despite substantial progress, some countries in Central Asia, the Caucasus and CIS Europe and Ukraine still have a relatively higher prevalence of stunting in the region: Azerbaijan (16.3 percent), Ukraine (15.9 percent), Tajikistan (15.3 percent) and Kyrgyzstan (11.4 percent).

**FIGURE 7**
Prevalence of stunting among children under 5 in Europe and Central Asia by subregion




SOURCE: UNICEF, WHO & World Bank. 2021. *Levels and Trends in Child Malnutrition. UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates. Key findings of the 2021 edition.* https://data.unicef.org/resources/jme-report-2021

**FIGURE 8**
Prevalence of stunting among children under 5 in Europe and Central Asia by country



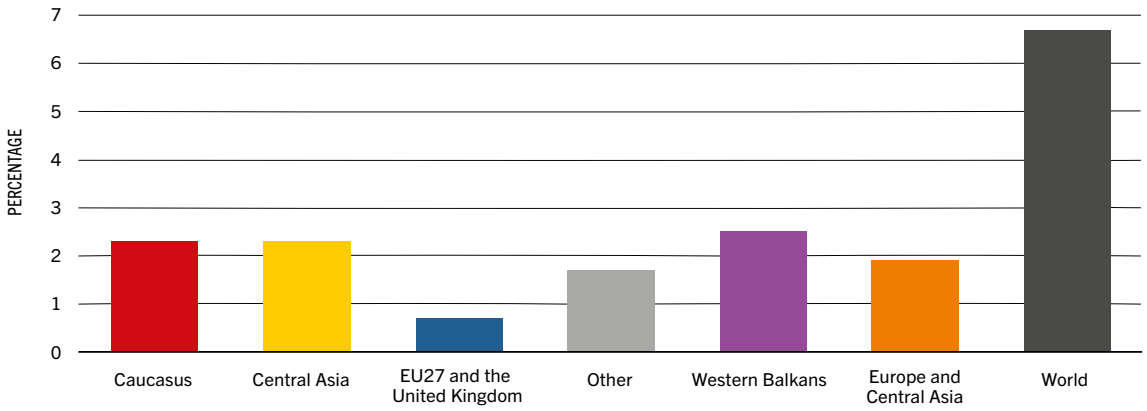

SOURCE: UNICEF, WHO & World Bank. 2021. *Levels and Trends in Child Malnutrition. UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates. Key findings of the 2021 edition.* https://data.unicef.org/resources/jme-report-2021

## WASTING AMONG CHILDREN UNDER 5

The ECA region has made significant progress in reducing the prevalence of wasting for children under 5. In 2020, the prevalence was 1.9 percent which was less than one-third of the global average of 6.7 percent (FIGURE 9). Among ECA subregions, the prevalence of wasting among children was highest in the Western Balkans (2.5 percent), the Caucasus (2.3 percent) and Central Asia (2.3 percent). The other subregions had a prevalence lower than the ECA average.

As shown in FIGURE 10, the prevalence of child wasting varies significantly by country; while 11 of the 17 countries have a recent (2014 and after) estimate below the 2030 target of 3 percent,[3] six – Armenia, Bulgaria, Kazakhstan, North Macedonia, Tajikistan and Turkmenistan – still have a prevalence higher than 3 percent.

**FIGURE 9**
Prevalence of wasting among children under 5 in Europe and Central Asia by subregion, 2020



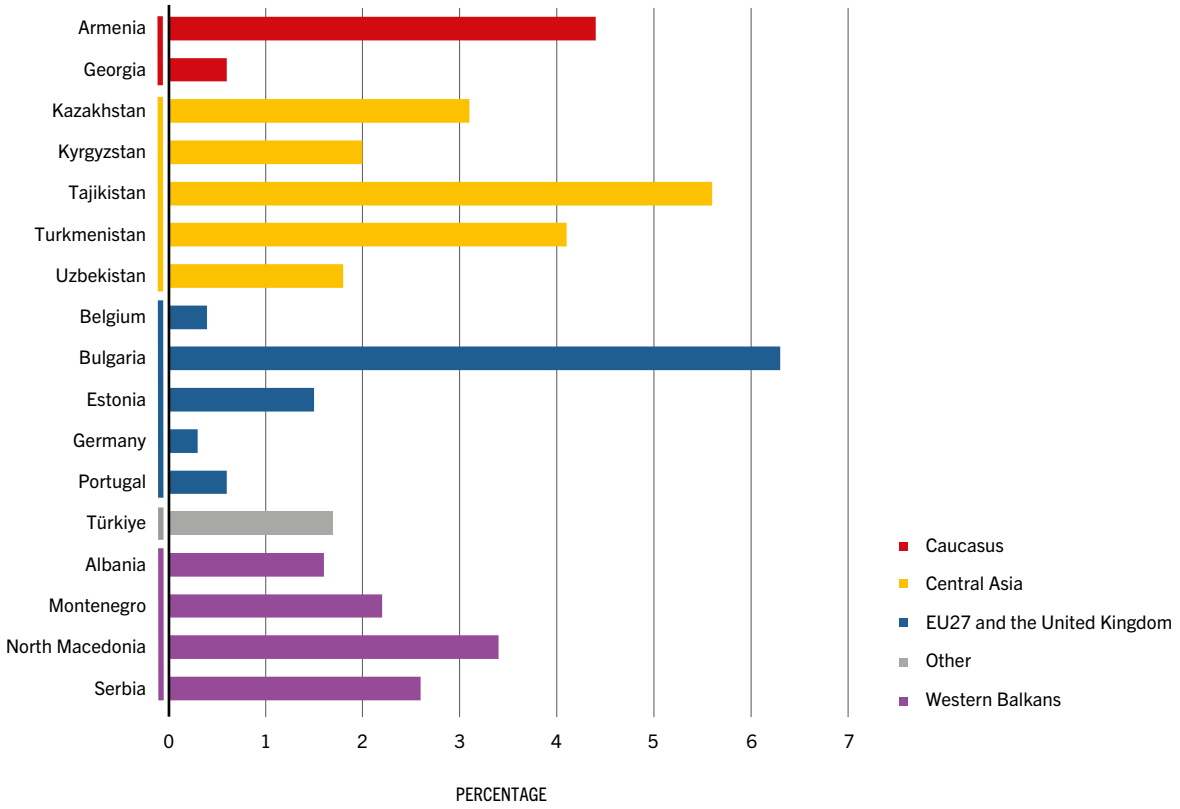

SOURCE: UNICEF, WHO & World Bank. 2021. *Levels and Trends in Child Malnutrition. UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates. Key findings of the 2021 edition.* https://data.unicef.org/resources/jme-report-2021

## OVERWEIGHT AMONG CHILDREN UNDER 5

In 2020, the prevalence of overweight children under 5 in the ECA region was 7.1 percent, roughly 25 percent higher than the world average of 5.7 percent. There was a sharp increase in ECA region from 2000 to 2005, a steadying from 2005 and 2010, and a significant decrease during the last decade (FIGURE 11), from 10.4 percent in 2010 to 7.1 percent in 2020. Despite the decrease, the prevalence remains higher than the 2030 target of reducing childhood overweight to less than 3 percent and maintaining it at that level.

In 2020, only Central Asia and the EU27 and the United Kingdom were slightly below the world average. In the Western Balkans, the prevalence (11.8 percent) was more than double the world average. The Caucasus, at 9.3 percent, also had a high prevalence of overweight among children under 5 in 2020.

**FIGURE 10**
Prevalence of wasting among children under 5 in Europe and Central Asia by country, latest year available




NOTE: Values shown refer to the latest year within the 2014–2020 period.

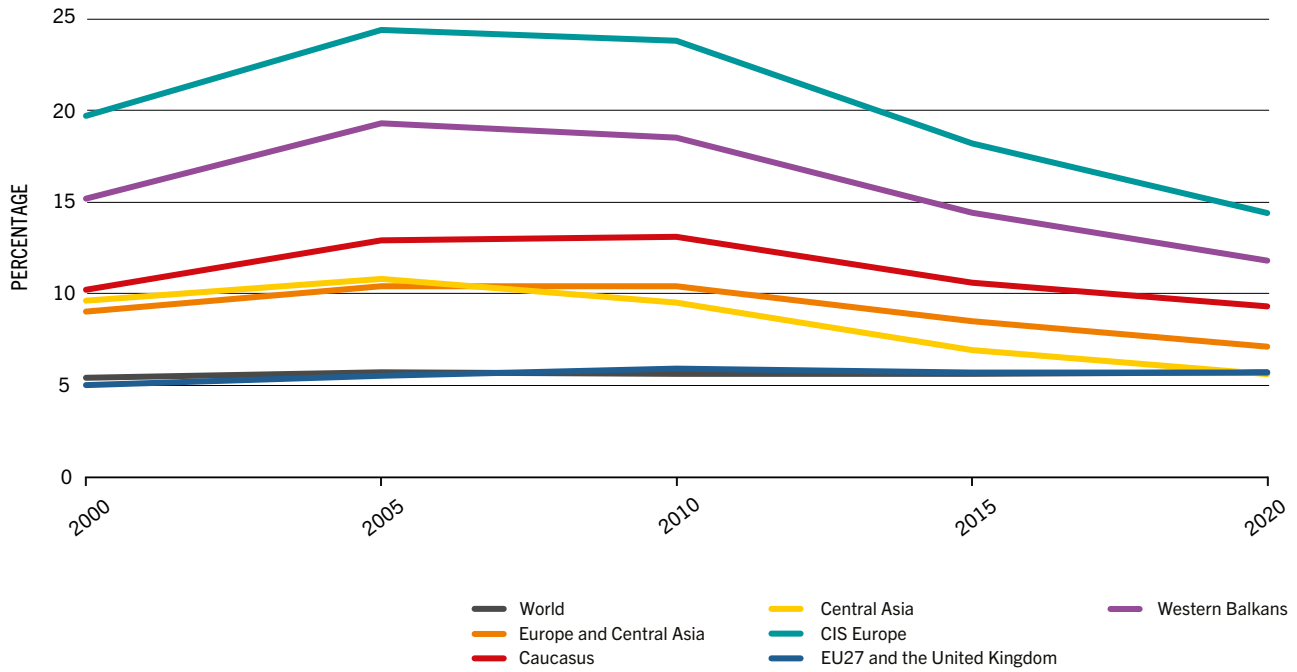
SOURCE: UNICEF, WHO & World Bank. 2021. *Levels and Trends in Child Malnutrition. UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates. Key findings of the 2021 edition.* https://data.unicef.org/resources/jme-report-2021

Accessing weight status during infancy and childhood is important due to the effects that thinness, overweight and obesity can have on child development, health and well-being (Kumar and Kelly, 2017). In 2007, the WHO Regional Office for Europe established the WHO European Childhood Obesity Surveillance Initiative (COSI) to measure the prevalence of childhood overweight and obesity throughout the region. COSI data collection is conducted every three years, and the fourth round (2015–2017) included 36 countries in Europe and Central Asia.

The results of overweight for children among boys and girls aged 6–9, by subregion and country, are presented in FIGURE 12.

Overweight is more common and severe among children aged 6–9 in the ECA region than among children under 5. On average, in 2015–2017, the prevalence of overweight for children aged 6–9 was 28.7 percent among boys and 26.5 percent among girls based on the pooled estimates (compared with 7.1 percent for children under 5).

**FIGURE 11**
Prevalence of overweight among children under 5 in Europe and Central Asia by subregion

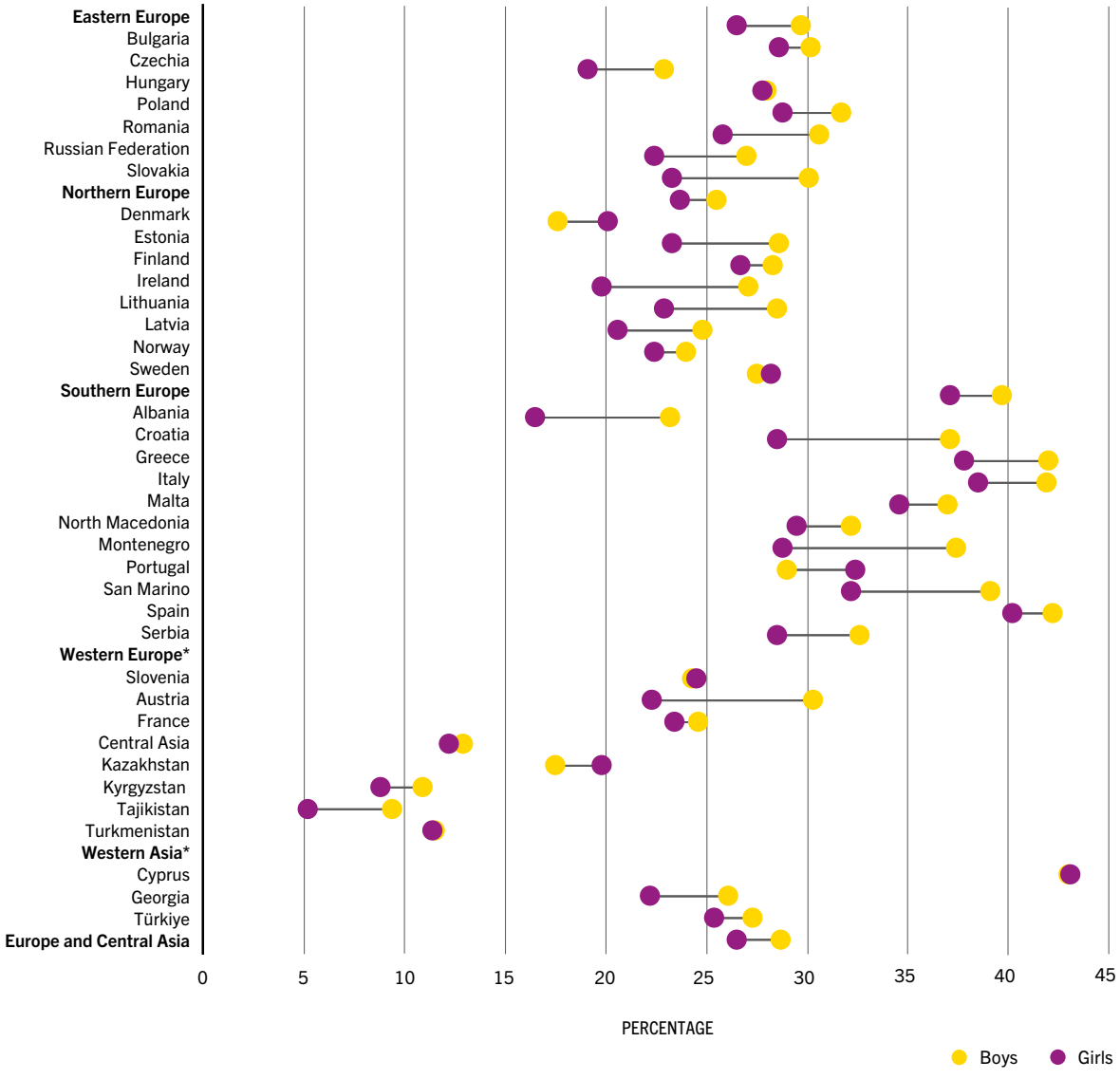



SOURCE: UNICEF, WHO & World Bank. 2021. *Levels and Trends in Child Malnutrition. UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates. Key findings of the 2021 edition.* https://data.unicef.org/resources/jme-report-2021

The higher percentages were observed in Southern Europe, followed by Eastern Europe, Western Europe, and Northern Europe, whereas the observed prevalences in Central Asian countries were much lower. By country, the highest levels of overweight were observed in Cyprus (43.0 percent for boys and 43.1 percent for girls) and other European Union countries in Southern Europe, such as Spain (42.2 percent for boys and 40.2 percent for girls), Italy (41.9 percent for boys and 38.5 percent for girls) and Greece (42.0 percent for boys and 37.8 percent for girls) and countries in the Western Balkans (including Montenegro, North Macedonia and Serbia). The lower prevalence of overweight was observed in Central Asia (in particular Kyrgyzstan and Tajikistan).

In the ECA region, the prevalence of overweight differed between boys and girls, and boys were more likely to be overweight than girls (boys at 28.7 percent vs girls at 26.5 percent). This gender difference in overweight was widespread across all subregions. In Eastern Europe, 29.7 percent of boys were overweight, 3.2 percentage points higher than girls (26.5 percent). By country, boys had a higher prevalence of overweight than girls in 30 of the 36 countries with data available. The countries with boys having much higher prevalence of overweight included Croatia (8.6 percentage points), Montenegro (8.6 percentage points) and Austria (8.0 percentage points). The countries in which girls had a higher prevalence of overweight than did boys included Portugal (3.4 percentage points higher), Denmark (2.5 percentage points higher) and Kazakhstan (2.3 percentage points higher).

**FIGURE 12**
Prevalence of overweight among children 6 to 9 years old by country, 2015–2017 average



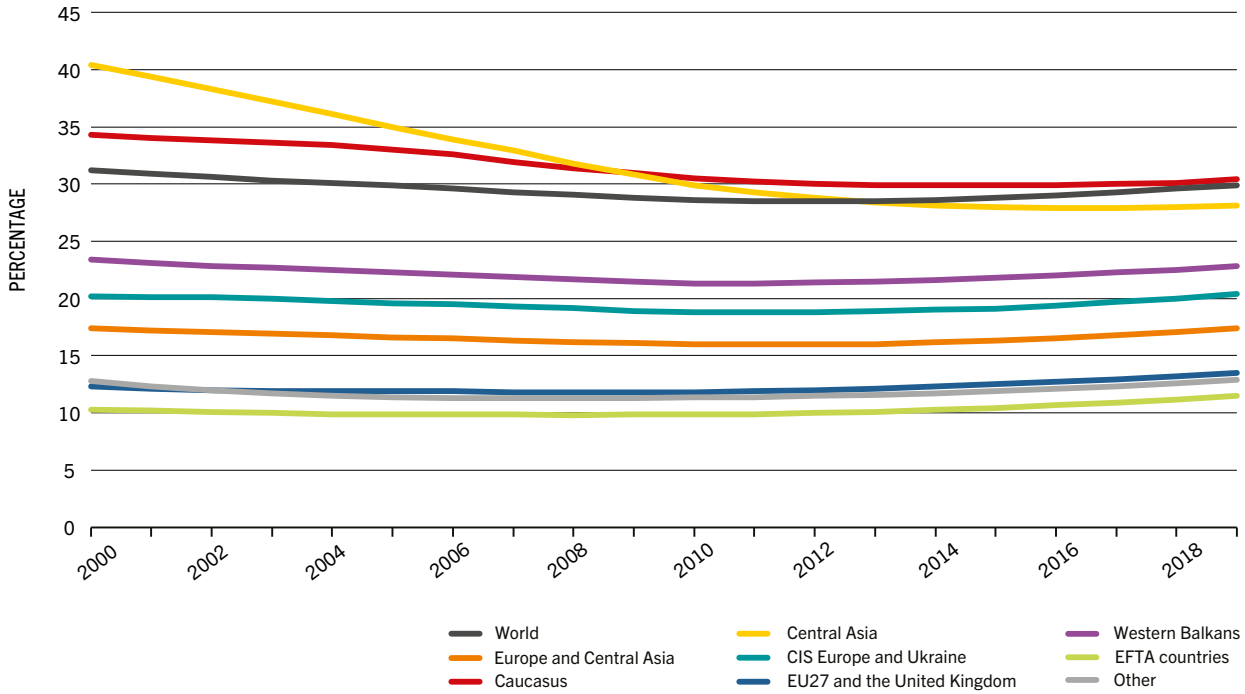

NOTE: * Estimates for Western Europe and Western Asia were not calculated because too few countries belonging to these two regions participated in COSI.
SOURCE: WHO. 2021. *World Obesity Federation, Obesity Reviews*. 2021; 22(S6): e13214.

## ANAEMIA AMONG WOMEN AGED 15 TO 49 YEARS

The world prevalence of anaemia among women aged 15 to 49 years was 29.9 percent in 2019, which is the same as it was in 2005 (FIGURE 13). There was a slight decrease from 2000 to 2005 (from 31.2 percent in 2000). As for the ECA region, the prevalence of anaemia among women aged 15 to 49 years has always been below the world average. However, the region is not making progress; except for slight variations in some years, the prevalence was 17.4 percent in 2000 and remained the same in 2019. In some subregions, such as CIS Europe and Ukraine (20.4 percent in 2019), the Western Balkans (22.8 percent in 2019), Central Asia (28.1 percent in 2019) and the Caucasus (30.4 percent in 2019), the prevalence was higher than the regional average. In the Caucasus, the prevalence of anaemia among women aged 15 to 49 years was higher than the global average.

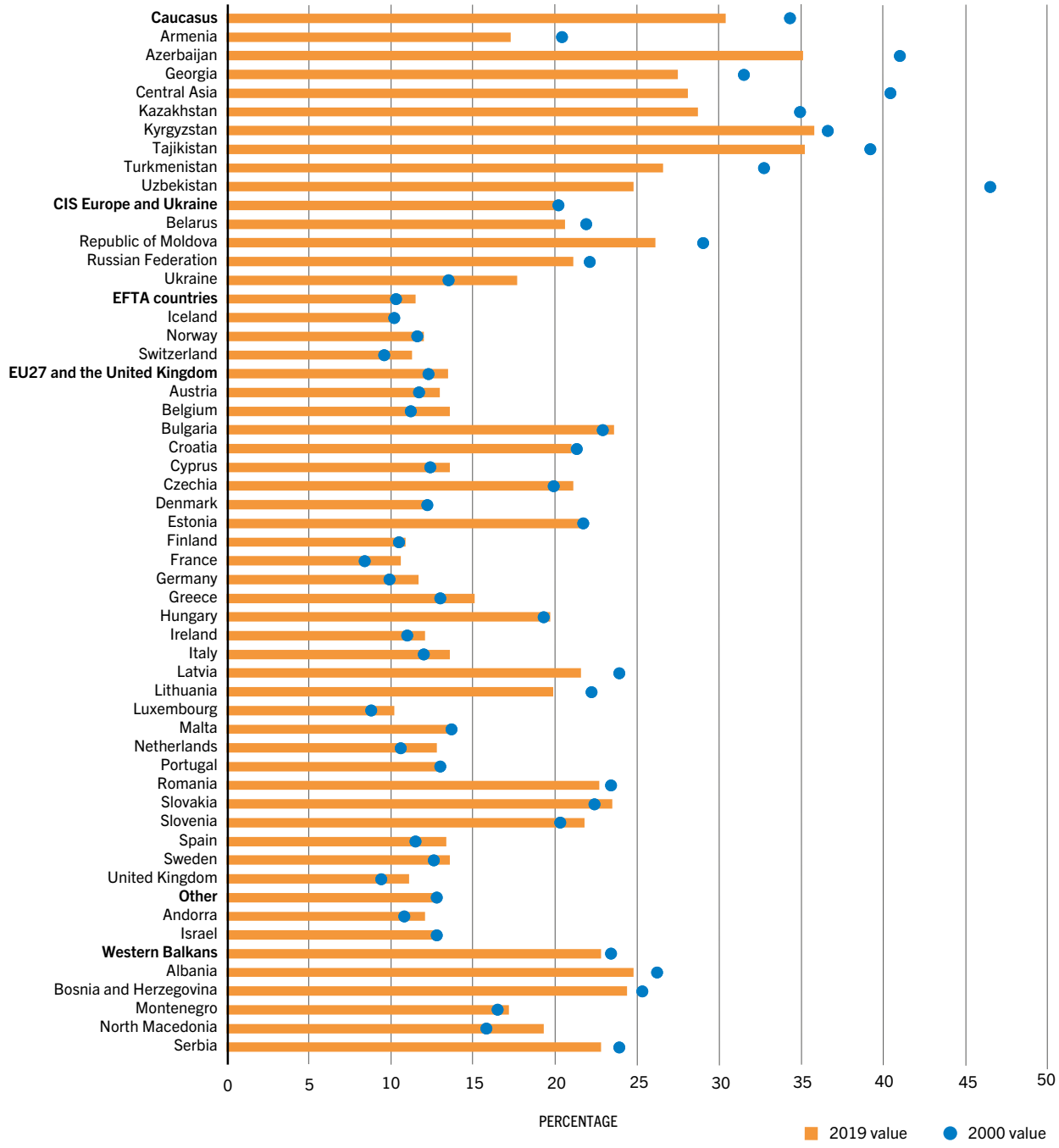
The country-level data presented in FIGURE 14 show that 18 countries made some progress in reducing the prevalence of anaemia, in particular Uzbekistan (-21.7 percentage points), Kazakhstan (-6.2 percentage points), Turkmenistan (-6.1 percentage points), Azerbaijan (-5.9 percentage points), Georgia (-4.0 percentage points) and Armenia (-3.1 percentage points). The other 30 ECA countries saw increases in the prevalence of anaemia, in particular Ukraine (+4.2 percentage points) and North Macedonia (+3.5 percentage points). In addition, three countries had values in 2019 that were higher than the world average: Kyrgyzstan (35.8 percent), Tajikistan (35.2 percent) and Azerbaijan (35.1 percent). ■

**FIGURE 13**
Prevalence of anaemia among women aged 15 to 49 years in Europe and Central Asia by subregion




SOURCE: WHO. 2021. Global anaemia estimates, Edition 2021. In: *Global Health Observatory (GHO) data repository.* Geneva, Switzerland. Cited 25 May 2021. www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-anaemia-in-women-of-reproductive-age-(-)

**FIGURE 14**
Prevalence of anaemia among women aged 15 to 49 years in Europe and Central Asia by country




SOURCE: WHO. 2021. Global anaemia estimates, Edition 2021. In: *Global Health Observatory (GHO) data repository.* Geneva, Switzerland. Cited 25 May 2021. www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-anaemia-in-women-of-reproductive-age-(-)

**TÜRKIYE**
Gleaning activity by volunteer students.
©FAO

# 1.3 ADDITIONAL WORLD HEALTH ASSEMBLY NUTRITION INDICATORS

## Key messages

- As of 2016 (the latest year for which data are available), adult obesity was on the rise in all subregions and all countries in the ECA region, with the regional average having increased from 17.2 percent in 2000 to 23.3 percent in 2016. The regional prevalence of obesity was well above the global prevalence of 13.1 percent in 2016.
- Based on sex-disaggregated analyses, women had a much higher prevalence of obesity than male adults in 2000 in the ECA region. However, from 2000 to 2016, the prevalence of adult obesity rose much faster among males (52.2 percent increase) than among women (27.7 percent increase). By 2016, the difference between women and men in the prevalence of obesity was reduced (21.8 percent for men and 22.6 percent for women).
- Significant gender differences remain in the prevalence of adult obesity by subregion. In 2016, women in Central Asia and the Caucasus had a much higher prevalence of obesity than men (31.9 percent higher and 35.1 percent higher, respectively). This difference was much smaller in the EFTA subregion (9.4 percent higher), and women had a lower prevalence of obesity in the EU27 and the United Kingdom in 2016.
- From 2012 to 2020, the global prevalence of exclusive breastfeeding increased from 37 percent to 44 percent worldwide. The ECA region has made significant progress in exclusive breastfeeding, but the prevalence remains below the global average. Data on ECA subregions show that from 2012 to 2020, the prevalence significantly increased in Central Asia (from 29.2 percent to 44.6 percent), the Caucasus (from 24.1 percent to 31.1 percent) and in the Western Balkans (from 20.2 percent to 26.7 percent).
- The global prevalence of low birthweight declined at a slow pace from 2000 (17.5 percent) to 2015 (14.6 percent). Although the data for the ECA region are incomplete, the regional trend seems to have followed the same slow pattern, with a prevalence of about half the world average but with a marginal decline, from 7 percent in 2012 to 6.9 percent in 2015.

This section assesses progress towards three additional global nutrition targets endorsed by the World Health Assembly (WHA): **exclusive breastfeeding**, **low birthweight** and **adult obesity**.

## ADULT OBESITY

The latest data available on adult obesity are from 2016. That year, in comparison with 2010, the prevalence of adult obesity rose from 11.2 percent to 13.1 percent worldwide and from 20.8 percent to 23.3 percent in the ECA region (FIGURE 15). The growing trend is even more striking in the ECA subregions, where the prevalence is consistently above global levels. It was above

20 percent in all ECA subregions except Central Asia in 2016. The most affected by this form of malnutrition were the EU27 and the United Kingdom (22.9 percent), CIS Europe and Ukraine (23.3 percent) and the rest of ECA countries (31.5 percent).

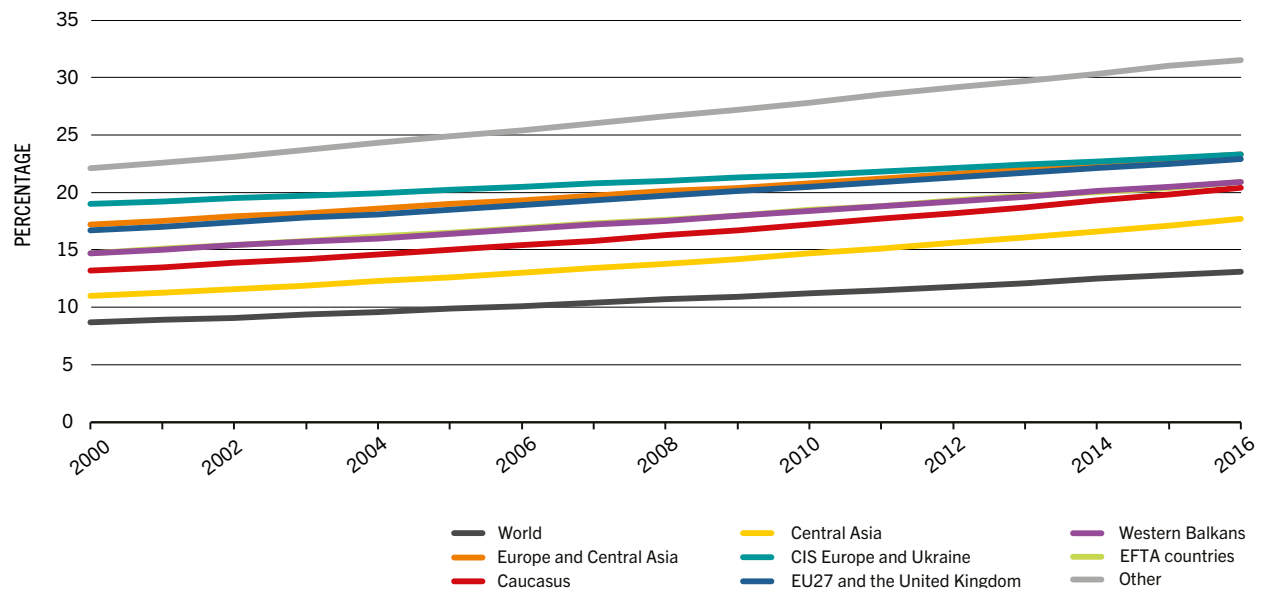
All the high-income countries in the ECA region (especially countries in the European Union and the EFTA) have a high prevalence of adult obesity that is well above the global prevalence. But adult obesity also affects low- and middle-income countries. TABLE A1.9 shows that at least one in four adults was obese in Bulgaria (25 percent), Ireland (25.3 percent), Czechia (26 percent), Israel (26.1 percent), Lithuania (26.3 percent), Hungary (26.4 percent), the United Kingdom of Great Britain and Northern Ireland (27.8 percent) and Malta (28.9 percent). In Türkiye, almost one in three adults is obese (32.1 percent). A lower prevalence of obesity among adults in the ECA region is found in Central Asian countries: Kyrgyzstan (16.6 percent), Uzbekistan (16.6 percent) and Tajikistan (14.1 percent). However, countries in Central Asia had larger increases in the prevalence of adult obesity from 2000 to 2016 (77.5 percent in Tajikistan, 72.9 percent in Kyrgyzstan, 69.4 percent in Uzbekistan and 69.1 percent in Turkmenistan).

As shown in TABLE A1.10, overall in the ECA region, women had a higher prevalence of obesity than did men in 2000. However, from 2000 to 2016, the prevalence of obesity rose much faster among men than among women, nearly eliminating the difference between women and men.

In all subregions and in all countries of the ECA region, men are experiencing higher increase rates of adult obesity than women. However, significant gender differences remain in the prevalence of obesity by subregion. In 2016, women in Central Asia and the Caucasus had much higher prevalence of obesity than men. This difference was much smaller in ETFA countries, and women actually had a lower prevalence of obesity in the EU27 and the United Kingdom in 2016.

For 8 of 53 countries, women had a lower prevalence of obesity than men in 2000. However, all 53 countries reported (TABLE A1.10) that men had a higher increase in the prevalence of obesity than women from 2000 to 2016. As a result, the gap between women and men from 2000 to 2016 was reduced significantly in all countries, in particular in CIS Europe and Ukraine. In 2016, women in 25 of 53 countries had a lower prevalence of obesity than men.

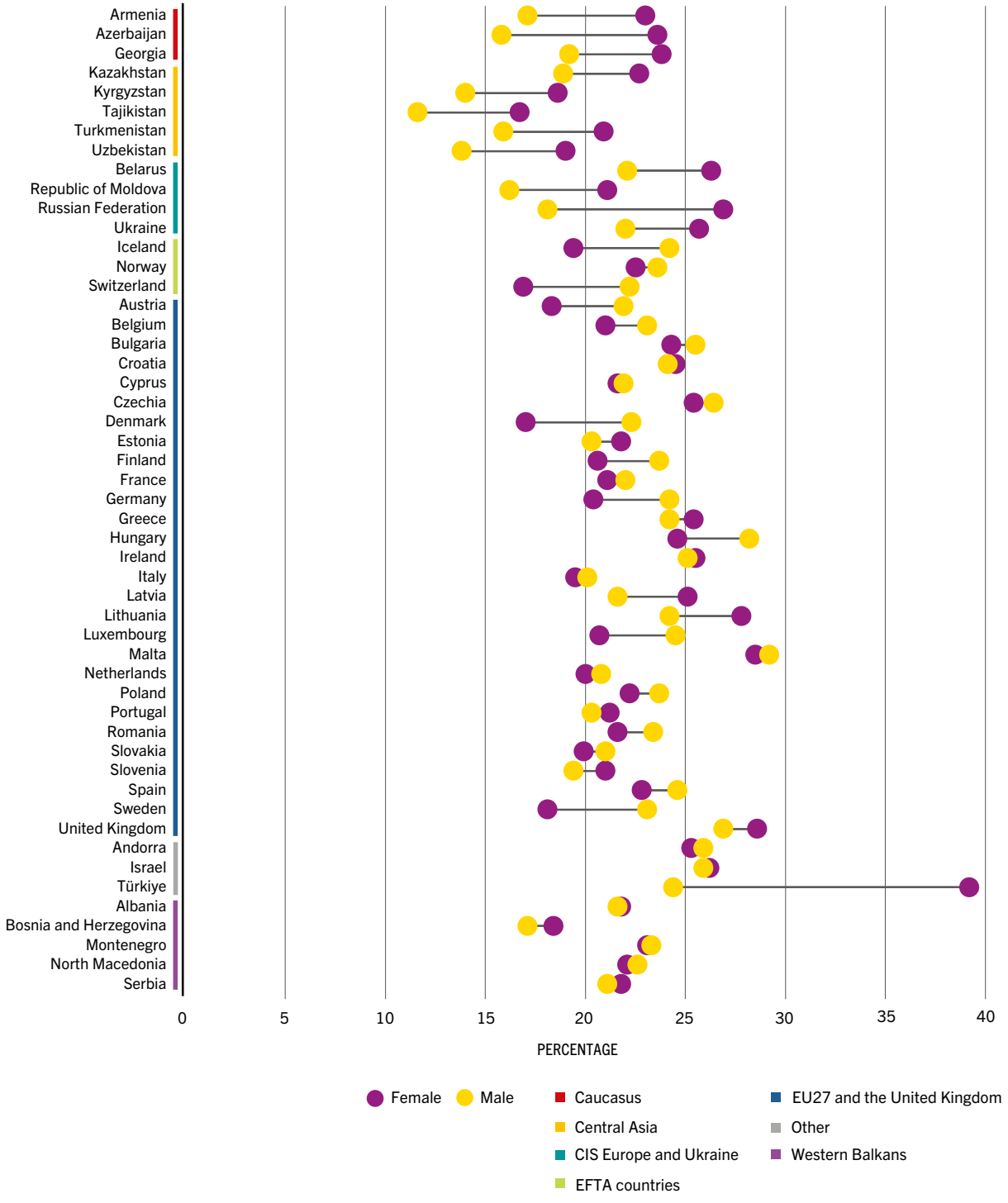
**FIGURE 15**
Prevalence of obesity among adults in Europe and Central Asia by subregion




SOURCE: WHO. 2020. Global Health Observatory (GHO) data repository. In: *WHO*. Geneva, Switzerland. Cited 28 April 2020. https://apps.who.int/gho/data/node.main.A900A?lang=en

**FIGURE 16**

Prevalence of obesity among adults by sex in Europe and Central Asia by country, 2016




SOURCE: WHO. 2020. Global Health Observatory (GHO) data repository. In: *WHO*. Geneva, Switzerland. Cited 28 April 2020. https://apps.who.int/gho/data/node.main.A900A?lang=en

The following countries had a much higher prevalence of adult obesity among women than among men in 2016: Türkiye (60.7 percent higher), Azerbaijan (49.4 percent higher), the Russian Federation (48.6 percent higher), Tajikistan (44.0 percent higher), Uzbekistan (37.7 percent higher), Armenia (34.5 percent higher), Kyrgyzstan (32.9 percent higher), Turkmenistan (31.4 percent higher), and the Republic of Moldova (30.2 percent higher).

## PREVALENCE OF EXCLUSIVE BREASTFEEDING DURING THE FIRST SIX MONTHS OF LIFE

The ECA region has made progress in exclusive breastfeeding, but the prevalence in many subregions remains below the global average. From 2012 to 2020, the prevalence of exclusive breastfeeding of infants for their first six months of life increased from 37 percent to 44 percent worldwide (TABLE 4). While data are not available for the ECA region average, from 2012 to 2020, the prevalence significantly increased in Central Asia (from 29.2 percent to 44.6 percent), in the Caucasus (from 24.1 percent to 31.1 percent) and in the Western Balkans (from 20.2 percent to 26.7 percent).

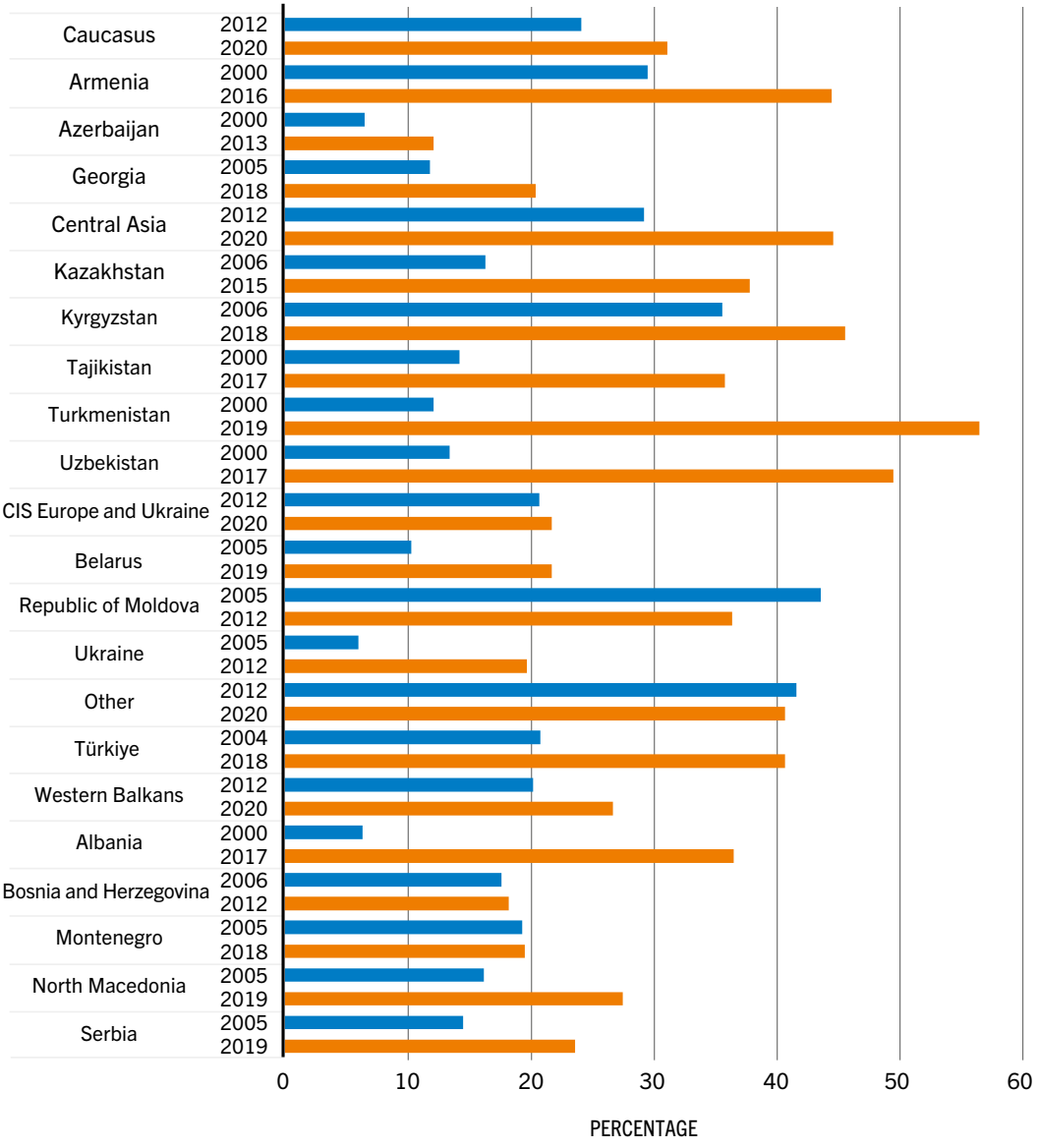
FIGURE 17 compares the levels of the prevalence of breastfeeding in ECA countries between the first year data are available and the last year data are available for each country. In the Caucasus, Armenia increased the prevalence of exclusive breastfeeding for children 0–5 months of age from 29.5 percent in 2000 to 44.5 percent in 2016. This is the biggest increase in the Caucasus subregion. In Central Asia, Tajikistan achieved a notable jump from 14.2 percent in 2000 to 35.8 percent in 2017; the increase in Uzbekistan was even greater, from 13.4 percent in 2000 to 49.5 percent in 2017. The most remarkable progress happened in Turkmenistan, where the prevalence was 12.1 percent in 2000 but jumped to 56.5 percent in 2019. In CIS Europe and Ukraine, the prevalence of breastfeeding increased in Ukraine and decreased in the Republic of Moldova. An increase was recorded in every country of the Western Balkans subregion, including a big jump in Albania from 2000 to 2017.

**TABLE 4**
Prevalence of exclusive breastfeeding among infants 0–5 months of age in Europe and Central Asia by subregion, percent

| | 2012 | 2020 |
|---|---|---|
| **WORLD** | **37.1** | **43.8** |
| **Europe and Central Asia** | n.a. | n.a. |
| **Caucasus** | 24.1 | 31.1 |
| **Central Asia** | 29.2 | 44.6 |
| **CIS Europe and Ukraine** | 20.7 | 21.7 |
| **EFTA countries** | n.a. | n.a. |
| **EU27 and the United Kingdom** | n.a. | n.a. |
| **Other** | 41.6 | 40.7 |
| **Western Balkans** | 20.2 | 26.7 |

SOURCE: UNICEF. 2021. Infant and young child feeding. In: *UNICEF*. New York, USA. Cited 6 April 2022. https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding

**FIGURE 17**
Prevalence of exclusive breastfeeding among infants 0–5 months of age in Europe and Central Asia by country



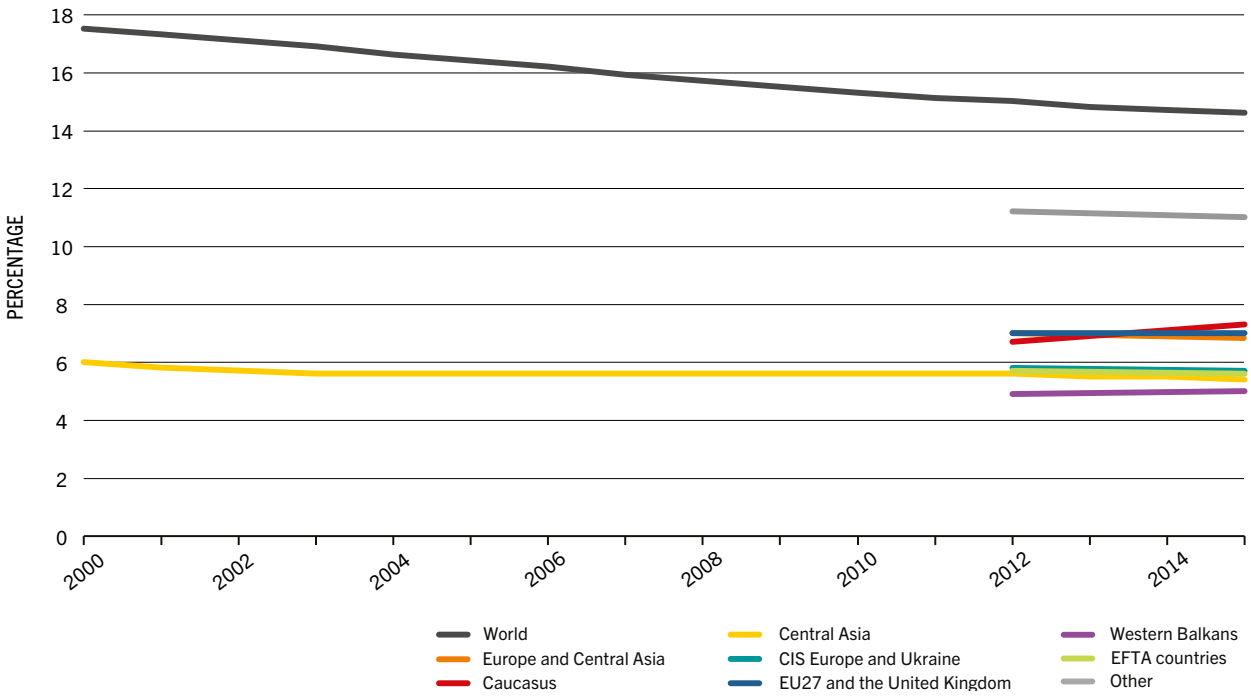

SOURCE: UNICEF. 2021. Infant and young child feeding. In: *UNICEF.* New York, USA. Cited 6 April 2022. https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding

## PREVALENCE OF LOW BIRTHWEIGHT

The global prevalence of low birthweight declined at a slow pace from 2000 (17.5 percent) to 2015 (14.6 percent) (FIGURE 18). The regional trend seems to have followed the same slow pattern, with a prevalence of about half the world average but with a marginal change, from 7 percent in 2012 to 6.9 percent in 2015. From 2012 to 2015, the prevalence of low birthweight remained stable in CIS Europe and Ukraine (from 5.8 percent to 5.7 percent), EFTA countries (from 5.7 percent to 5.6 percent), the EU-27 and the United Kingdom (7 percent in both years) and the Western Balkans (from 4.9 percent to 5 percent). It increased in the Caucasus (6.7 percent to 7.3 percent).

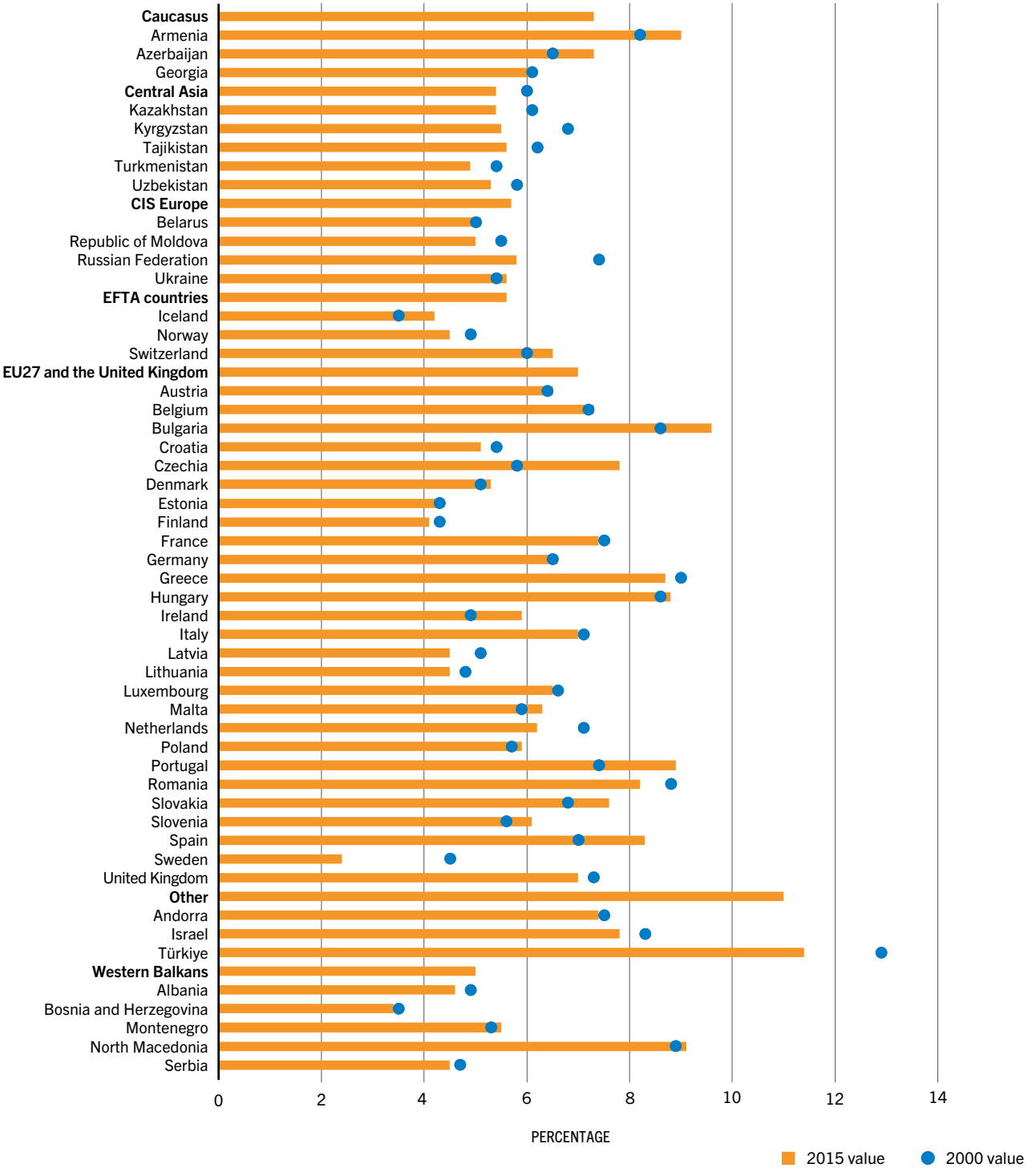
FIGURE 19 shows a fuller picture of the differences in the trends and levels among ECA countries. About half of the 49 ECA countries with data available have not reduced their prevalence of low birthweight. Among the countries that have reduced their prevalence of low birthweight, the largest improvement took place in Sweden, where the prevalence decreased by 2.1 percentage points. There was also some progress in Kyrgyzstan, the Russian Federation and Türkiye. ■

**FIGURE 18**
Prevalence of low birthweight in Europe and Central Asia by subregion




SOURCE: UNICEF & WHO. 2019. UNICEF-WHO joint low birthweight estimates. In: *UNICEF*. New York, USA and Geneva, Switzerland. Cited 28 April 2020. www.unicef.org/reports/UNICEF-WHO-low-birthweight-estimates-2019

**FIGURE 19**
Prevalence of low birthweight in Europe and Central Asia by country




SOURCE: UNICEF & WHO. 2019. UNICEF-WHO joint low birthweight estimates. In: *UNICEF*. New York, USA and Geneva, Switzerland. Cited 28 April 2020. www.unicef.org/reports/UNICEF-WHO-low-birthweight-estimates-2019

# 1.4 UPDATES TO THE COST AND AFFORDABILITY OF A HEALTHY DIET

## Key messages

- The sharp increase in global- and country-level consumer food prices in 2020 translated directly into an increased average cost of a healthy diet in the ECA region and in almost all ECA subregions. At the regional level, the average cost of a healthy diet in 2020 was USD 3.14 (USD 3.54 at the global level) per person per day, which represents a 3.3 percent (same as at the global level) increase from 2019 and a 6.2 percent (world 6.7 percent) increase from 2017.
- From 2019 to 2020, the EFTA subregion had the highest increase in the cost of a healthy diet (4.8 percent), followed by Central Asia (4.0 percent) and the EU27 and the United Kingdom (3.8 percent). In 2020, the Western Balkans had the costliest healthy diet in the region (USD 3.87 per person per day, much higher than the world average of USD 3.54). In 2020, roughly 3.6 percent of people in the ECA region were unable to afford a healthy diet, slightly increased from 3.5 percent in 2019. These results in the ECA region were much better than the global average estimates (42.0 percent).
- There are large variations in the unaffordability of a healthy diet in 2020 among ECA subregions, with the highest in Central Asia (21.5 percent), followed by the Western Balkans (14.6 percent). Three of the study countries had a very high percentage of their populations unable to afford a healthy diet: 49.6 percent (higher than the world average) in Kyrgyzstan, 42.9 percent (higher than the world average) in Armenia, and 42.1 percent (equal to the world average) in Tajikistan.
- In 2020, the number of people in the ECA region (covering 46 countries in the study) who could not afford a healthy diet was 30.4 million, with some 1 million added from 2019. This number is likely higher as data are missing for Uzbekistan and Turkmenistan. The greatest increase took place in Central Asia (0.5 million) and CIS Europe and Ukraine (0.6 million).

## THE COST AND AFFORDABILITY OF A HEALTHY DIET IN 2020

In the 2020 edition of this report, the analysis showed that roughly 19 million people (or 18 percent of the population) of the 14 countries in the ECA region that are not part of the European Union and for which data were available could not afford a healthy diet in 2017. Globally, almost 3.1 billion people could not afford a healthy diet in 2020 (FAO *et al.,* 2022).

Estimates in this report are updated for 2020 in the ECA region, and revisions to the data series on the cost and affordability of a healthy diet this year include updates to account for new income distributions, revised average percentages of incomes that can be credibly reserved for food, and methodological refinements in data on the costs of diets that are more robust and that provide greater transparency (FAO *et al.,* 2022).

The sharp increase in consumer food prices from the second quarter of 2020 translated into an increased average cost of a healthy diet in 2020 for almost all subregions in Europe and Central Asia (FIGURE 20). At the regional level, the average cost of a healthy diet in 2020 was USD 3.14 per person per day, which is a 3.3 percent increase from 2019 and a 6.2 percent increase from 2017 (TABLE A1.14). On average, a healthy diet cost less in the ECA region than in the world (USD 3.54) in 2020, with the cost in the ECA region increasing at a rate similar to the world average from 2019 and at a slightly slower rate from 2017.

From 2019 to 2020, the EFTA countries and Central Asia had the highest increase in the cost of a healthy diet, 4.8 percent and 4 percent, respectively, followed by the EU27 and the United Kingdom (3.8 percent). In 2020, the Western Balkans had the highest cost of a healthy diet (USD 3.87) in the region, 23.4 percent higher than the ECA average and 9.5 percent higher than the world average. From 2019 to 2020, the increase in the cost of a healthy diet in the Western Balkans was lower (1.7 percent) than the average increases in the region and the world.

The affordability of a healthy diet refers to the cost of a diet relative to income; therefore, changes over time can be the result of changes in diet costs, incomes or both. In 2020, measures put in place to contain COVID-19 sent the world and most countries in the region into economic recession, with many countries facing both declined incomes and increased food prices. However, while affordability estimates in 2020 reflect food price shocks, the income shocks are not yet captured due to the unavailability of 2020 income distribution data.

The ECA region in 2020 had 30.4 million people who could not afford a healthy diet (TABLE A1.13). This is roughly 900 000 more people than in 2019. Central Asia (500 000) and CIS Europe and Ukraine (600 000) account for the highest increases. Due to the lack of key data on Uzbekistan and Turkmenistan, it is likely that the number of people who cannot afford a healthy diet in Central Asia is currently underestimated, especially considering that Uzbekistan reports the highest moderate and severe food insecurity in the subregion.

FIGURE 21 presents the percentage of people unable to afford a healthy diet by subregion and by country in Europe and Central Asia. In 2020, roughly 3.6 percent of people in the ECA region were unable to afford a healthy diet, increased from 2.7 percent in 2019. The affordability of a healthy diet in the ECA region is much better than the global average estimates of 42.0 percent.

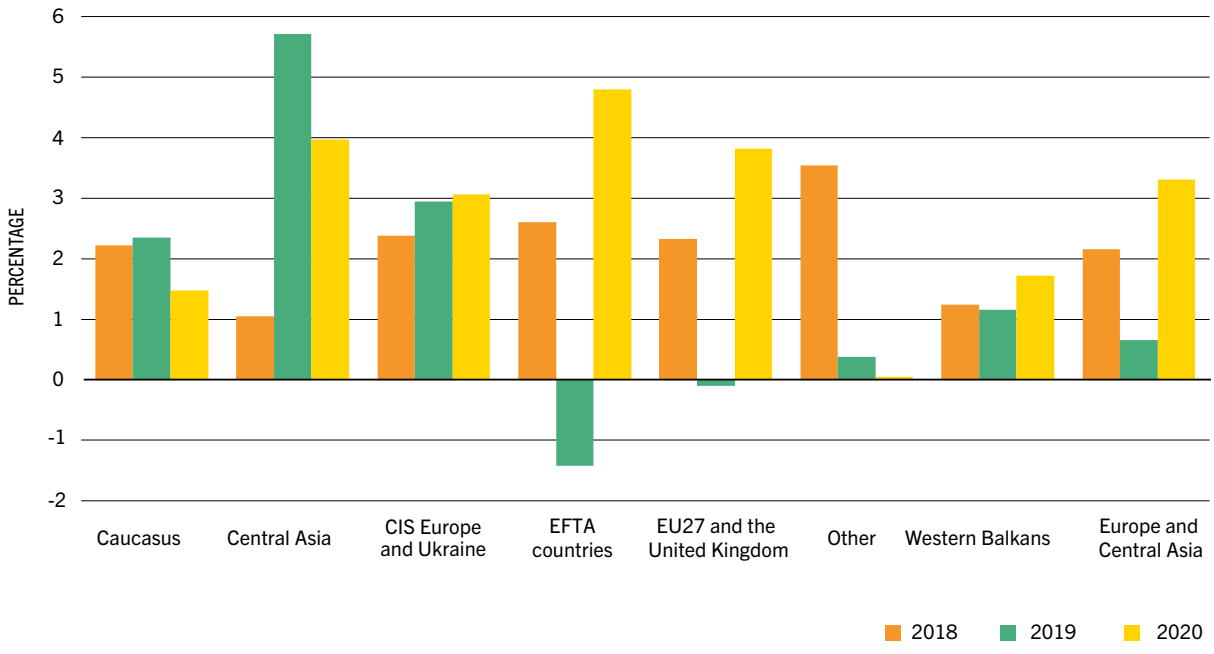
Within the ECA region, there were large variations in the unaffordability of a healthy diet in 2020. By subregion, Central Asia had the highest unaffordability (21.5 percent) in 2020.

As data on cost and affordability are not available for two key countries of this subregion (Turkmenistan and Uzbekistan), the percentage of people who cannot afford a healthy diet is likely to be underestimated. The second highest unaffordability is found in the Western Balkans (14.6 percent), followed by the Caucasus (9.7 percent). In contrast, EFTA countries and the EU27 and the United Kingdom had very low unaffordability in 2020 – 0.16 percent and 1.37 percent, respectively.

Three of the study countries had a very high percentage of the population unable to afford a healthy diet: Kyrgyzstan (49.6 percent, higher than the world average of 42 percent), Armenia (42.9 percent, higher than the world average) and Tajikistan (42.1 percent, equal to the world average). However, there are 23 ECA countries (50 percent of the countries in the study) that had less than 1 percent of the population unable to afford a healthy diet in 2020.

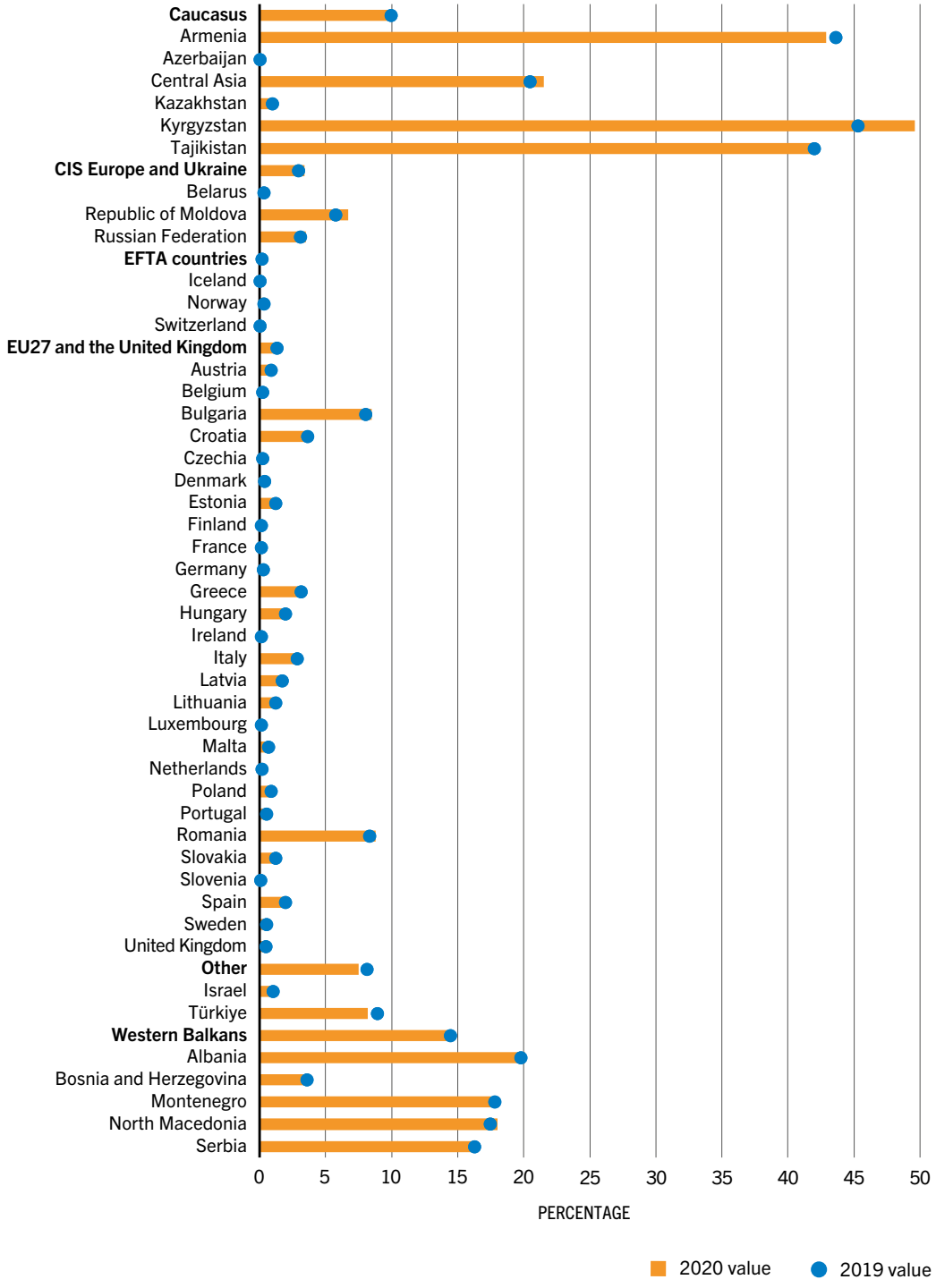
The following countries, which had unaffordability rates of more than 5 percent and saw relative increases from 2019 to 2020, may have suffered more from the COVID-19 pandemic: the Republic of Moldova (16.0 percent increase), Kyrgyzstan (9.5 percent increase), Romania (6.4 percent increase), Bulgaria (6.3 percent increase) and North Macedonia (3.0 percent increase). ■

**FIGURE 20**
Change in the cost of a healthy diet compared to the previous year in Europe and Central Asia by subregion




SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable.* Rome, FAO. https://doi.org/10.4060/cc0639en

**FIGURE 21**
Percentage of people unable to afford a healthy diet in Europe and Central Asia by country




SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable.* Rome, FAO. https://doi.org/10.4060/cc0639en

**ASTANA, KAZAKHSTAN**
Autumn food fairs.
©FAO/Aigerim Kagarmanova

# PART II
# REPURPOSING POLICIES AND INCENTIVES TO MAKE HEALTHY DIETS MORE AFFORDABLE AND AGRIFOOD SYSTEMS MORE ENVIRONMENTALLY SUSTAINABLE

# INTRODUCTION

Even before the COVID-19 pandemic, the world was not on track to end hunger and all forms of malnutrition (SDG target 2[4]). Hunger globally affected 46 million more people in 2021 than in 2020 – and a total of 150 million more people since 2019, before the COVID-19 pandemic (FAO *et al.,* 2022). The war in Ukraine, which involves two countries that are major producers and exporters in agriculture and staple cereals, is disrupting global grain, fertilizer and energy markets. It also is preventing producers from planting and leading to shortages and higher food price inflation, which raises concerns about food insecurity, particularly in food-importing, low-income countries[5] (FAO *et al.,* 2022).

The ECA region, one of the leading agrifood exporting regions in the world and relatively developed in terms of socioeconomic characteristics, faces food security and nutrition challenges. The region includes countries with varying levels of development, climate conditions and cultural traditions, with most of them experiencing multiple forms of malnutrition. Despite that the prevalence of undernourishment and the prevalence of chronic or severe food insecurity are relatively low in the ECA region relative to the world average, the reduction of these levels in some ECA countries has slowed since 2014, and the latest results (see Part I of this report) reveal persistence in some countries in the region. After increasing sharply in 2020, the regional prevalence of moderate or severe food insecurity increased again in 2021.

In addition to food insecurity, many countries in the region face challenges from the burden of malnutrition in all its forms. Overall, the ECA region is making progress and is on track to achieve the 2025 and 2030 targets in most countries in child stunting, child wasting and low birthweight. However, the region is not making progress in adult obesity, anaemia and exclusive breastfeeding (FAO *et al.,* 2021b). In particular, adult obesity is on the rise in all ECA subregions and countries, with the regional average having increased from 17.2 percent in 2000 to 23.3 percent in 2016, the last year for which data are available. The regional prevalence of obesity is well above the 2016 global prevalence of 13.1 percent (see Part 1 of this report).

While ECA countries are working on achieving the Sustainable Development Goals, the promotion of healthy diets has been challenging. Food consumption surveys on 15 dietary risk factors have demonstrated suboptimal intake of all 15 dietary elements in all subregions (FAO, 2019). The intake of all foods/food groups and nutrients classified as "unhealthy" by the Global Burden of Disease study exceeds the optimal level globally and in all four ECA subregions, according to the findings of the 2017 Global Burden of Disease study (IHME, 2018). The sharp increase in global and regional food prices translated into an increased average cost of a healthy diet in the ECA region in 2020 (see Part I of this report). Impacted by the ongoing war in Ukraine, the situation may have gotten even worse in 2022.

The 2021 United Nations Food Systems Summit has been an accelerator towards the achievement of the SDGs by 2030 (BOX 1), specifically towards the SDG 2 aim to end hunger, achieve food security and improved nutrition and promote sustainable agriculture. It is crucial to transform agrifood systems to make them more suitable to reducing hunger and improving nutrition (FAO *et al.,* 2021a). Support for the food and agriculture sector accounted for almost USD 630 billion per year, on average, from 2013 to 2018 (FAO *et al.,* 2022).

One of the necessary building blocks in the agrifood systems transformation is the repurposing of agricultural policies to make them better suited to addressing the "triple challenge" of current agrifood systems (see BOX 2).

**BOX 1**
Food Systems Summit as an accelerator towards the achievement of the SDGs by 2030

A properly functioning food system would contribute to achieving the 17 SDGs and not only the goal of ending hunger, achieving food security and improved nutrition and promoting sustainable agriculture (SDG 2). Within a food system approach, more goals come into play, including those of reducing poverty (SDG 1), improving health (SDG 3), ensuring gender equality (SDG 5), managing water resources (SDG 6), ensuring economic growth (SDG 8), developing the necessary infrastructure and processing and innovating (SDG 9), reducing inequalities (SDG 10), moving towards sustainability (SDG 12), better managing natural resources (SDG 14 and SDG 15), ensuring peace and stability (SDG 16), and enhancing partnerships (SDG 17). These interlinked SDGs are part of key drivers and game changers that support the transformation of agrifood systems.

The 2021 United Nations Food Systems Summit provided global momentum to act to achieve the SDGs through an agrifood system lens while ensuring that all people are able to enjoy their right to a decent and safe life.

Radical changes in the way food is produced, processed and consumed – especially in the aftermath of the COVID-19 pandemic – are vital to transforming agrifood systems and achieving positive outcomes related to food security and nutrition. The changes will be in line with the Secretary-General's call to build back better and leave no one behind while at the same time transforming how we manage resources, restore ecosystems and promote family farming.

The regional plans of action in the present report address regional barriers and are influenced by national and local practices and by global initiatives and programmes.

SOURCE: ECA, ECLAC, ESCAP, ESCWA & UNECE. 2021. *Transforming Food Systems.* Regional Policy Brief. https://unece.org/sites/default/files/2021-09/TransformingFoodSystems_Eng.pdf

The impact of food and agricultural policies on agrifood systems must be considered, taking into account all the trade-offs among the various challenges of agrifood systems: food and nutrition, livelihoods of the rural population, and the impacts of food production on nature and climate. There is evidence that agricultural support contributes to increased agricultural productivity and in some settings can ensure that more food can be produced using fewer natural resources.[6] It is also known that in many countries, support to producers has increased the availability and reduced the prices of staple foods and their derivates but discourage the production of other foods that are necessary for healthy diets, such as fruits, vegetables and pulses (FAO *et al.,* 2022). This support often undercuts the affordability of a healthy diet at the expense of consumers.[7] At the same time, some forms of support distort markets and lead to the overuse of land and inputs (Henderson and Lankoski, 2019) and are often provided to large-scale farms with little inclusion of small-scale farmers (OECD, 2021b). Support in the form of the provision of public goods to the sector – such as research and information and the development of roads and telecommunication infrastructure – has proved to be efficient for improving farm productivity and is seen as an important instrument for ending hunger and improving nutrition (FAO, UNDP and UNEP, 2021). It is important to select the most cost-effective and efficient use of public resources for achieving food security and good nutrition while ensuring farmers' livelihoods and environmental sustainability.

FAO, UNDP and UNEP (2021) defined repurposing policy support as the reduction of support measures that are inefficient, unsustainable and/or inequitable by replacing them with support measures that are the opposite.[8] In this part of the report, an effect of agricultural policies on the "triple challenge" of agrifood systems will be analysed, and recommendations for repurposing agricultural support will be provided.

The successful transformation of current agrifood systems in order to meet the "triple challenge" first and foremost requires a clear understanding of the costs and benefits of existing agricultural policies, their beneficiaries, and the sources of the transfers generated by those policies. An effect of the government policies on agricultural producers and consumers is typically measured by public support (described in BOX 2), which reflects an observed end effect of policies on the market prices of agricultural commodities (transfers to and from both producers and consumers) and recorded budgetary transfers (from taxpayers to producers, consumers and the whole sector). The indicators measuring the levels of support offer an internationally comparable way to measure all the transfers created by agricultural policies.

Trade policy, input subsidy measures and research programmes tend to provide incentives for the domestic production of staple foods, such as rice and maize, and animal products, often to the detriment of foods such as fruits and vegetables (FAO *et al.,* 2022). They are also instruments towards healthy diets for producing and consuming nutritious foods (FAO, UNDP and UNEP, 2021).

While some commodities are more harmful to the environment than others, all commodity-specific support is mostly linked to the overuse of inputs and land and water resources, having an impact on the ability to produce food in the future. The promotion of research and development in the ECA region increases the potential to provide innovative solutions that are two-pronged to address both environmental and farm income support goals.

Part II of this report covers the following sections: stocktaking and analysis of national food and agricultural policies for increasing the affordability of healthy diets in ECA countries; repurposing food and agricultural support and complementing polices within and outside of agrifood systems to address the "triple challenge" of agrifood systems in the ECA region; and special analysis of the impacts of food and agricultural production on environments and reorienting agricultural production in the ECA region for a healthier planet. ■

## BOX 2
The triple challenge of agrifood systems

In order to address the triple challenge of the agrifood system, it is important to understand the trade-offs and convergences in repurposing agricultural policies for those three dimensions. A complicated interconnection of the requirements of agrifood system challenges means that a holistic approach to agricultural policies is needed.

The "triple challenge" of agrifood systems includes the following:

1. Achieving food security and good nutrition for a growing world population and for better health.
2. Providing livelihoods to farmers and others connected to the sector, either horizontally and vertically along the value chain or spatially across rural economies.
3. Reducing the nature and climate footprint of the sector (including environmental indicators such as biodiversity loss, greenhouse gas emissions intensity, land use change, eutrophication, water use, etc.).

Furthermore, recent risks and threats related to the COVID-19 pandemic and climate change underscore the need to address these three challenges while building the resilience of agrifood systems.

SOURCES:

i. OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the challenges facing food systems.* OECD Publishing, Paris. https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2021_2d810e01-en

ii. OECD. 2021. *Making Better Policies for Food Systems.* OECD. https://doi.org/10.1787/ddfba4de-en

**SREDNO EGRI, NORTH MACEDONIA**
The project aims to redraw agricultural land borders to create land plots that can be farmed more effectively and easily.
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# 2.1 NATIONAL FOOD AND AGRICULTURE POLICY ANALYSIS AND IMPLICATIONS FOR THE AFFORDABILITY OF HEALTHY DIETS IN EUROPE AND CENTRAL ASIA

## Key messages

- The deterioration of food security and nutrition in the region and the ongoing threats from climate change, economic recession and fiscal constraints call for a repurposing of existing policies and incentives to alternatives that make healthy diets more affordable and environmentally sustainable.
- The countries in the region support food and agriculture differently, not only because of differences in policy priorities but also because of differences in the development stages and sizes of national budgets. The average share of budget transfers to agriculture in agricultural value added is 14 percent in ECA countries, on average, and 11 percent in middle-income ECA countries.
- The level of budget support to agriculture is decreasing in high-income ECA countries but growing in middle-income countries in the region. In 2001, 94 percent of the agricultural budget support of the region was provided in high-income countries. This dropped to 74 percent in 2010 and to 67 percent in 2019.
- Compared with the world average, ECA countries have primarily supported agriculture through policies that distort markets and production (such as import tariffs, export bans and commodity-specific subsidies) and less through the provision of general services or public goods (e.g. agricultural research, knowledge transfer, inspection services, infrastructure and marketing services). While 20 percent of the total support to agriculture worldwide was spent on general services, high-income countries in the ECA region spent just 11 percent on general services, and middle-income ECA countries spent just 15 percent. However, there were high variations among countries in the region, including 79.4 percent in Albania and 6 percent in Bosnia and Herzegovina.
- Overall in the ECA region, support to agricultural production is largely concentrated in meat (70 percent) and milk production. Cereals and oil crops production in Eastern Europe, Caucasus and Central Asia countries (Kazakhstan, Republic of Moldova, Russian Federation and Ukraine) is disincentivized due to commodity-specific trade and market policy measures.

## 2.1.1. INTRODUCTION AND DEFINITION OF GOVERNMENT SUPPORT TO FOOD AND AGRICULTURE

To end hunger and ensure access by all people to safe, nutritious and sufficient food all year long and end all forms of malnutrition (SDG targets 2.1 and 2.2), it is a necessary condition that everybody can afford and consume a healthy, balanced and adequate diet.

The United Nations must assist governments in ensuring that the right to adequate food – a universal basic human right – is enjoyed by everyone. According to the WHO, a healthy diet containing a balanced, diverse and appropriate selection of foods – all core dimensions of the right to food – protects against malnutrition in all its forms and against non-communicable diseases (NCDs). Diets consisting mainly of foods high in energy density and low in nutritional value account for a large share of the burden of NCDs in Europe, accounting for an estimated 86 percent of deaths and 77 percent of the disease burden in the region (WHO, 2022c).

Overall, the ECA region consumes a diet high in animal-source foods more often than does the world overall. The largest gap in the availability of food for consumption[9] in the ECA region overall (it depends on the country context) are pulses, vegetables, fruits and fish (FAO *et al.,* 2021b). There is a need for a reallocation of resources to reduce the overconsumption of red meat and milk and to increase the affordability and accessibility of fruits, vegetables and fish in some subregions and countries (FAO *et al.,* 2021b).

Appropriate policies are needed to increase productivity, ensure a decrease of the cost of healthy diets, and increase incomes for the millions of people who cannot afford or do not have access to a healthy diet. Factors that alter consumer demand, such as relative food prices and per capita income and distribution also are important. Involving all relevant stakeholders in decision-making and ensuring inclusive and participatory policy dialogues – including with government, parliament, civil society, consumers, private sectors, farmers and academia – is key to overcoming bottlenecks and challenges across all stages of policymaking.

As shown in the 2022 edition of The State of Food Security and Nutrition in the World (FAO *et al.,* 2022) and in the previous chapters, the world and the ECA region are facing major setbacks, with growing numbers of people facing food insecurity and increasing challenges to malnutrition in all its forms. Governments must take action to reverse this situation in order to reach their SDG targets. However, many governments are facing challenges to increasing their budgets and support to the sector under the current recessionary context due to the war in Ukraine and many other shocks in the region.

Governments throughout the world will need to evaluate whether the current money can be reallocated more cost-effectively and efficiently to achieve development objectives. With repurposing, the support is not eliminated but rather reconfigured.

The options available to transform agrifood systems need to be carefully considered, with the aim of using limited resources in the most cost-effective and efficient ways to achieve development objectives, including reducing the cost of healthy diets and then improving affordability sustainably and inclusively.

There is little existing food and agricultural policy support that has been explicitly designed to meet the objectives related to all dimensions of food security and nutrition and environmental objectives simultaneously and coherently. The majority of the policy measures have been designed and implemented in isolation for a specific objective by various sectors without considering the consequences they might have in other dimensions (FAO *et al.,* 2022). Coherent

policies require increased coordination between policymaking communities with different objectives so that they are aligned to strengthen each other or at least to not counteract each other (OECD, 2021b).

Therefore, reviewing and rethinking the allocation of public spending, which is limited in some countries (in particular lower-middle-income and upper-middle-income countries in ECA) and repurposing food and agricultural policies are urgently needed.

Existing policy support measures have contributed to shaping agrifood systems in which a healthy diet costs five times more than a staple, cereal-based diet, which is linked to mortality and NCDs (FAO *et al.*, 2022).

Repurposing food and agricultural policy support, aiming to lower the cost of nutritious foods to make healthy diets more affordable for all, will be a critical step for many countries in the ECA region to reach SDG 2 targets and the targets of other SDGs. The ECA region in 2020 had 30.4 million people (3.6 percent of its population) who could not afford a healthy diet (Chapter 1.4). Even in high-income countries, sizeable portions of the population had difficulty accessing healthy diets in 2020, including 7 million in the EU27 and the United Kingdom (TABLE A1.13).

Recent research on the impacts of the COVID-19 pandemic suggests that the number of people worldwide who are unable to afford a healthy diet could have risen by 112 million from 2019 to 2020 due to the pandemic (FAO *et al.,* 2022), reflecting the higher costs of a healthy diet. In the ECA region, the numbers could have increased by more than 1 million from 2019 to 2020 (Chapter 1.4). The prospect for the affordability of a healthy diet in 2022 is even worse given the ongoing war in Ukraine.

Policy support to food and agriculture, in this report, refers to any form of government financial support for these sectors or government policy that has a direct or indirect impact on agricultural production, marketing and trade (FAO *et al.,* 2022).

Government support to agriculture is provided in various forms and using many types of instruments. Support comes in the form of trade and market interventions, budgetary transfers to producers, budgetary transfers to primary or final consumers, and budgetary transfers to general services support (see Annex 2). The indicators of support to agriculture are instruments that allow for the tracking of the amounts of transfers to and from agricultural producers, consumers and taxpayers arising from agricultural policies and comparing them among countries and time periods (TABLE 5). They also allow for the identification of the source of the transfers. There also are policies and regulations that do not infer transfers, which are not reflected in the indicators of support but are discussed in Chapter 2.3.

Trade policies, such as tariffs on imports, non-tariff barriers, export restrictions and market interventions, such as in the form of price administration or minimum producer price policies, affect domestic prices of agricultural commodities and make them higher or lower than the world prices. Therefore, those policies create incentives or disincentives for producers of those commodities and affect the prices paid by their consumers. The incentives (or disincentives) arising from policy support to food and agriculture are measured by the market price support indicator (monetary value of the incentive), and the nominal rate of protection (ratio of the incentive to the border price).

Budgetary transfers are public expenditures that provide transfers to producers (budget transfers to individual producers), consumers (transfers to consumers from taxpayers) or the whole sector (general services support estimate). The combined effects of price and market interventions and budget transfers on producers is measured by Producer Single Commodity Transfers. The combined effects of all transfers arising from agricultural policies (trade, price and budget transfers) for agrifood systems is measured by the total support estimate.[10]

**TABLE 5**
Policy instruments for supporting food and agriculture and related indicators

| Policy instruments | | Indicator | | | |
|---|---|---|---|---|---|
| Price incentives from **trade and market** measures | Effect on producers | Market price support (MPS) – monetary value<br>Nominal protection coefficient (NPC) –coefficient<br>Nominal rate of protection (NRP) – rate | Producer single commodity transfer (PSCT)<br>PSCT = MPS + BT | | Total support estimate (TSE)<br>TSE = MPS + BT + GSSE + TCT |
| | Effect on producers | Consumer nominal protection coefficient (CNPC) | Percentage producer single commodity transfer (PSCTP) | | |
| Budget transfers to producers: transfers based on output, input use, area, animal numbers, receipts or income, with or without requirement to produce, or non-commodity criteria, other transfers to individual producers | | Budget transfers to individual producers (BT) | | Total budgetary support estimate (TBSE)<br>TBSE = BT + GSSE + TCT | |
| | | | Nominal rate of assistance (NRA) | | |
| Budget transfers that benefit the whole sector: expenditure on agricultural research and development and knowledge transfer; agricultural inspection and control services; infrastructure; marketing services; public stockholding and other expenditure in general services | | General services support estimate (GSSE) | | | |
| Budget transfers to primary or final consumers | | Transfers to consumers from taxpayers (TCT) | | | |

SOURCES: [11]

i. FAO, IFAD, UNICEF, WFP & WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable.* FAO. https://doi.org/10.4060/cc0639en

ii. Laborde, D., Mamun, A., Martin, W., Pineiro, V. & Vos, R. 2020. *Modeling the Impacts of Agricultural Support Policies on Emissions from Agriculture.* Working Paper. Washington, DC, World Bank. https://doi.org/10.1596/34453

iii. OECD. 2016. *OECD's producer support estimate and related indicators of agricultural support.* Trade and Agriculture Directorate. https://www.oecd.org/agriculture/topics/agricultural-policy-monitoring-and-evaluation/documents/producer-support-estimates-manual.pdf

## 2.1.2 STOCKTAKING AND ANALYSIS: LEVELS AND STRUCTURE OF AGRICULTURAL SUPPORT IN THE ECA REGION

Agricultural policy can affect food availability and the cost of nutritious foods both positively and negatively. Trade and market interventions influence prices directly, therefore affecting the affordability of food. Strong import protection of dairy and meat commodities in middle-income ECA countries increases the prices of those commodities for consumers. On the other hand, export restrictions (tariffs and quotas) on grain and oilseeds in some EECCA countries harm producers without any evidence of benefits for consumers (OECD, 2021b). The evidence is not conclusive about the effect of budget transfers to individual producers. In some cases, they have been linked to higher production, consumption and private investment, while in others they have been linked to decreased production and productivity and overuse of natural resources (Ignaciuk *et al.,* 2021). The difference is most likely explained by the specific conditions of providing those transfers. Budgetary transfers to individual producers can be provided as input and output subsidies that are linked to production, but also in the form of decoupled subsidies, paid based on historic production, land area or conservation efforts. While European Union countries decoupled their transfers to producers in the 2003 Common Agricultural Policy reform, EECCA countries have their budget transfers to producers mostly linked to input use or the output of specific commodities, which distorts markets, investment and production decisions.[12] In some countries of Central Asia, a major part of budget transfers are received by cotton producers, which leads to suboptimal production patterns and affects farmers' incomes. Similarly, in some countries, those subsidies focus on cereals, with negative impact on diets (FAO *et al.,* 2022). Also, transfers to producers linked to production or input use are often received by the producers' groups that were not the intended beneficiaries of policy support, i.e. the largest and more financially sound producers. Inequality in the distribution of budgetary transfers to producers is prominent in middle-income countries in the ECA region but also is present in high-income European Union countries.

Budget transfers to the whole sector (general services support, as defined in Annex 2) that create an enabling environment for the agriculture sector as a whole have proven to create opportunities for agrifood systems to become better suited to face the challenges of ensuring livelihood, good nutrition and sustainability in a resilient way (BOX 2). Budget transfers to the whole sector – including research and development of new technologies, infrastructure, and institutions – increase productivity, reduce costs, improve the affordability of foods, and increase equality. Repurposing public support to food and agriculture from transfers to individual producers to support to the general services sector could benefit producers while also increasing the affordability of healthy diets for consumers (FAO *et al.,* 2022).

The classification and coverage of the ECA countries included in this analysis are presented in TABLE 18. Since not all the indicators of support to agriculture are available for all countries, some of the analysis is based on a limited number of countries (which will be indicated in the footnotes in each case).

### 2.1.2.1 Level of policy support to food and agriculture

**High variabilities exist in the levels of budget support in food and agriculture by country and by subregion**

The overall effect of policy support to food and agriculture policies is the combined effect of transfers arising from trade and market policies and budget transfers. This section discusses the level of budget transfers in ECA countries. The countries in the region have very different levels of budgetary support to food and agriculture, not only because of differences in policy priorities but also because of differences in the sizes of national budgets. In 2017–2019, on average,

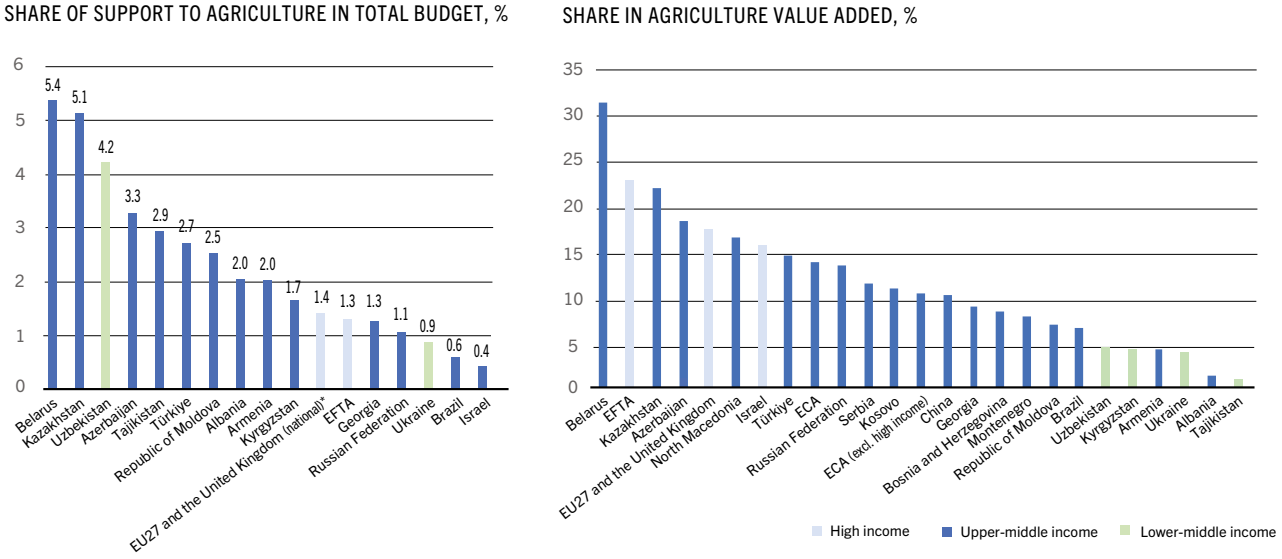
the total budgetary support estimate (budget transfers to agricultural producers, consumers and the whole sector – "general services") was USD 99 billion in the European Union, USD 6 billion in the Russian Federation, USD 1.2 billion in Kazakhstan, USD 0.5 billion in Ukraine and USD 0.05 billion in the Republic of Moldova.[13]

The share of budget transfers to agriculture in the gross domestic product (GDP) also varies, from about 0.5 percent in the Russian Federation, Ukraine and the European Union to closer to 1 percent in Kazakhstan and the Republic of Moldova. The levels of support in the countries with smaller budgets (Armenia, Republic of Moldova) depend on donor support and vary greatly from year to year. They are very unpredictable for market players, which adds uncertainty and prevents mid-term production planning.

Budgetary transfers to agriculture as a share of the total budget in Georgia, the Russian Federation and Ukraine is close to levels of the European Union, EFTA countries and Israel levels (1–1.5 percent), but in Belarus, Kazakhstan and Uzbekistan its share of the total budget is much higher (about 5 percent) (FIGURE 22, left) and increasing. A relatively high share of support demonstrates more resources transferred to agriculture for better food security and nutrition.

Budget transfers in ECA countries amount to 1 percent (in Tajikistan) to 32 percent (in Belarus) of the value added in agriculture (FIGURE 22, right), and this share is much lower (less than 5 percent) in lower-middle-income countries than in middle- and high-income countries in the region. The average share of budget transfers to agriculture in agricultural value added is 14 percent in ECA countries, on average, and is 11 percent in middle-income countries in the ECA region.

**FIGURE 22**
Total budgetary support to food and agriculture as a share of the total budget and agricultural value added, by country, 2017–2019




NOTE: All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

SOURCES:

i. FAO. 2022. FAOSTAT: Macro indicators. In: *FAO*. Cited November 2022. https://www.fao.org/faostat/en/#data/MK

ii. World Bank. 2022. World Development Indicators. In: *Data Bank*. https://databank.worldbank.org/source/world-development-indicators

The share of agriculture in the total budget in Central Asia and the Caucasus is much higher than in other subregions (TABLE 6). From 2001 to 2019, the average share of agriculture in government expenditure in the world showed a steady increase, from 1.63 percent in 2001 to 1.71 percent in 2010 and to 2.12 percent in 2019. This share demonstrated a significant decrease in Europe and its subregions, except Central Asia and the Caucasus, through while in the European EECCA and the Western Balkan regions it remained relatively stable.

The ECA countries pursue different approaches in setting their policy priorities. For example, agricultural policy goals included self-sufficiency requirements in Armenia, Belarus, Kazakhstan and the Russian Federation for ensuring food independence.

The differences in the levels of budgetary support to food and agriculture among the European Union and most of the EECCA[14] and Western Balkans countries are substantial when calculated as a proportion of the rural population per agricultural land area, taking the differences in the sizes of the countries' rural populations into account (FIGURE 23). While the European Union's support amounted to USD 42 000 per sq. km of agricultural land, the average value for ECA countries was only USD 8 000. When the high-income countries (European Union, EFTA, Israel) were excluded, budgetary support, on average, amounted to just USD 3 100 per square km. As expected, the lowest levels of support, both per person in rural areas and per agricultural land area, were observed in the **lower-middle-income countries**. Among the countries in the upper-middle-income category, Belarus and Türkiye have the highest levels of support per capita. Taken per person living in rural areas, the level of support in Belarus is even higher than that of the European Union.

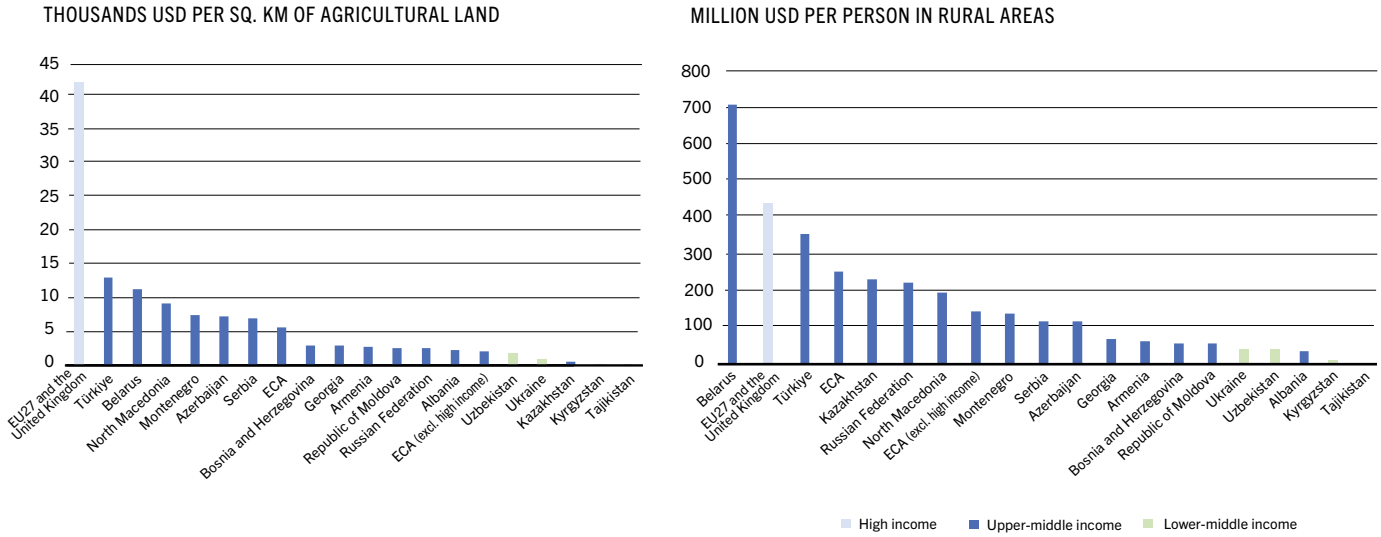
**TABLE 6**
Share of government expenditures on agriculture of the total budget expenditures by subregion, percent, 2001–2019

| | 2001-2003 | 2010-2012 | 2017-2019 | 2017-2019 / 2001-2003 | +increase; -decrease |
|---|---|---|---|---|---|
| **Caucasus** | 1.35 | 2.53 | 2.70 | 2.00 | + |
| **Central Asia** | 3.46 | 4.33 | 4.24 | 1.23 | + |
| **EECCA Europe** | 1.46 | 1.50 | 1.39 | 0.95 | - |
| **EFTA** | 2.65 | 1.88 | 1.69 | 0.64 | - |
| **European Union** | 0.89 | 0.68 | 0.51 | 0.58 | - |
| **European Union - Western Europe** | 0.82 | 0.57 | 0.44 | 0.54 | - |
| **European Union - Eastern Europe** | 2.23 | 2.06 | 1.33 | 0.60 | - |
| **Other** | 0.64 | 0.39 | 0.48 | 0.75 | - |
| **Western Balkans and Türkiye** | 2.77 | 3.00 | 2.72 | 0.98 | - |
| **ECA** | 0.98 | 0.88 | 0.72 | 0.74 | - |
| **World** | 1.63 | 1.70 | 2.12 | 1.30 | + |

NOTE: The European Union – Eastern Europe group includes Bulgaria, Croatia, Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia.

SOURCE: FAO. 2021. *Government expenditures in agriculture 2001–2019. Global and regional trends.* FAOSTAT Analytical Brief Series 24. Rome, FAO. https://www.fao.org/documents/card/en/c/cb5128en/

**FIGURE 23**
Budgetary support to food and agriculture accounting for the differences between the size of the countries, 2017–2019




*EFTA countries and Israel were not included in the charts for better presentation.[15]

SOURCES: Based on:

i. FAO. 2022. FAOSTAT: Government Expenditure. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/IG
ii. FAO. 2022. FAOSTAT: Land Use. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/RL
iii. FAO. 2022. FAOSTAT: Annual population. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/OA

**As part of the development process, the level of support to agriculture in the ECA region is decreasing in high-income countries and growing in middle-income countries**

In 2001, 94 percent of budget transfers to support agriculture were provided in high-income countries. This was reduced to 74 percent in 2010 and to 67 percent in 2019. The middle-income countries in Central Asia, the EECCA and European Union Members in Eastern Europe increased their budgetary transfers to food and agriculture in 2017–2019 from 2001–2003. In 2017–2019, on average, annual budgetary transfers to agriculture amounted to USD 68.5 billion every year. Of these, only USD 1.2 billion was allocated to agriculture in lower-middle-income countries. Since middle-income-countries in the ECA region have limited budget funds and rely on their agriculture sectors to a greater extent for ensuring the livelihoods and good nutrition of their population, the efficiency of budget support in the region is even more crucial.

### 2.1.2.2 Composition of policy support to food and agriculture

**Most support is provided to producers individually – distorting trade, markets and production incentives – but this varies by subregion and by country**

Some agricultural policy instruments have the potential to distort trade, investment and production decisions. In particular, trade and other price policy measures and subsidies on outputs and inputs are considered to be the form of support having the strongest potential to distort agricultural production and trade.[16] At the same time, some budgetary transfers are based on parameters that are not linked to current production or based on

**TABLE 7**
Budgetary transfers to agriculture by income group and subregion in ECA region, million USD

| | | 2001–2003 | 2010–2012 | 2017–2019 |
|---|---|---|---|---|
| **Caucasus** | Upper-middle income | n/a | 625 | 605 |
| **Central Asia** | Upper-middle income | 196 | 1 226 | 1 622 |
| **Central Asia** | Lower-middle income | n/a | 303 | 705 |
| **EECCA Europe** | Lower-middle income | 65 | 896 | 521 |
| **EECCA Europe** | Upper-middle income | 2 319 | 11 902 | 9 108 |
| **Western Balkans and Türkiye** | Upper-middle income | n/a | 8 748 | 8 363 |
| **European Union Western Europe** | High income | 35 644 | 50 234 | 32 776 |
| **European Union New Member States** | Upper-middle income | 157 | 1 109 | 1 672 |
| **European Union New Member States** | High income | 4 569 | 10 993 | 4 929 |
| **EFTA** | High income | 5 312 | 7 577 | 7 472 |
| **Other FAO Member Countries** | High income | 400 | 363 | 680 |
| **ECA (excluding high income)** | ECA (excluding high income) | 2 783 | 24 810 | 20 259 |
| **ECA** | ECA | 48 708 | 93 977 | 68 453 |
| **ECA** | ECA (upper-middle income) | 2 672 | 23 610 | 21 370 |
| **ECA** | ECA (high income) | 45 925 | 69 167 | 45 857 |
| **ECA** | ECA (lower-middle income) | 65 | 1 199 | 1 226 |
| **Share of high-income countries in total budgetary transfers in ECA, %** | | 94 | 74 | 67 |

NOTE: The European Union New Member States group includes the countries that have joined the European Union since 2004: Bulgaria, Croatia, Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia.
SOURCE: FAO. 2022. FAOSTAT: Government Expenditure. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/IG

non-commodity criteria, such as land set aside or payments for specific environmental or animal welfare outcomes. Support provided to the sector as a whole (for general services) has proven to be more cost-efficient and contributes most to long-term competitive¬ness and growth in agriculture.[17]

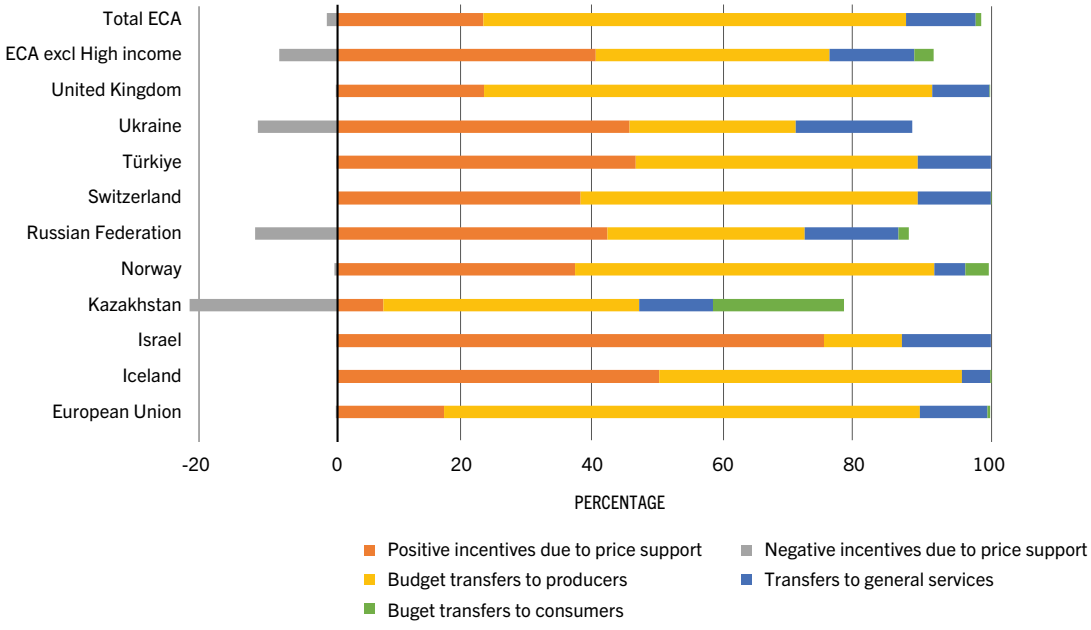
Globally, most of the policy support to food and agriculture has been provided in forms that can distort markets and production decisions: trade and price policy measures and budget transfers linked to production and input use. Worldwide, just 20 percent (USD 110 billion) of total support to agriculture was used to fund transfers to the agriculture sector collectively in the form of general services or public goods in 2018–2020 (FAO, UNDP and UNEP, 2021). In ECA countries in which the OECD monitors such expenditures, this share was only 11 percent (USD 17 billion), and it was 15 percent (but just USD 3.4 billion) in middle-income ECA countries in the same period. The composition of support to agriculture, including transfers to general

services, consumers and producers, is shown in FIGURE 22. For the definitions of indicators used, please see TABLE 5 and Annex 2.

The composition of agricultural support in the ECA region demonstrates great variability across countries (FIGURE 24). Aiming to increase local production, many countries in Central Asia, the Caucasus, Eastern Europe and the Western Balkans rely heavily on market price support (mostly in the forms of border measures, such as import tariffs and export restrictions), trade and market policies, and budget transfers to individual producers in support to agriculture. Budget transfers to producers are higher than transfers to general services, especially in high-income countries. Budget transfers to consumers, on average, were less than 1 percent of total support in ECA countries; however, in Kazakhstan, budget transfers to consumers were 35 percent of total support[18] (FIGURE 25). While the role of market price support is decreasing, both in the European Union and Europe EECCA countries (FIGURE 25), the share of distorting support, i.e. transfers linked to production or input use, remains high and has actually increased in some countries (FIGURE 26).

In grain-exporting countries (Kazakhstan, Russian Federation and Ukraine), high market price support for livestock commodities is combined with negative incentives for grain exporters, which harms producers and distorts trade and production (FIGURE 24). In Kazakhstan, it even results in overall market price support being negative; disincentives for grain exporters are higher than trade protection for meats and other sectors. The high share of market price support in the total support in the Russian Federation reflects the prominence of trade protectionism, including food import bans and currency devaluation, which provides advantages for domestic producers and exporters. In Ukraine, trade-distorting support, while still high, declined substantially in 2020, in contrast to other countries monitored by the OECD (FIGURE 24). In Türkiye and the European Union, the importance of trade policy measures in total support to food and agriculture is decreasing. In Türkiye, all other forms of support are decreasing as well, while the European Union demonstrates the shift from trade and price policies to budget transfers to

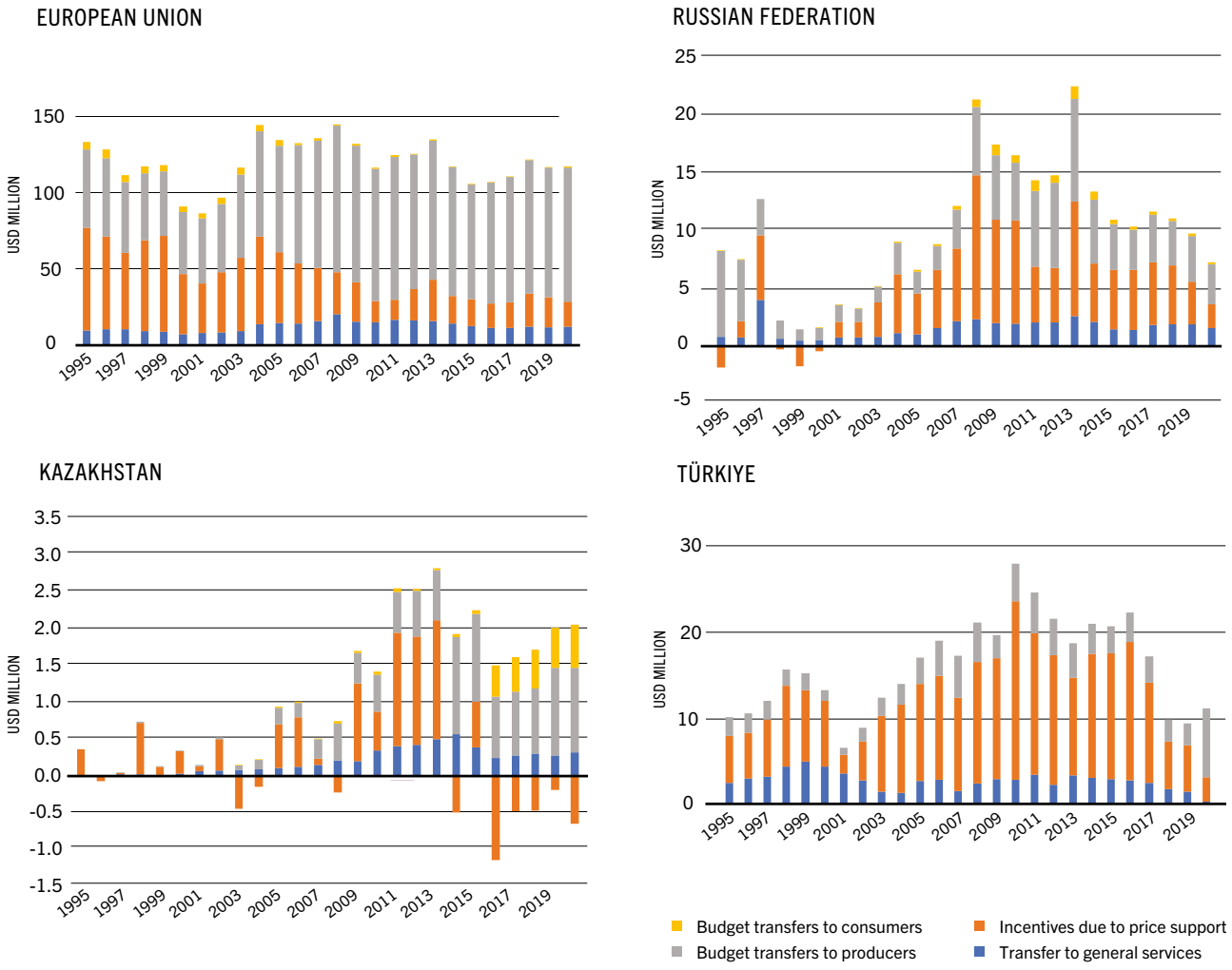
**FIGURE 24**
Agricultural support policies by type of support in selected ECA countries, 2018–2020




NOTE: Only countries and regions in which the level of support is monitored by the OECD are shown.

SOURCE: OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the challenges facing food systems*. OECD Publishing, Paris. https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2021_2d810e01-en

**FIGURE 25**
Dynamics of agricultural support policies by type of support in selected ECA countries

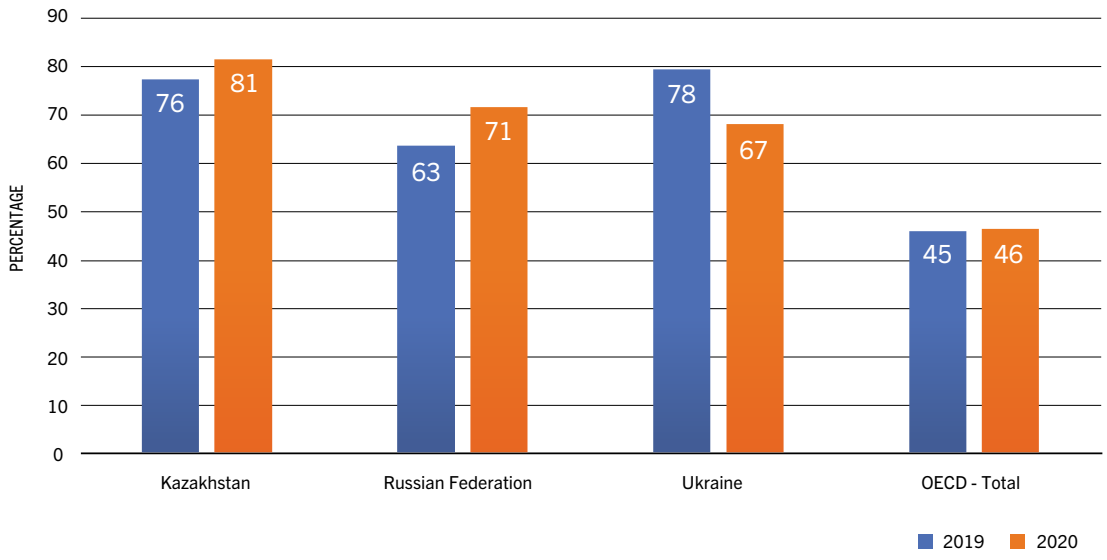



SOURCE: OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the challenges facing food systems.* OECD Publishing, Paris. https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2021_2d810e01-en

producers. At the same time, in EFTA countries, support to agriculture through trade and price policy measures remains very high.

While there are no data on the market price of support to food and agriculture for the countries in the Western Balkans and Türkiye subregion (as data are available only for Türkiye), the data on budget transfers in those countries demonstrate that payments based on land area or livestock numbers are the most important form of budget transfers to producers. Direct payments based on commodity output and input use are also important (TABLE 6). However, in Albania and Türkiye, general services support also represents a substantial share of the total budget support. Albania has the lowest share of budgetary transfers to producers, in particular lower payments based on output/input than other countries in the region. A few implementation measures provide direct financing support to agriculture producers, but a high share of funding is given to financing agricultural infrastructures and inspection and control systems (FAO, 2022a).

**FIGURE 26**
Share of most distorting support in transfers to individual producers




NOTE: Transfers linked to output or input use, as well as land- and area-based transfers requiring production, are considered to be the most distorting types of support.

SOURCE: OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the challenges facing food systems*. OECD Publishing, Paris. https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2021_2d810e01-en

**TABLE 8**
Structure of budgetary support to food and agriculture in countries and areas of the Western Balkans, 2017–2019

| Support measures as a share in total budgetary transfers, % | Albania | Bosnia and Herzegovina | Montenegro | North Macedonia | Serbia | Türkiye | Kosovo[19] |
|---|---|---|---|---|---|---|---|
| Payments based on output | 3.54 | 46.78 | 13.69 | 29.67 | 20.07 | 19.11 | 1.72 |
| Payments based on input use | 7.33 | 8.57 | 40.71 | 4.67 | 5.34 | 17.06 | 38.59 |
| Budgetary transfers to consumers | 5.46 | 1.09 | 2.74 | 1.66 | 0.08 | 0.00 | 0.00 |
| Payments based on current area/animal/receipts/income, production required | 4.26 | 35.55 | 20.26 | 49.00 | 59.93 | 23.25 | 40.89 |
| Miscellaneous payments | 0.00 | 1.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| General services support estimate (GSSE) | 79.41 | 6.05 | 22.60 | 15.00 | 14.59 | 40.58 | 18.80 |

SOURCES:

i. European Commission. 2022. Joint Research Centre Data Catalogue. In: *EU Science Hub*. https://data.jrc.ec.europa.eu/

ii. OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the challenges facing food systems*. https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2021_2d810e01-en

The structure of domestic support in some of the countries in the region is influenced by the policies and subsidies in the European Union and the Russian Federation. Other countries in the region claim that an increase in subsidies coupled with production is made as a countermeasure to the high level of subsidies among main trade partners or competitors – namely, the European Union and the Russian Federation. The ECA countries, especially the WTO members among them, have started the process of decoupling their budgetary support from producers and reduced trade protection in recent years. The European Union not only reduced import tariffs but also decoupled budgetary transfers from production by introducing direct payments based solely on historic levels of production.

However, a major part of support is still provided in ways that are distorting to markets and harmful to the environment and human health. In the Russian Federation, the majority of budget transfers to agriculture were provided to subsidized credit and compensation of investment costs (53 percent of budgetary transfers to agricultural producers in 2021[20]). New measures in 2020–2021 included feed cost compensation subsidies for milk producers and area payments to soybean and rapeseed producers for export expansion. These types of subsidies promote increased production and land use (land use change is one of the major sources of harmful emissions in the Russian Federation), lead to the overuse of inputs that are not environmentally friendly (mineral fertilizers and pesticides), and promote increased milk production without consideration of the effects of increased livestock numbers on greenhouse gas emissions.

The Russian Federation introduced area-based payments in 2013, but, despite claims of "decoupling," production is still a requisite to get the support.[21] In 2007, Kazakhstan introduced per hectare payments linked to the production of specific commodities. In 2019, Armenia introduced per hectare payments as well.

The structure of domestic support in other countries in the region is also focused on support to inputs and compensation of costs of production. In Azerbaijan, tax concessions and input subsidies amount to 90 percent of the agricultural budget. Kyrgyzstan subsidizes agricultural loans, water and electricity tariffs and inputs. In Belarus, support to producers is composed of measures for cost reduction for variable inputs and on-farm investment support. All these types of subsidies are considered most distorting to trade conditions and tend to promote the increase of production volumes without considering environmental sustainability and farmers' livelihoods.

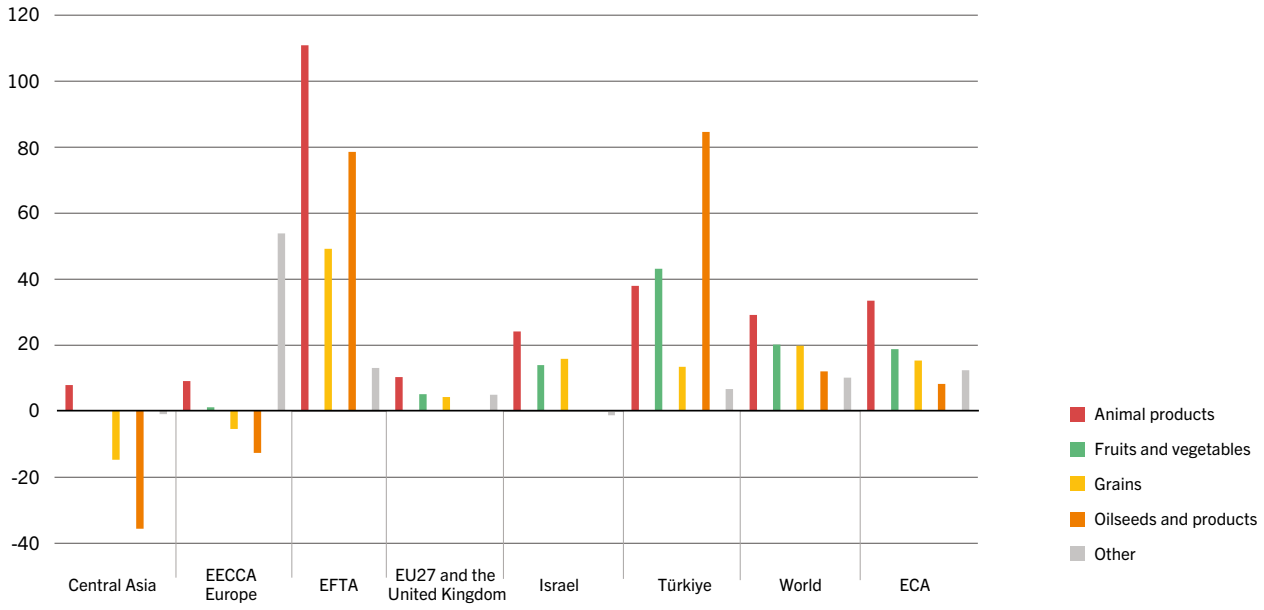
### Support to agricultural producers by commodity varies across countries, but meat and dairy products benefit the most overall

The effect of agricultural support policies in the form of trade and market interventions on commodity prices is measured by the nominal rate of protection (NRP).[22] Similar to market price support, NRP measures the effects of trade- and price-related policies on producer prices, expressed as a percentage.

FIGURE 25 shows the average NRP for 2013–2018 by commodity group. Both globally and regionally, the NRP is higher for animal-source food products, including milk, than for fruits and vegetables. The simple average NRP for animal products in 2013–2018 was 29 in the world and 34 in select ECA countries, while for fruits and vegetables it was 20 and 19, respectively. The only country in which support for fruits and vegetables was higher was Türkiye (NRP was 44 for this group and 35 for animal products). The lowest NRP in ECA countries was for grains, as NRP was negative for this group of products in Kazakhstan (-15), Russian Federation (-5) and Ukraine (-7). A negative NRP means that the producers received lower prices for their output than they would in the absence of agricultural policies, thus receiving disincentives to producing those commodities.

The countries in the ECA region demonstrate high variation in support among commodities. Of all commodity-specific support to agricultural producers in the region (both from market price support and from commodity-specific budget transfers), 70 percent goes to meat (beef, poultry

**FIGURE 27**
The nominal rate of protection by commodity group, globally and regionally, 2013–2018, percent




SOURCE: Ag-Incentives. 2020. Nominal Rate of Protection. In: *Ag-Incentives*. https://public.tableau.com/views/ag_incentives_NRP_0/NRPStory

and sheep meat) and milk production. In EECCA countries (Kazakhstan, Republic of Moldova, Russian Federation and Ukraine), producers of exported commodities, mostly cereals and oil crops, receive disincentives as a result of agricultural policies, reflected by the negative sign of the indicators reflecting the results of commodity-specific trade and market policy measures.

This situation decreases the revenues of exporters and creates distortions to markets, preventing the most efficient resource allocation (TABLE 7).

### Budget support to general services that create an enabling environment for agriculture is limited in most ECA countries.

Both the OECD and the World Bank (Gautam *et al.*, 2022; OECD, 2020a) advise repurposing agricultural support from distorting measures, i.e. subsidies to producers, towards strengthening the general services that create an enabling environment for agriculture, such as to agricultural innovation systems, especially green innovations, inspection and control systems, and rural infrastructure support.

**Support to general services is crucial for creating a general enabling environment for agriculture.** Consisting mostly of measures providing public good to the sector, it ensures that all producers have equal access to the benefits provided by these transfers and that this type of support does not crowd out private investments.

Support to general services includes the financing of research centres, agricultural education, pest and disease control actions, public investments in irrigation and other infrastructure facilities, research and knowledge transfer systems, infrastructure, phytosanitary and veterinary inspection and control systems, food safety and other areas. On average, the share of support

**TABLE 9**

Commodity-specific support to agriculture in countries of Europe and Central Asia, measured by producer single commodity transfers, million USD

| Commodity Group | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2018–2020 | Share in total (%) 2018–2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ECA** | | | | | | | | | | | | | |
| **Cereals** | 3 720 | -3 193 | -4 | 3 342 | 475 | 2 656 | 3 149 | 3 451 | 185 | 3 055 | -508 | 911 | 2.1 |
| **Oil crops** | -244 | -849 | -1 785 | -1 980 | -874 | -21 | -428 | 216 | 349 | -204 | -431 | -95 | -0.2 |
| **Sugar** | 610 | 301 | 493 | 2 127 | 2 154 | 1 876 | 1 132 | 1 075 | 1 857 | 1 336 | 717 | 1 303 | 3.0 |
| **Meat and dairy** | 35 314 | 34 049 | 37 952 | 43 312 | 32 303 | 32 494 | 33 222 | 31 401 | 34 857 | 27 354 | 27 620 | 29 944 | 68.7 |
| **Fruits and vegetables** | 4 084 | 4 841 | 4 260 | 3 779 | 4 746 | 3 439 | 2 970 | 2 635 | 2 560 | 3 313 | 2 721 | 2 865 | 6.6 |
| **Other crops** | 422 | 521 | 697 | 530 | 607 | 653 | 528 | 513 | 414 | 373 | 299 | 362 | 0.8 |
| **Other livestock** | 24 | 23 | 23 | 24 | 23 | 18 | 19 | 20 | 18 | 15 | 15 | 16 | 0.0 |
| **Wine** | 770 | 869 | 873 | 875 | 898 | 735 | 704 | 695 | 720 | 715 | 740 | 725 | 1.7 |
| **Other commodities** | 13 103 | 10 853 | 10 401 | 9 992 | 9 930 | 9 701 | 9 423 | 9 863 | 7 571 | 9 290 | 5 724 | 7 528 | 17.3 |
| **Total** | 57 803 | 47 414 | 52 909 | 62 001 | 50 260 | 51 553 | 50 721 | 49 868 | 48 531 | 45 247 | 36 895 | 43 558 | |
| **ECA, excluding high-income countries** | | | | | | | | | | | | | |
| **Cereals** | 3 140 | -4 171 | -2 040 | 867 | -1 275 | 279 | 1 637 | 827 | -1 520 | 347 | -1 157 | -777 | -7.8 |
| **Oil crops** | -269 | -881 | -1 808 | -2 008 | -911 | -50 | -454 | 190 | 322 | -227 | -465 | -123 | -1.2 |
| **Sugar** | 455 | 194 | 384 | 1 143 | 1 104 | 1 181 | 786 | 724 | 1 013 | 631 | 307 | 650 | 6.6 |
| **Meat and dairy** | 18 312 | 18 331 | 16 916 | 19 297 | 13 618 | 13 758 | 13 760 | 11 696 | 9 720 | 6 999 | 5 897 | 7 539 | 76.2 |
| **Fruits and vegetables** | 2 058 | 2 414 | 2 548 | 1 350 | 2 713 | 1 768 | 982 | 633 | 590 | 848 | 360 | 599 | 6.1 |
| **Other crops** | 418 | 518 | 703 | 531 | 610 | 657 | 528 | 513 | 414 | 373 | 299 | 362 | 3.7 |
| **Other commodities** | 8 616 | 6 444 | 5 519 | 3 478 | 3 894 | 4 188 | 4 455 | 3 784 | 1 772 | 2 506 | 666 | 1 648 | 16.6 |
| **Total** | 32 731 | 22 849 | 22 222 | 24 658 | 19 754 | 21 782 | 21 694 | 18 368 | 12 311 | 11 476 | 5 907 | 9 898 | |

NOTE: Producer single-commodity transfers reflect both market price support and budget transfers to producers. Only countries and regions in which the level of support is monitored by the OECD are shown.

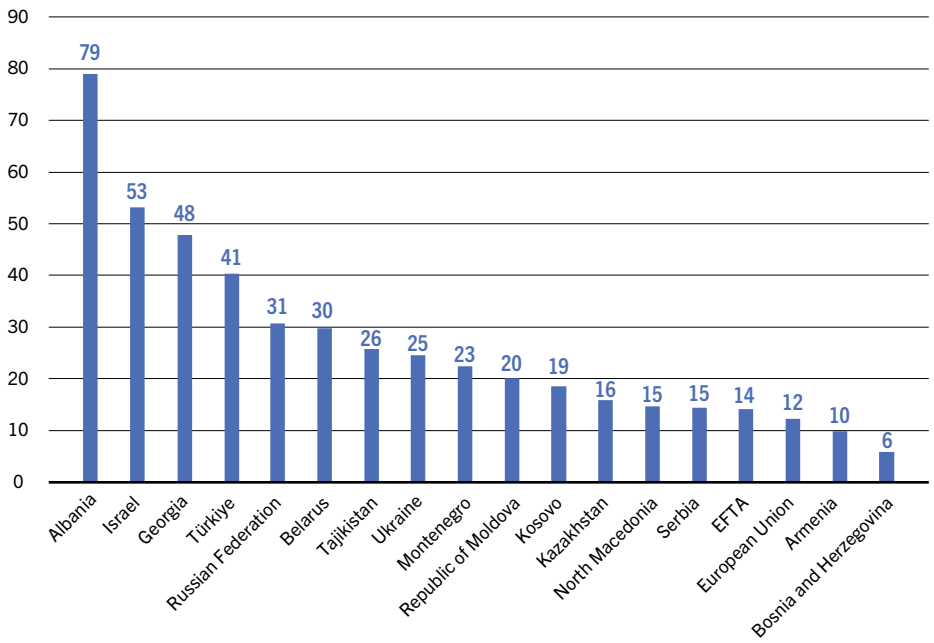
SOURCE: calculated from the OECD PSE Database. OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the challenges facing food systems*.https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2021_2d810e01-en

to general services among the total budget transfers to food and agriculture in ECA countries in 2017–2020 was 20 percent, higher than the average for all OECD member countries (14 percent), infrastructure deficiencies remain a major obstacle for agricultural development in the EECCA countries and is underfinanced in agricultural budgets. Investment in research, development and innovation also is limited (OECD, 2021a).

The share of support to general services among budget transfers varies from 79 percent in Albania to 6 percent in Bosnia and Herzegovina. Among EECCA countries, the range extends from 10 percent (Armenia) to 40 percent (Georgia) (FIGURE 26). Low financing of general services and high support to producers individually is not specific to EECCA countries. The share of support to general services in some of the high-income ECA countries is generally lower (12 percent in the European Union and 14 percent in EFTA countries, compared to 25–30 percent in Belarus, Russian Federation and Ukraine and even much higher in Albania, Georgia, Israel and Türkiye).

General services support is essential to supporting long-term agricultural growth. Support to general services in Albania has been fluctuating since the mid-2000s, but after the launch of the European Union's instrument for pre-accession assistance for rural development (IPARD) in 2015, it reached its highest level in 2015–2018, at EUR 27 million per year (FAO, 2022a). These transfers to general services in Albania are predominantly directed towards infrastructural development (66 percent in 2018) and the improvement of inspection and control systems (27 percent in 2018), while funding of research, development and knowledge transfer remain limited.[23] As recommended (FAO, 2022a), funding for research and knowledge transfer in the

**FIGURE 28**
Share of general services in budget transfers to agriculture for countries and areas in Europe and Central Asia, percent




NOTE: Only countries and regions in which the level of support to general services is available are shown. All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

SOURCES:

i. European Union, Russian Federation, Ukraine, Kazakhstan, EFTA and Israel, 2018–2020: OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the challenges facing food systems.* https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2021_2d810e01-en

ii. Western Balkan countries and Türkiye, 2017–2019: JRC database.

iii. EECCA countries, 2018: FAO. 2020. *Results and priorities for FAO in the region.* Thirty-second Session of the FAO Regional Conference for Europe, Tashkent, Uzbekistan, 2020. https://www.fao.org/3/nc229en/nc229en.pdf

advisory service is highly needed. Weak progress in establishing an advisory service structure and information systems has limited the coverage of extension services and knowledge transfer. Those findings are relevant for other countries in the ECA region as well, where more investment research and knowledge transfer is needed to increase agrifood systems efficiency in a sustainable way and help combat hunger and malnutrition.

### Agricultural policy support in reaction to the COVID-19 pandemic and the war in Ukraine

The goal of self-sufficiency in agrifood commodities has been getting more attention in many countries in the region due to the COVID-19 pandemic and the war in Ukraine, which have led to import and export restrictions that have imposed extra costs on food for consumers in net-food-importing countries, affecting consumers' choices. In addition, trade restrictions decrease competitiveness in domestic and international markets and result in an inefficient allocation of productive resources, including food loss and waste, and consumer choice. **Moreover, making healthy diets affordable** for everyone remains a challenge – especially in the context of the COVID-19 pandemic and the war in Ukraine, which has severely affected people in the conflict zones.

*Sanctions and export restrictions on food, fertilizers and fuel have pushed food prices in all countries of the ECA region and around the world.* The war in Ukraine, supply chain disruptions and the continued economic fallout of the COVID-19 pandemic are reversing years of development gains and pushing food prices to all-time highs. Rising food prices have a greater impact on people in low- and middle-income countries, since they spend a larger share of their income on food than do people in high-income countries (World Bank, 2022c). Soaring fertilizer prices driven by sanctions on the Russian Federation and Belarus and export restrictions by the Russian Federation, along with high global energy prices, are affecting the affordability of food by making food more expensive to produce and transport around the world.[24]

The COVID-19 pandemic and subsequent price increases have had important consequences for the farming sector. The reaction of major food exporters to the COVID-19 pandemic was to apply export restrictions; many were temporary, but some are still in place. Studies show that those reactions can trigger price escalations and food shortages for food-importing countries (Anderson and Martin, 2011), thus having an adverse impact on food security and nutrition in those countries.

Countries in the ECA region reacted to the COVID-19 crisis by providing additional support packages to agricultural producers in order to ensure the stability of agrifood systems (BOX 4). Throughout the world, many countries declared the enhancement of food self-sufficiency as a policy goal.

In 2020, as additional support was provided to producers directly in response to the COVID-19 pandemic, the share of spending on general services declined in all EECCA countries. The European Union provided an additional EUR 80 million in farm support in 2020 in the form of market support programmes,[25] and countries with smaller budgets followed the same trend, providing additional support in forms linked to production and imposing additional trade restrictions, thus delaying the repurposing of agricultural support to general services.

Shifting the policy focus towards greater self-sufficiency in food production in response to the COVID-19 pandemic and the war in Ukraine will most likely result in less trade and higher subsidies to producers in the ECA region in the future, which puts an extra emphasis on the need to repurpose support for transforming agrifood systems, while keeping trade open. Since the majority of COVID-19-related support was provided in the form of subsidies to producers, the trend to underfinance general services support will cause losses of policy efficiency in the future. Restrictions to trade undermine the ability of trade to ensure food supply in less-food-secure areas, and it also causes price increases that negatively affect food security.

Countries should apply a **more balanced approach to designing their agrifood trade policies** without undermining access to healthy diets for the population. Improving trade **infrastructure** (physical and institutional) and speeding up the digitalization of trade procedures is a no-regret measure that improves access to food for consumers. Among the EECCA countries, only the Russian Federation, Ukraine and the Republic of Moldova allocate substantial resources to research and development. In other countries in the region, most general services support goes to inspection services. At the same time, many EECCA countries – such as Armenia, the Republic of Moldova and Ukraine – lack budget resources for maintaining the level of support that the Russian Federation and Kazakhstan do, and with the macroeconomic consequences of COVID-19 and the war, it is likely that even in countries with larger budget capabilities, investments in research, development and innovation may be crowded out by subsidies, which are hard to cancel once introduced. Creating an enabling environment for agriculture is crucial for ensuring long-term growth in EECCA countries, because they need to overcome the lag behind European Union countries in creating enabling business legislation for agriculture, infrastructure development and information technology adoption.

The impacts of the war in Ukraine on food security and nutrition and policies in the ECA region are presented in BOX 4. ■

**BOX 3**

Policy measures in response to COVID-19 pandemic and their effect on food security in ECA countries

The taxation of exporters in the EECCA countries was exacerbated by trade restrictions imposed in relation to the COVID-19 pandemic. Kazakhstan, Kyrgyzstan, Russian Federation and Ukraine imposed trade restrictions, including export bans, on staple crops, wheat flour and livestock. These restric¬tions raised food security concerns in food-importing Central Asian countries (IFPRI, 2021).

Among the countries attempted price regulations were Kazakhstan (which imposed price caps and reduced the value-added tax on food), the Russian Federation (which introduced subsidies to flour producers tied with requirements to limit prices) and Uzbekistan.

Thus, Kyrgyzstan regulated retail prices of sunflower oil for three months starting in May 2021. Uzbekistan introduced temporary export tariffs and caps for cottonseed and sunflower seed and their respective oils. Imports of oilseeds and vegetable oils were exempted from value-added taxes. Belarus put in place a temporary export ban for wheat, meslin, rye, barley, oats, maize, buckwheat, millet and triticale.

Countries with larger budgets reacted by providing additional support packages to agricultural producers in order to ensure the stability of agrifood systems. The European Union provided an additional EUR 80 million of farm support in 2020. Those measures were provided in the form of trade-distorting subsidies, which raised concerned at the WTO, and countries with smaller budgets followed the same trend, delaying the repurposing of support funds. Kazakhstan and the Russian Federation increased the amounts of concessional loans to farmers, and the Russian Federation also provided debt repayment extensions. Bulgaria, Croatia and Portugal intensified measures to encourage the consumption of locally produced food (OECD, 2020b).

Following the increase in agricultural subsidies across the world in response to COVID-19, it is likely that large players in the EECCA region, such as Kazakhstan and the Russian Federation, will also continue to increase support to producers. Kazakhstan already doubled the amount of subsidized lending to farmers in 2020, introduced support to input supply and public procurement of agricultural output. Other countries in the region followed by also introducing or increasing financing to production-related subsidies. Armenia provided additional subsidized credit and subsidized machinery leasing through 2020 and allocated an additional USD 12 million to support agricultural lending. Additional distortions in the EECCA countries have been created because support is partially provided not to agriculture directly, but through the parastatals, such as the State Holding “Kazagro” in Kazakhstan (80 percent of all support to agriculture goes through “Kazagro”) and “Rosselkhozbank” in the Russian Federation (in July 2020, RUB 20 billion in budget funds were allocated to the additional capitalization of this state-owned bank).

**BOX 4**

The impact of the war in Ukraine effect on food security and policy measures in response in ECA countries

The Russian Federation and Ukraine are among the most important producers of agricultural commodities in the world and in the ECA region. Before the crisis, the two countries together had a global export share of 30 percent of wheat, 20 percent of maize and 80 percent of sunflower seed products (FAO *et al.*, 2022). In addition, the Russian Federation is a world leading exporter of chemical fertilizers. The Russian Federation also plays an important role in global energy and is the world's top natural gas exporter, the second-largest oil exporter, and the third-largest coal exporter (OECD and FAO, 2021). The Russian Federation is also a home of many international labour migrants (FAO, 2018).

Many countries in the ECA region are highly dependent on imported foodstuffs and fertilizers, relying on food supplies from the Russian Federation and Ukraine to meet their consumption needs. Even before the war in Ukraine, many of these countries already had been grappling with the negative effects of high international food and fertilizer prices.

In Ukraine, total cereal production in 2022 is forecast to be 40 percent lower, year on year, and 30 percent of the average of the previous five years, caused by limited access to financial services and high prices due to the escalation of the war (FAO *et al.*, 2022). Total cereal exports in 2022/23 (July/June) are tentatively forecast to be some 40 percent below the five-year average volume, and exports of maize and wheat are forecast to be at their lowest levels in the past ten years.

Before the war started, there were some 1.5 million people displaced in Ukraine, and about 1.1 million people were in need of food and livelihood assistance (FAO *et al.*, 2022). Humanitarian needs have increased in Ukraine as well as in neighbouring countries, where displaced populations have been seeking refuge because of the ongoing war. As of 2 September 2022, about 9.5 million people, mostly women and children, had been forced to flee across borders to find safe shelter. About 17.7 million people in Ukraine are estimated to be in urgent need of humanitarian aid, including 6.9 million internally displaced people in Ukraine (OCHA, 2022).

The war in Ukraine has caused a new flow of export restrictions for both agricultural commodities and fertilizers. Belarus, Kazakhstan, Kyrgyzstan, Russian Federation, Serbia, Türkiye and Ukraine introduced temporary export restrictions (duties or bans) on some types of grains, and the Russian Federation restricted exports of mineral fertilizers. While those policies are aimed at reducing the prices of food at domestic markets, they exacerbate raising prices globally and greatly affect food security in importing countries. In the ECA region, the most negatively affected are the Central Asian countries, Armenia, Republic of Moldova and Türkiye, though the negative effect on those countries would be less prominent than on those outside the ECA region, i.e. in Northern Africa. The possibility of a war-related humanitarian crisis in Ukraine is also a major concern.

The war in Ukraine has created market volatility and high food prices. Based on the International Grains Council Grains and Oilseeds Index, global wheat prices in August 2022 saw a 10.6 percent increase, year over year. Similarly, the global prices of maize, rice and soybeans are 12.8 percent, 5.1 percent and 13.9 percent higher, respectively, year over year (Agricultural Market Information System, 2022).

Food prices have increased in many ECA countries, making food security worse in many LMICs and UMICs, such as Georgia, Kyrgyzstan, Tajikistan and Uzbekistan.

**TURSUNZADE, TAJIKISTAN**
A farmer winnowing rice drying on a farm after harvest.
©FAO/Vasily Maksimov

# 2.2 POTENTIAL OPTIONS TO REPURPOSE POLICY SUPPORT TO FOOD AND AGRICULTURE FOR IMPROVING THE AFFORDABILITY OF A HEALTHY DIET AND COMPLEMENTING POLICIES IN EUROPE AND CENTRAL ASIA

## Key messages

- The COVID-19 pandemic has impacted the affordability of healthy diets by requiring the repurposing of agrifood policy towards the implementation of support measures to producers and consumers to mitigate their vulnerability and to ensure the sustainability of agrifood systems and the environment.
- Border measures affect the availability, accessibility, diversity and prices of foods in domestic markets. Repurposing price incentives through border measures and market price controls in support of healthy diets can contribute to reducing the costs of healthy diets and increase their affordability in lower-middle-income countries (LMICs). There also is a positive – but much smaller – impact on upper-middle-income countries (UMICs), but with a slight increase in cost of a healthy diet. There is no impact on the affordability of healthy diets in high-income countries (HICs).
- The repurposing can have a positive impact on environmental sustainability in LMICs and UMICs but a negative impact in HICs. It can have positive impact on farm incomes in UMICs but a negative impact on LMICs.
- Repurposing existing budgetary transfers to shift from producers to consumers is found to provide the largest improvement in the affordability of a healthy diet. In this case, agriculture greenhouse gas (GHG) emissions from agriculture are lower overall and in HICs and UMICs, but potential trade-offs remain in poverty reduction and farm incomes.
- Repurposing price incentives to producers by repurposing border measures and market price controls can also have a positive impact for more affordable healthy diets, but less than when budgetary transfers are shifted from producers to consumers.
- When repurposing public support to make healthy diets more affordable, policymakers will have to avoid potential inequality trade-offs that may emerge since farmers (in particular small-scale farmers, women and youth) may not be in a position to specialize in the production of nutritious foods due to resource constraints.
- Without raising public investment in food and agriculture, policies need to be repurposed to shift from markedly reorienting spending towards general services and rural development, since this is an effective way to bridge productivity gaps and enable income generation. Repurposing agricultural

policies from distorting market and trade policies will bring benefits in the short term by keeping trade open. Policies penalizing producers and exporters should be discontinued. Accompanying policy reforms by targeted social protection schemes will ensure the food security of the most vulnerable.

- More sustainable agrifood systems need more support for agricultural research and development, education, extension, pest and disease control actions, and public food safety control systems.
- The ECA region in general provides incentives to producers for producing nutritious foods sustainably, but consumers have to pay higher prices for those products, exacerbating the difficulties for them in affording healthy diets. Repurposing support to avoid the implicit taxation of consumers is needed in order to reduce the cost of healthy diets and empower consumers to choose healthy diets.
- Other policies within agrifood systems are also needed to be adjusted/improved to complement repurposing efforts to ensure shifts in food supply chains, food environments and consumer behaviour. These include, for example, a variety of taxation, voluntary or mandatory standards of foods in school and public canteens, labelling systems and digital and traceability systems.
- Reducing food loss and waste and increasing resource efficiency and circularity are important for reducing the environmental impact of food production while also helping to improve the availability and affordability of food. In the European Union countries in the ECA region, there are longstanding and comprehensive national strategies for the reduction of food loss and waste at government, municipal, private-sector and NGO levels. Other countries in the region are still lagging behind in their understanding of this challenge and in embedding these strategies into national policies.
- Education and capacity building on nutrition and healthy diet issues are a core element necessary for reaching SDG 2, linking to social protection, agrifood system transformation, food environment, trade and governance.
- Nutrition-sensitive social protection programmes are necessary to help mitigate the trade-offs on income equality and food security of repurposing food and agriculture for the affordability and sustainability of a healthy diet. Gaps in social protection exist in the ECA region. Social insurance generally has higher adequacy than social assistance in the region, and social insurance transfers account for a share of the welfare of beneficiary households that is about three times higher than for social assistance benefits. In most countries, the adequacy of social insurance payments among the urban population is higher than among rural populations.
- One of the region's food security and nutrition concerns is linked to childhood malnutrition issues at all ages, outlining that children and adolescents have a right to adequate nutrition. Three-quarters of the 53 ECA countries either have adopted or have planned to develop a national child and adolescent health strategy. The majority of the policy documents reviewed show that policies and programmes have a strong focus on infants and children younger than 5 years of age and on women of reproductive age but not on nutrition or overweight/obesity among adolescents.
- The current state of food security and nutrition in the region requires holistically developed regional and national programmes and projects. This assumes covering agrifood systems, health, nutrition education, social protection and state support "all in one" for acceleration to achieve the SDGs.

Following OECD methodology (OECD, 2016), this chapter considers the levels and structures of agricultural support and its contribution to agrifood systems' "triple challenge" of achieving food security and ensuring healthy diets, providing livelihoods to those connected to the sector, and reducing the nature and climate footprint of the sector. While addressing the triple challenge requires more than repurposing support, the focus of this chapter is on the latter.

This section identifies the benefits of repurposing agricultural support based on both quantitative and qualitative evidence based on the modelling scenarios, noting potential trade-offs and synergies, and provides guidance for countries on how to repurpose agricultural policy transfers to enable a transition to healthier and more sustainable, equitable and efficient agrifood systems.

The section also explores how current policies perform across productivity, sustainability and resilience – key channels for addressing these challenges. It concludes with an assessment of policy developments and with recommendations for concrete actions.

## 2.2.1 POTENTIAL IMPACTS OF CHANGING THE COMPOSITION OF FOOD AND AGRICULTURAL POLICY

To promote changes in agrifood systems to increase the affordability of healthy diets, contribute to better livelihoods of farmers and improve environmental sustainability while managing trade-offs, modelling scenarios can be used (FAO *et al.,* 2022).

The following repurposing scenarios are considered; details can be found in *The State of Food Security and Nutrition in the World 2022* (FAO *et al.,* 2022). The scenarios consider the effects of repurposing compared to baseline scenarios for 2017–2030 describing "business-as-usual" situations:

- Border measures and market price controls eliminated
- Repurposing agricultural support by reallocating fiscal subsidies to producers with the purpose of reducing the cost and increasing the affordability of healthy diets
- Repurposing agricultural support by reallocating fiscal subsidies from producers to consumers of priority foods

TABLE 10 presents the simulation results, which show the impacts of repurposing policies in the world, by three income groups of countries, and also in Europe. In the ECA region, most countries are in the high-income category, including all European Union countries, the United Kingdom of Great Britain and Northern Ireland, EFTA countries and others (Israel, Andorra and San Marino). Four countries are in the lower-middle-income category: Kyrgyzstan, Tajikistan, Ukraine and Uzbekistan. Most of the rest in the region (15 countries and one area) are within the upper-middle-income category: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Georgia, Kazakhstan, Montenegro, North Macedonia, Republic of Moldova, Russian Federation, Serbia, Türkiye, Turkmenistan and Kosovo.[26]

### SUMMARY OF THE SIMULATION RESULTS:

**Repurposing price incentives through border measures and market price controls in support of healthy diets**

In this scenario, border measures and market price controls are eliminated or reduced for products whose current consumption levels in each region are low relative to recommended levels for that region.

**TABLE 10**
Impact of repurposing policies to support healthy diets in Europe, 2030 (percentage change with respect to the baseline)

| | World | High-income countries | Upper-middle-income countries | Lower-middle-income countries | Europe |
|---|---|---|---|---|---|
| **Repurposing border measures to support healthy diets** | | | | | |
| Affordability of a healthy diet | 0.64 | 0 | 0.23 | 1.35 | 0 |
| Farm income | 0.03 | 2.75 | 0.03 | -1.58 | 3.99 |
| GHG emissions from agriculture | -0.98 | 1.07 | -1.11 | -2.14 | 1.28 |
| **Repurposing fiscal subsidies to producers to support healthy diets** | | | | | |
| Affordability of a healthy diet | 0.81 | 0.17 | 0.51 | 1.52 | 0.17 |
| Farm income | -0.94 | -3.29 | -1.46 | 1.59 | -4.45 |
| GHG emissions from agriculture | 1.5 | -0.49 | 2.64 | 0.92 | -2.9 |
| **Repurposing fiscal subsidies from producers to consumers to support healthy diets** | | | | | |
| Affordability of a healthy diet | 0.77 | 0.15 | 0.84 | 1.14 | 0.17 |
| Farm income | -3.74 | -13.84 | -2.35 | -0.85 | -21.56 |
| GHG emissions from agriculture | -018 | -1.16 | -0.31 | 0.21 | -2.64 |

NOTE: Results for the policy scenario are reported as percentage changes from the baseline scenario – except for the affordability of a healthy diet, which is reported as percentage point change from the baseline.

SOURCES:

i. FAO, IFAD, UNICEF, WFP & WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable*. FAO. https://doi.org/10.4060/cc0639en

ii. Glauber, J. & Laborde, D. 2023. *Repurposing food and agricultural policies to deliver affordable healthy diets, sustainably and inclusively: what is at stake?*. FAO Agricultural Development Economics Working Paper. Background paper for The State of Food Security and Nutrition in the World 2022 22–05. Rome, FAO. https://doi.org/10.4060/cc4348en

All agriculture producers are affected, including those of crops, livestock, fisheries and aquaculture products. Targeted foods are designated as high-priority, medium-priority and low-priority[27] foods. The result shows that the cost of a healthy diet falls (by 1.7 percent) and the portion of the global population for whom a healthy diet is affordable increases (by 0.64 percentage points) in 2030, compared with the baseline. The consumption of fruits and vegetables, dairy products and fats and oils increases, while the consumption of sugar and sweeteners decreases. By income level, the countries that see the most benefit are the lower-middle-income countries (LMICs), with the cost of a healthy diet reduced by 3.43 percent and the affordability of a healthy diet increased by 1.35 percentage points. The upper-middle-income countries (UMICs) also have decreased costs of healthy diets and increased affordability of healthy diets, but with much smaller impact. The high-income countries (HICs) experience a slight increase in the cost of a heathy diet and no change in the affordability of a healthy diet.

Under this scenario, greenhouse gas emissions in agriculture fall in LMICs (2.14 percent) and in UMICs (1.11 percent) but increase in HICs (1.07 percent).

There are trade-offs, as the equity in farm incomes is worsened in LMICs (1.58 percent reduction) and slightly increased in UMICs.

In Europe, on average, the simulation is similar to those in the HICs discussed above. There are negative results in the cost of a healthy diet, no impact on affordability, negative results in greenhouse gas emissions from agriculture, and positive results in farm income equity.

### Repurposing fiscal subsidies to producers in support of healthy diets

In this scenario, baseline budgetary transfers are redistributed to individual producers.[28] With the policy objective of supporting healthy diets, producers of high-priority foods are subsidized at a higher rate than are producers of all other food products.

The overall increase in the support to high-priority foods results in high production, lowered prices and benefits to nutritious food consumption. As a result, there is a decrease in the cost of a healthy diet (2.97 percent) and an increase in the global population who can afford a healthy diet (by 0.81 percentage points in 2030). Different from the scenario of repurposing border measures, this is unambiguously the case for all country income groups and geographical regions. In terms of affordability, LMICs have the highest increase (1.51 percentage points), followed by UMICs (0.51 percentage points) and HICs (0.17 percentage points). Europe is expected to have the same average as HICs. Along with the changes in production and prices, the per capita consumption of fruits and vegetables increases and the consumption of sugar and sweeteners decreases across all country income groups and regions. Overall, the positive impacts on the affordability of a healthy diet are more than with the scenario of repurposing border measures.

Different from the scenario of repurposing border measures, this scenario has a negative impact on the environment, with greenhouse gas emissions from agriculture increasing (by 1.5 percent), especially in UMICs (2.64 percent). HICs see a positive change (a reduction of 0.49 percent), and there is a more positive impact in Europe (2.9 percent reduction in greenhouse gas emissions).

This repurposing also results in an opposite impact on farm income. Overall, the scenario results in a reduction globally (0.94 percent), in particular in HICs (3.29 percent). European countries see the highest reduction in farm income (4.45 percent). The good news is that there is a positive impact on farm increases in LMICs (1.59 percent).

### Shifting fiscal subsidies from producers to consumers in support of healthy diets

In this scenario, the fiscal subsidies initially allocated to producers no longer stay within the agriculture sector but shift to consumers of high-priority foods.[29] Under this scenario, the cost of a healthy diet falls more than in the two previous repurposing scenarios (an overall reduction of 3.34 percent), and it does so across all income groups (HICs 6.89 percent, UMICs 3.98 percent, and LMICs 2.07 percent). In Europe, there is a 6.24 percent reduction. The percentage of the population (globally and across income groups and regions) that can afford a healthy diet increases, but slightly less so than in the budgetary transfers to producers scenario, due to the income effect. As in the producers scenario, LMICs have the largest increase in affordability. There are overall increases in per capita consumption of fruits and vegetables and decreases in per capita consumption of sugar and sweeteners, but these are inconsistent across income groups and regions. In Europe, on average, there are increases in the consumption of both fruits and vegetables (2.26 percent) and sugar and sweeteners.

Different from the previous scenarios, there is a gain/beneficial impact in reducing greenhouse gas emissions under this scenario (0.18 percent globally, 1.16 percent in HICs and 0.31 percent in UMICs). However, there is a small negative impact on the climate in LMICs (0.21 increase).

On average, there are positive synergies in Europe with the reduced greenhouse gas emissions from agriculture (2.64 percent).

### Policy discussion and implications for ECA countries

The ECA region, with its diversity of income levels and economic development stages, includes countries in all three income groups (HIC, UMIC and LMIC). The following analysis by income group does not allow for an exploration of the heterogeneity of potential impacts at the country level.

The scenario analysis points to potential options by which all countries can repurpose existing public support to food and agriculture to increase the affordability of a healthy diet with some synergies and some trade-offs in environmental benefit and income equity.

For LMICs, all three scenarios have the positive impact of increasing the affordability of a healthy diet, but the second scenario (repurposing budgetary transfers to producers to support healthy diets) has the highest potential. This second scenario also has positive synergies in increasing farm income and reducing extreme poverty. The first scenario (repurposing border measures to support healthy diets) also has benefits in the affordability of a healthy diet and reduction of greenhouse gas emissions from agriculture. However, there is a negative impact on farm income, and policy measures will be needed to protect the poor and vulnerable when considering the first scenario.

For UMICs, as with LMICs, all three scenarios have positive impacts on the affordability of a healthy diet. However, the third scenario (shifting subsidies from producers to consumers to support healthy diets) has the highest potential. It also helps reduce greenhouse gas emissions from agriculture.

Some farmers, especially small-scale farmers and women, who are facing resource constraints are not in a position to specialize in the production of high-priority foods for healthy diets. Therefore, policy measures will be needed to protect the poor and vulnerable when considering the first scenario.

For HICs, the second and third scenarios have positive impacts on the affordability of a healthy diet, but the first scenario has no impact on affordability. Both the first and second scenarios have environmental benefit, but there are trade-offs related to farm income. The third scenario offers the greatest benefit regarding the environment, but it also has a higher negative impact on farm income. Most European Union countries have results similar to the average of HICs.

The third scenario (shifting subsidies from producers to consumers to support healthy diets) has the highest potential. It also has positive synergies in reducing greenhouse emissions from agriculture. However, there is a negative impact on farm income, and policy measures will be needed to protect the poor and vulnerable.

The COVID-19 pandemic and the war in Ukraine have highlighted the importance of the resilience of agrifood systems in the face of crises. According to FAO, in ECA countries just 60 percent of the population could afford a healthy diet if an economic or health crisis were to reduce their incomes by one-third. Presently, 12 million people in Europe and 5.8 million people in Central Asia are unable to afford a healthy diet (FAO, 2021b), and even more people – an additional 3.1 million in Europe and 6.2 million in Central Asia – would be at risk of being unable to afford a healthy diet if their incomes were reduced by a third.

## 2.2.2 COMPLEMENTING POLICIES WITHIN AGRIFOOD SYSTEMS THAT ARE NEEDED TO ENSURE REPURPOSING EFFORTS ARE IMPACTFUL IN EUROPE AND CENTRAL ASIA

For repurposing scenarios such as those discussed in the preceding section to materialize in the ECA region, thus effectively contributing to making a healthy diet less costly and more

affordable, other policies and incentives within and outside agrifood systems will be needed. If aligned and put in place, these complementing policies can provide support in two ways (FAO *et al.,* 2022):

- to support shifts in food supply chains, food environments and consumer behaviour towards healthy eating patterns; and
- to ease or mitigate the unintended consequences or trade-offs from repurposing support as discussed above, in particular if the scenario may have negative impacts on access to nutritious foods and healthy diets for vulnerable and disadvantaged population groups.

A healthy, sustainable, equitable and efficient agrifood systems transformation will need policy options, interactions and the coordination of multisectional policies within and outside of agrifood systems (BOX 6). In this section, complementing policies within agrifood systems are addressed.

### 2.2.2.1 Shifting agricultural support policies in agriculture and trade to support nutrition-sensitive production

Policies in high-income countries focus heavily on staple cereals production support. The Global Panel on Agriculture and Agrifood systems for Nutrition notes that this structure of support encourages the supply of commodities that do not contribute to healthy diets and that are unfavourable for the environment (Global Panel on Agriculture and Food Systems for Nutrition, 2020). These crops provide an important and less-expensive source of caloric availability but

**BOX 5**
A healthy, sustainable, equitable and efficient agrifood systems transformation

The transformation of agrifood systems in a holistic and coherent way that covers the agrifood systems approach includes the following characteristics:

1. Policy options, incentives and investments enabling this transformation in all its components, food supply chains, food environments and consumer behaviour. Making agrifood systems healthier and more sustainable, equitable and efficient requires targeted support policies to improve nutrition, reduce food loss and waste and increase the production of safe and nutritious foods (including through food reformulation and food fortification), combined with rational natural resource use and environmental sustainability.
2. Interactions and coordination links throughout the food supply chain and with other sectors, including agriculture, food processing, health care, education, infrastructure and social protection, through the development of coherent policies that create joint approaches, efficiency and benefits for all actors, with due attention to smallholder farmers
3. Inclusiveness of all territories and population groups, with due attention to the vulnerable and those in vulnerable situations, meaning a "leave no one behind" (LNOB) approach through the strengthening of social aspects to poor and marginalized groups and rural communities.

SOURCES: Adapted from:

i. FAO, UNDP & UNEP. 2021. *A multi-billion-dollar opportunity – Repurposing agricultural support to transform food systems*. FAO, UNDP, and UNEP. https://doi.org/10.4060/cb6562en

ii. HLPE. 2017. Nutrition and food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Policy Support and Governance 12. Rome. https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1155796/

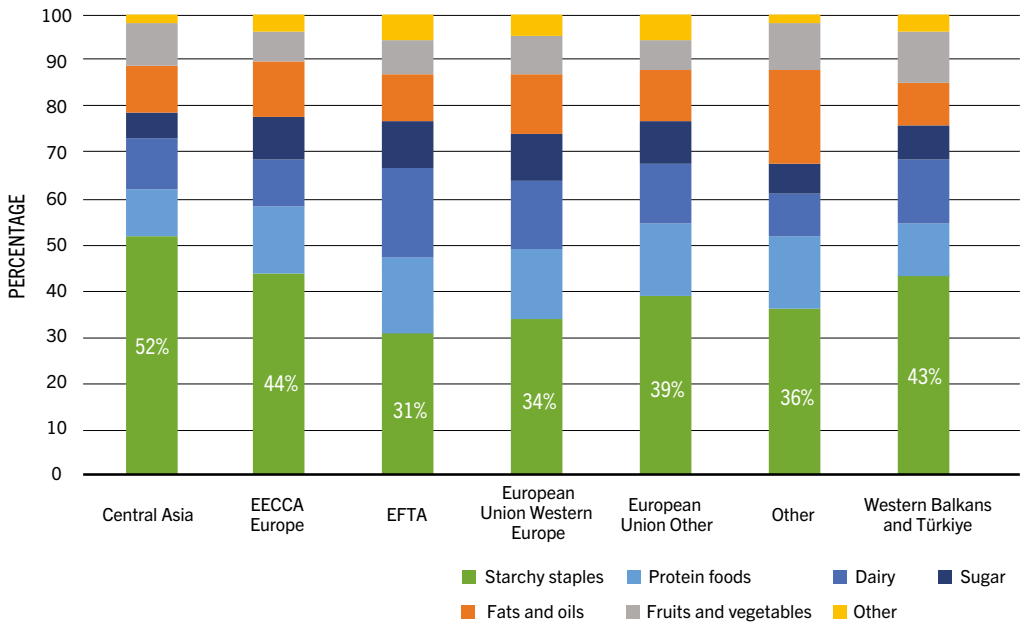
are not high in nutrients that contribute to healthy diets. Commodity-specific policies in crops focused on grains, sugar and oilseeds contribute to lower agricultural diversity and affect the allocation of budget resources away from nutritious foods such as fruits and vegetables. Because Central Asian countries (Uzbekistan, Tajikistan) have comparative advantages in horticulture, allocating limited resources on cereals and cotton is unfavourable for farm incomes in those regions. The policies introduced in response to the COVID-19 crisis in those countries forced farmers in Central Asia to switch to the production of cereals due to food security concerns (International Food Policy Research Institute, 2021).

### Current food availability for consumption and dietary intake patterns in Europe and Central Asia in comparison to the recommendations

Food availability for consumption in Central Asia, the Caucasus and EECCA Europe relies more on cereals and potatoes; those crops play a more important role in diets here than in the Western European countries (FIGURE 29). Diets high in red meat can lead to negative health outcomes due to their potential cancerogenic effect (WHO, 2015b). However, consumers in some of the ECA countries could potentially benefit from increased meat consumption, as it is a rich source of protein, iron, zinc and vitamins.

To assess dietary patterns in the countries of the ECA region, similar to other studies and to the *Regional Overview of Food Security and Nutrition in Europe and Central Asia 2019* (FAO, 2019), based on data updated to 2013, eight food groups have been selected. Three of the food groups are plant-based (fruits, vegetables and pulses) and four are animal-source foods (red meat,

**FIGURE 29**
Share in total calories per day




NOTE: Data for 2018.
SOURCE: FAO. 2022. FAOSTAT: Food Balances (2010-). In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FBS

poultry, fish and milk), with vegetable oils rounding out the list. The information in this section includes the latest data available from 2014–2017.

The availability of the three plant-based food groups and vegetable oils in the ECA-15[30] countries (also in the ECA-18[31]) increased during the 2003–2017 period, while they decreased in the European Union (FAO *et al.,* 2021b). In the ECA-15, the availability of fruits, vegetables and vegetable oils is closer to or higher than the world average, while the availability of pulses is much lower than the world average. For the European Union, the availability of fruits and vegetable oils was much higher than the world average in 2013–2017, but the availability of vegetables and pulses was much lower than the world average.

The availability of **fruits and vegetables** for consumption, in all countries except Georgia and Republic of Moldova, was above 400 g per person per day, the minimum daily amount recommended by FAO and the World Health Organization. However, the availability of fruits for consumption in half of the 18 countries does not meet the minimum recommended level, with the countries in Central Asia not even reaching 100 g per day.

The amount of **pulses** (peas, beans, lentils, chickpeas and others) available for consumption shows the largest gap compared with the proposed minimum cutoff (50 g per day). There has, however, been a significant effort to close this gap in both the ECA-18 and the ECA-15. The productivity and profitability of pulses, which represent an excellent source of protein, need to be improved.

**Diets with a high content of animal-source foods** are less efficient in terms of resource use and contribute to greenhouse gas emissions that exacerbate climate change impacts. The average quantity of animal-source food available for consumption is much higher in the ECA region than the world average. In particular, in the European Union, the per capita availability of animal-source foods in 2013–2017 was more than double the world average.

For the ECA-15 region, it can be concluded that the aggregate average per capita availability of **red meat** and **milk** are above the standards of optimal intake. Meanwhile, the availability for consumption of **poultry** is equal to the optimal level, and the consumption of **fish** is below the standard.

For **fish**, just five of the 18 countries had availability exceeding 28 g in 2013–2017. In nine of the 18 countries, availability was below 20 g. However, there has been improvement, given that 12 countries demonstrated availability below 20 g in the previous decade (2002–2007 average). It is necessary to find approaches to diversify diets through the inclusion of more fish in diets and production systems in the ECA region.

**Agricultural support policies** in the form of trade and market interventions distort markets by generating incentives and disincentives to produce specific commodities.

In the ECA region, it can be noted that this policy may lead to disincentives to produce specific commodities. In Kazakhstan, Russian Federation and Ukraine, export restrictions and other policies have led to disincentives to producers of grains and oilseeds; the indicators of support to specific commodities (PSCTs) for cereals and oil crops are negative in these countries. At the same time, explicit and implicit export restrictions and other policies causing negative PSCTs create transfers from producers to consumers. Since negative PSCTs in ECA countries are observed for staple foods, this policy could lead to lower prices of such foods for consumers and, therefore, to their higher proportion in the overall food consumption compared to fruits and vegetables, especially for low-income households.[32]

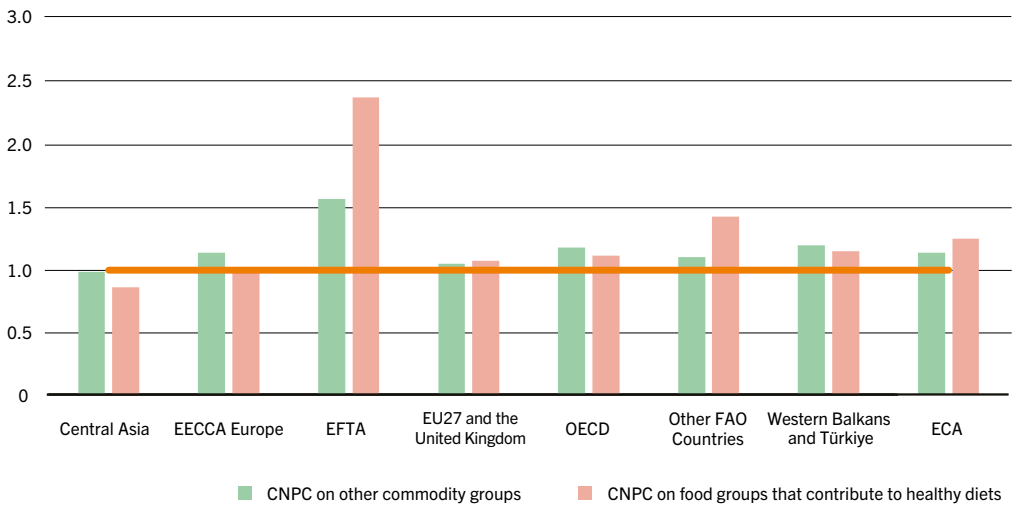
Commodity-specific support to agricultural producers amounted to USD 43.6 billion per year in ECA countries on average in 2018–2020. The trade and market interventions that accounted for 76 percent of those transfers created transfers to agricultural producers and negatively impacted nutritious foods. Information regarding the effects of agricultural policies on consumers is therefore integral to policymakers' understanding of the requirements for

repurposing agricultural policies. The consumer nominal protection coefficient (CNPC) is an internationally comparable instrument to demonstrate an effect of the transfers to producers on primary consumers of agricultural commodities arising from agricultural policies. It measures the distortion of a commodity price paid by (primary) consumers of agricultural commodities at the farm gate, compared to the situation of the absence of agricultural policies.[33] Lower prices for primary consumers do not necessarily mean lower prices for end consumers and therefore do not necessarily indicate any impact that such transfers will have on consumer choices. Also, transfers from trade and marketing policies reflected by CNPC may or may not be offset by budgetary transfers to consumers. At the same time, CNPC provides valuable information on the effect of agricultural policy transfers on consumers by commodity and allows for an exploration of the differences in the policy-related incentives between the commodities that contribute to healthy diets and other commodity groups.

The CNPC shows to what extent support to producers is provided at the expense of consumers. According to this coefficient, on average, producers' prices in the ECA region are 25 percent higher for commodities that contribute to healthy diets[34] and 14 percent higher for other commodities[35] than they would be in the absence of the price effect arising from trade and market interventions as part of agricultural policies (FIGURE 30). In European EECCA countries and Türkiye, consumers also pay more for foods than they would in the absence of agricultural support, as per CNPC.

Positive CNPCs for staples confirm that trade policy measures tend to lower prices of staple cereals, such as rice and maize, often to the detriment of foods such as fruits and vegetables (FAO *et al.*, 2021a). This is particularly true for Central Asia and European EECCA countries,

**FIGURE 30**
Consumer nominal protection coefficient, 2018–2020




NOTES: Food groups that contribute to healthy diets include fruits and vegetables, dairy, oil crops (excluding palm oil), pulses and poultry meat. Other commodity groups include commodities not included in the "nutritious food" category for which the CNPC is monitored by the OECD: cereals, potatoes, red meats and sugar. The horizontal line indicates the neutral effect of the policy (no transfers to or from consumers). The selected ECA countries include: European Union: the European Union (27) and the United Kingdom of Great Britain and Northern Ireland; European Free Trade Association (EFTA): Iceland, Norway, Switzerland; European countries in Eastern Europe, the Caucasus and Central Asia (EECCA Europe): Russian Federation, Republic of Moldova and Ukraine; Central Asia: Kazakhstan; Other: Israel; the Western Balkans and Türkiye: Türkiye.

SOURCES: Calculated based on:

i. OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the challenges facing food systems.* https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2021_2d810e01-en

ii. Shik, O., Stratan, A., Ignat, A. & Lucasenco, E. 2016. *Evaluation of agricultural support in the Republic of Moldova.*

## BOX 6

Government policy and support need to be repurposed for the Eurasian Economic Union fruit and vegetable crop sector

Agriculture and food processing are among the priority sectors of the economy in each of the Eurasian Economic Union (EAEU) countries. National governments provide support to these sectors in the form of subsidies to producers, applied research conducted within state agricultural academies and institutions, and outreach programmes to sector beneficiaries provided from training and information dissemination activities of the Ministry of Agriculture.

Based on recent studies (FAO, forthcoming), national governments within the five-nation EAEU have an important role to play in the development of the horticulture sector in their individual countries. Government policies and regulations should address the principal constraints facing the horticulture sector by creating an enabling environment for the increased production and export of fruit and vegetable crops. Policy supports include improving grower access to production inputs, crop production subsidies and/or ease of credit access for fruit and vegetable production, capacity building by providing the latest information on fruit and vegetable production to producers, promoting an increase in private sector investments in the horticulture sector, establishing market information systems and regulations that facilitate the orderly marketing of fruits and vegetables, establishing national grade standards for fruit and vegetable crops to facilitate orderly domestic marketing, and strengthening market promotion activities to increase the domestic consumption and export of horticultural crops.

Government support for the continued development of the horticulture sector is a vital component of the competitiveness and sustainability of the sector. Appropriate policies, regulations and regulatory reforms are needed to create an enabling environment for the horticulture industry to expand and create employment- and revenue-generating opportunities along the entire value chain, from crop production through product marketing.

Government-supported public health informational campaigns to stimulate and promote the consumption of fruits and vegetables produced in the country are typically of significant marketing benefit to producers and of public health benefit to consumers. Educational programmes disseminating information on the positive economic and nutritional benefits of increased domestic fruit and vegetable consumption have a long-term positive impact on the citizenry.

Many EAEU countries do not have a functional market information system. This information helps farmers make short-term decisions about when and where to sell their products and to plan production or determine whether to invest in equipment and infrastructure. A government-supported market information system would also help policymakers improve their analytical capacity and create more prompt and appropriate policies.

Although horticultural crop research, education and extension programmes exist in each country, they often fail to adequately serve the needs of the limited-resource smallholder producer and/or agribusiness entity. Additional resources earmarked to grower education, training/technical assistance, demonstrations and outreach activities are important to build the knowledge base and human resource capacity of producers and horticulture sector stakeholders.

In most EAEU countries, there is a limited product range of government-registered and approved crop protectants (insecticides, fungicides, herbicides, etc.) for use on horticultural crops. In addition, many improved fruit cultivars with higher productivity and quality traits preferred by consumers in major export market destinations are not available to domestic growers. This limits the export market competitiveness of the horticulture sector. This can be overcome by government facilitation of making available the necessary input supplies and germplasm to help growers be as productive and competitive as possible.

The quality and capacity of the EAEU region's phytosanitary and food safety certification systems, customs control, and inspection bodies typically do not meet the requirements of higher-end export market destinations. This puts EAEU exporters at a disadvantage versus other major suppliers to the more lucrative high-end export market destinations. Government programme support to help producers comply with international food safety regulations, GlobalGAP and other certifications needed for export would be very beneficial to the horticulture industry.

To ensure that fruit and vegetable producers in the EAEU are competitive in both domestic and export markets, they need to be up-to-date with the latest knowledge on fruit production and handling. Horticulture is a highly technical and knowledge-dependent industry. In order to sustain the growth of the fruit sector in the country, EAEU governments need to invest in human capacity building and knowledge generation to ensure that research findings, best practices and technologies are delivered to fruit and vegetable producers.

SOURCE: FAO. forthcoming. *Overview of the fruit and vegetables sector in Eurasian Economic Union* countries.

**Definition.** Nutrition-sensitive agriculture is a food-based approach to agricultural development that puts nutritious foods, dietary diversity and food fortification at the heart of overcoming malnutrition and micronutrient deficiencies.

In order to properly address the problem of malnutrition, interventions are needed throughout the entire food system, from production to processing, transport, consumption and waste management. Improvements will also be needed in complementary sectors such as health, education, water and sanitation to eliminate the spread of infectious diseases and to share knowledge on successful nutrition practices.

Nutrition-sensitive agricultural production can be implemented in three main areas:

1. **Making food more available and accessible.** Increasing agricultural production makes more food available and affordable, which improves both the health and the economic status of the community. Sustained income growth, in turn, has a sizeable effect on reducing malnutrition.
2. **Making food more diverse and production more sustainable.** Increasing diversity in food production and promoting sustainable production practices such as conservation agriculture, water management and integrated pest management can improve nutrition levels without depleting natural resources. Family farming, home gardens and homestead food production projects can make a wider variety of crops available at the local level.
3. **Making food itself more nutritious.** Fortification can prevent micronutrient deficiencies by enhancing micronutrient content in foods through processing, plant breeding and improved soil fertility. In addition to changes in the agriculture sector, governments can promote nutrition-sensitive agriculture by incorporating nutrition-sensitive concepts into relevant farm policies and programmes.

**Benefits.** Healthy, well-nourished people are both the outcome of successful social and economic development as well as an essential input into the development process. Agriculture is the main source of food, employment and income for 70 to 80 percent of people suffering from hunger in developing countries. As such, food security is unlikely to be achieved without considerable attention to the food and agriculture sector.

SOURCE: FAO. 2014. Nutrition-sensitive agriculture. *Second International Conference on Nutrition*, Rome, FAO, 19 November 2014. https://www.fao.org/3/as601e/as601e.pdf

where the production of staple cereals suffers from export restrictions and other policies keeping prices low, with the policy goal of allowing consumers to benefit from lower prices for those commodities. In the main grain and oilseeds exporting countries (Kazakhstan, Russian Federation and Ukraine), the prices of staple food commodities are thus lower than they would be without trade restricting policies, which might contribute to the higher share of those food groups in consumption (FIGURE 30). The European Union's agricultural policies provide subsidies to domestic producers, with beef and poultry particularly benefiting from commodity-specific support, leading to higher domestic prices (OECD, 2021a).

**At the same time, in Central Asia,** transfers are provided to consumers of more nutritious foods at the expense of producers, as the CNPC for nutritious foods that contribute to healthy diets is only 0.86, meaning that producer prices are 14 percent less for those commodities than they would be in the absence of agricultural policy. This might have contributed to a large increase in the share of fruits and vegetables in total food consumption in Central Asia (FAO, 2019), but at the same time, this means that there are disincentives for domestic production of those commodities.

While trade and market intervention policies, when protecting domestic producers, harm consumers, lower-middle-income countries with limited budget funds tend to have higher trade protection levels. Those transfers to producers are financed by the taxpayers, while trade policy, on the contrary, brings revenue to the budget.

For high-income countries (such as the EU27 and the United Kingdom) in the region, tariffs on imports are, on average, lower than the regional average[36] – meaning that producers receive relatively low incentives at the expense of consumers. Trade protection (in the form of tariffs) is higher for meat and dairy products (the average MFN tariff in ECA countries was 37 percent

in 2020) and lower for oil crops (4.4 percent) and fruits and vegetables (12 percent), implying that producers of meat and dairy products are more protected at the expense of consumers. Non-tariff trade barriers are widely applied by the Russian Federation, especially on imports of fruits and vegetables, negatively affecting domestic consumers.

In the ECA region, about 20 percent of calorie availability comes from international trade (OECD and FAO, 2021). Therefore, reduced trade barriers could have a positive effect on food security by providing better access to food for consumers and increasing resilience to shocks (FAO, 2021a). Trade facilitation is the main measure that should be applied to improve food security across the region during a crisis with short-term impacts. At the same time, in some ECA countries, the reduction of trade barriers may increase the availability of foods of high energy density and minimal nutritional value, so this should be combined with policies empowering consumers to choose healthy diets.

#### 2.2.2.2 Policies to improve food environments and empower consumers to choose healthy diets

Poor diets are a common denominator for both undernutrition and obesity. A lack of diet diversity, whether because of poverty or choice, is a key contribution to undernutrition, micronutrient deficiencies and overweight and obesity across the life stages. Due to rapid changes in agrifood systems, food environments are changing quickly throughout Eastern Europe and Central Asia as more people are being exposed to various forms of malnutrition at different points in their lifetimes, further increasing harmful health effects. An important part of the overall strategy to address micronutrient deficiency is the large-scale fortification of staple foods regularly eaten in diets consumed by populations in the countries where micronutrient deficiency is a public health problem. Food reformulation contributes positively to changing the food environment by promoting the adoption of nutritious processed food production by the stakeholders within the agrifood system. Sensitizing food producers and processors to moving away from energy-dense foods towards nutritious foods is an important step towards ensuring that healthy diets are accessible, available and affordable for consumers.

**A variety of instruments and policies (taxation, labelling, legislation, etc.) can be used to reduce the consumption of energy-dense foods high in fats, sugars and/or salt in Europe and Central Asia**

*Taxation of energy-dense foods high in fats, sugars and/or salt*

Overweight and obesity rates among adults in the ECA region are alarmingly high. According to a recent global study, there is a strong link between the overweight and obesity cases among adults and the low prices of sugar and of foods and drinks containing high amounts of sugars (FAO *et al.,* 2020). ECA countries apply a variety of instruments to decrease the amount of sugar consumption among their populations.

According to the WHO (2022a), in 2019 **no country in Central Asia had any taxes on sugar-sweetened beverages**. The same situation is seen in the EECCA Europe and Caucasus subregions. Among the Western Balkans and Türkiye subregion, only Montenegro has established a tax. The majority of the countries that have introduced a tax on sugar-sweetened beverages belong to the European Union region: Belgium, Finland, France, Hungary, Ireland, Latvia, Portugal and Spain, but also Monaco and the United Kingdom of Great Britain and Northern Ireland. In Norway, the excise duty on chocolate and sugar products was abolished on 1 January 2021 (Norwegian Tax Administration, 2022).

On 1 January 2021, **Poland** introduced a new tax regime on beverages containing sugar or other sweeteners, alcoholic beverages in 300 ml or smaller bottles, and energy drinks. Critics of the law note that the legislation exempts many local products (e.g. dairy beverages), which often

contain higher levels of sugar than do carbonated beverages (United States Department of Agriculture, 2021).

It is important to specify that the European Union and the United Kingdom of Great Britain and Northern Ireland have made more progress in sugar consumption policies than countries from other subregions.

In **Kazakhstan**, initiatives to reduce sugar consumption are in the preliminary stages; for example, vending machines and sales of soda drinks have been banned within the school setting, but these products can be bought outside school and brought into school (WHO, 2019).

In **Belarus**, limited action has been taken so far as well, although there are designated low-sugar areas within large supermarkets (WHO, 2018b).

In **Uzbekistan**, food security regulations have since 2016 restricted the sugar content of mass-produced, highly processed foods, and sugar is to be included in the labelling (WHO, 2018c).

**France** has, since 2008, asked 37 food manufacturers and retailers to sign "charters of voluntary engagement" that include specific commitments to reduce sugar in certain products. While each engagement is agreed on a case-by-case basis with the government, a typical commitment might be for a breakfast cereal manufacturer to undertake to reduce sugar in its range of products by between 3.8 percent and 15 percent. Two examples include commitments signed with the main retailer chains in France – Casino and Leclerc – covering a range of product categories and private label products accessible to lower socioeconomic groups (WHO, 2017a).

In the **Netherlands**, sector-wide agreements have been reached covering the period 2014–2020, with manufacturers encouraged, wherever possible, to reduce the energy density of products via a reduction in sugar and/or (saturated) fat and/or portion sizes. In relation to sugar, specific agreements have been reached for dairy drinks and desserts, and category-based benchmarks have been established for soft drinks (WHO, 2017a).

In the **United Kingdom of Great Britain and Northern Ireland**, guidelines have been developed for all actors in the food and drink industry; these include 14 targets specific to particular food categories, and the aim is to reduce overall sugar content across a range of products that contribute most to children's sugar intakes by at least 20 percent by 2020, including a 5 percent reduction in the first year of the programme. The guidelines recognize that certain approaches will be more effective depending on the product category. In the case of confectionery, portion size reductions will potentially achieve more; in the case of sugary drinks, a two-tiered tax has been introduced to drive down sugar content (WHO, 2017a).

### *Restricting the marketing of foods high in fats, sugars and/or salt and non-alcoholic beverages to children and in public canteens*

Various European Union countries' school food policies include voluntary or mandatory standards that limit the provision of foods or beverages high in sugars in school canteens.

The European Union fruit, vegetable and milk scheme, financed through the European Union's Common Agricultural Policy, provides fruit, vegetables and milk to children in schools while requiring that they have no added sugars. Products containing limited quantities of sugars may be allowed if authorized by the relevant national health and nutrition authorities.

**France** has prohibited the unlimited supply, for free or for a fixed price, of drinks with added sugars or synthetic sweeteners in all catering establishments open to the public, including schools.

In the **United Kingdom of Great Britain and Northern Ireland**, vending machines dispensing sugary drinks are prohibited in public hospitals in Wales, and the Scottish government guidelines for public hospital settings include the removal of all soft drinks with more than 0.5 g of sugar per 100 ml, excluding pure fruit juice, and require that at least 30 percent of snacks and

confectioneries and 70 percent of refrigerated food meet nutrition criteria based on, among other elements, sugar content.

### *Food labelling regulation*

The Nutri-Score, a voluntary labelling system, has been adopted by several European countries, including **Belgium, France, Germany, Luxembourg, the Netherlands** and **Spain**. The Nutri-Score includes recommended components, such as fibre and certain proteins, in addition to the sugar, fat and salt content. It gives a single value for the food in question on a five-point scale, from "A" on a dark green field, for the most favourable balance, to a yellow "C" and a red "E" for the least favourable. Numerous scientific studies show that the Nutri-Score is the most understandable form of nutrition labelling and helps consumers choose products that are more balanced (FoodWatch, 2021).

In **Denmark, Iceland, Norway, Lithuania** and **Sweden**, the Keyhole health logo labelling system by the Swedish National Food Agency is used. It is based on a nutrient profile model and aims to identify healthier packaged food choices within a food category and to stimulate food manufacturers to reformulate and reduce the content of saturated fat, sugars and salt from foods and beverages. Sugar content is one of the nutrient criteria, and thresholds depend on the product category.

In **Croatia**, "Healthy Living" is a voluntary labelling scheme with nutrient profiles for various food categories. Sugar is among the nutrients addressed in this scheme.

In 2013, in the **United Kingdom of Great Britain and Northern Ireland**, the traffic light labelling system (FIGURE 31) was introduced. Supermarkets and food manufacturers voluntarily use this on packaging to highlight nutritional information, such as fat, saturated fats, sugar and salt content. The red areas signal high percentages of a certain ingredient, with amber for medium and green for low. Foods with green indicators are healthier options within the same food category and are to be preferred over those with red ones (CNS Media, 2020).

These policies have been proven to be successful in some countries. The European Union Agricultural Outlook 2021–2031 (European Commission, 2021) forecasts the production of food products, taking into account consumers' interests in healthier and more environmentally friendly lifestyles. For example, in the European Union internal market, sugar consumption is expected to decline by 0.5 percent each year, reaching 15.9 million tonnes in 2031, mainly due to "the established trend of declining domestic human consumption, which reflects the consumer shift to healthier diets" (European Commission, 2021). Similarly, by 2031, the European Union consumption of fresh fruit and vegetables is expected to increase, driven by "consumer awareness of the benefits of adopting a diet rich in fruit and vegetables, as well as public initiatives to promote their consumption" (European Commission, 2021).

One of the most efficient measures to promote healthy diet choices by consumers is the addition of simplified nutrition labels on the front of the package (FAO *et al.,* 2022). Eight countries in the ECA region have mandatory front-of-pack labelling requirements (Finland, Georgia, Hungary, Israel, Poland, Romania, San Marino and Slovenia). Another 14 countries, including Kazakhstan, Republic of Moldova, Russian Federation and Ukraine, have implemented voluntary front-of-pack labelling.

### *Digital and traceability systems contribute to healthy diets*

One of the key drivers of the innovative transformation of agriculture are distributed ledger technologies, which are increasingly used in agricultural commodity distribution chains. Labelling and traceability technologies are used to allow for improved product flow management, with better traceability and transparency, increasing product safety and quality and boosting consumer awareness, thus contributing to the promotion of healthy diets. Technologies provide a mechanism for closer communication between participants in the food supply chain and

regulators. Making information available and increasing its transparency helps build confidence among buyers and sellers.

Digital traceability of the movements of products, goods, services and digital assets is one of the priorities for the implementation of the digital agenda of the Eurasian Economic Union (EAEU). EAEU countries are in the process of establishing unified labelling and traceability systems. New opportunities for traceability systems in EAEU agriculture include the introduction of labelling for certain groups of goods and the basic technological organizational model of the identification marking system. The regulatory and legal framework for the creation of a unified EAEU system is being formed in the region.

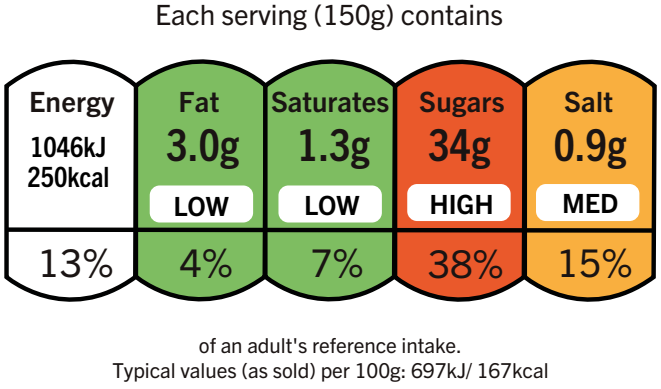
At the end of 2021, the EAEU introduced mandatory labelling for dairy products and packaged drinking water. In some countries of the EAEU, there are control systems for animals and/or animal-source products subject to veterinary control, as well as for products that contain alcohol.

There is an unrealized potential in the region for the introduction of labelling and traceability technologies at various stages of agricultural production. A key barrier to the introduction of information systems in the middle-income ECA countries may be the cost of such technologies, which is potentially the most sensitive for countries with small economies.

### *Short food supply chains contribute to smallholders' access to markets and improve food diversity*

Smallholders and family farms predominate in farm structures in many countries of the ECA region. Small-scale food producers have difficulties in accessing larger markets, given their reduced production volume and their bargaining power, and they have a relatively limited share of profits due to the lengthening of the supply chain (Carbone, 2017). For many years, to meet market demand, farmers have replaced fruits and vegetables with other, more profitable crops. This has increased the productivity and standardization of agricultural products, but it also has led to a drop in biodiversity. A return to local products in a system of short food supply chains can

**FIGURE 31**
The traffic light labelling system




SOURCE: British Nutrition Foundation. 2022. Looking at labels. In: *British Nutrition Foundation*. https://www.nutrition.org.uk/putting-it-into-practice/food-labelling/looking-at-labels/

preserve the environment and traditional culture while also expanding local food distribution and creating incomes for small-scale farms (Deller, Lamie and Stickel, 2017).

A major issue facing food systems is how to integrate smallholder producers into the rapidly developing value chains and ensure their access to markets. Contrary to the rise of global value chains, short supply chains and the development of local markets, local farming systems and direct sales can play a role and have become evident as a new trend in recent years in the ECA region, gaining increased attention more recently due to the COVID-19 pandemic (FAO, 2022b).

The creation of an enabling environment and investment support for the development of short food supply chains necessitates that small-scale producers have improved access along supply chains to such resources as markets, services, information, education and technologies. These marketing channels also make a direct contribution to green innovation through integrated green entrepreneurial and business opportunities and are supported through innovation, technologies and enabling policies.

### 2.2.2.3 Responsible investments to achieve food security and better nutrition

#### Investment for agricultural productivity and for the general services support estimate

**Agricultural productivity** is important for food security across two different dimensions. First, increased agricultural output ensures food availability. Second, increased sustainable productivity is crucial for producing sufficient food with less environmental footprint. Also, for those dependent on agriculture, especially smallholders, productivity has direct implications on income levels and, therefore, on diets and food security. Furthermore, those effects spread beyond the livelihoods of farmers to other participants in the agrifood systems.

Agricultural policies and investments therefore should be more focused on productivity enhancement. At the same time, as was described in Section 2.1.1, the measures aimed at creating an enabling environment for the whole sector – namely, support for general services – accounted for only 27 percent of total budgetary transfers to agriculture, and an even smaller share of support goes to research, development and innovations (about 30 percent of GSSE for the countries in which the OECD collects this information).

While productivity enhancement through innovations and infrastructure development are key solutions to food security issues in the long term, other factors may bring immediate benefits in addressing food insecurity in the short term, including the remediation of market inefficiencies through better information provision and extension services, the introduction of responsible business practices, and the inclusion of smallholders.

The role of the state in the rapid **provision of market information** in the situation of its asymmetry is very high for the sustainability and inclusiveness of agrifood systems. According to the OECD (2020b), governments can collect and share information on potential concentrations and bottlenecks upstream in supply chains and can work with the private sector to address those issues. New technologies, systems for assessing quality, and compliance with standards are needed. It also is important to leverage existing technologies and connect rural farmers to digital information in order to correct the asymmetry of information. Randomized control studies have proved the efficiency of providing extension and weather information to farmers by short text messages on mobile devices.[37] **The provision of market information and rural extension services** to farmers has been associated with better inclusion in global value chains and higher incomes. Unfortunately, countries in the Caucasus, Central Asia, the Balkans and Eastern Europe have not yet reached the same level of information availability as have those in the European Union.

To achieve fair, responsible and environmentally friendly business investment along agricultural supply chains, the benevolent coordination of all parts is needed. The main drivers, according to the OECD, are government agencies and regulators; investors, standard setters and certification groups; commodity traders, exchanges, national importers/exporters and retailers; intergovernmental and regional organizations; and civil society and unions (OECD and FAO, 2016). **The OECD–FAO Guidance for Responsible Agricultural Supply Chains** was developed to help enterprises observe existing standards for responsible business conduct along agricultural supply chains and promote risk-based due diligence to identify, prevent and address risks along the value chain and contribute to sustainable development (OECD and FAO, 2016). The Principles for Responsible Investment in Agriculture and Agrifood systems[38] (CFS-RAI Principles) describe the standards for **responsible investments** to achieve food security and better nutrition.

Responsible investment in agriculture and food systems includes priority investments in, by and with smallholders (Committee on World Food Security, 2014). Smallholder farmers face barriers (e.g. limited access to physical assets, limited access to finance and credit, low human capital) to increasing and improving their investments (Vicari, Berranger and Rinaldi, 2020). The roles played by cooperatives and other producer organizations in helping smallholders overcome these barriers have been discussed elsewhere (Birchall, 2004; HLPE, 2013). In particular, policymakers and donors have an important role in helping cooperatives invest. Prioritizing investments that can benefit smallholders and also strengthen organizations could result in a good strategy towards the promotion of responsible investment in agriculture (Vicari, Berranger and Rinaldi, 2020). A discussion of agricultural cooperatives in the ECA region can be found in section 2.2.2.4.

### Innovations are key to improving agricultural productivity and ensuring better nutrition sustainably

Fundamental technical and scientific changes and discoveries have created the preconditions for the rapid transformation of agriculture. Agriculture 4.0, which is the new stage of world's technological development in agriculture, is based on the use of smart solutions (artificial intelligence, the Internet of Things[39]), bio- and nanotechnologies, robotics, the growing influence of consumers and new value orientations, and changes in the structure of key factors for ensuring productivity and competitiveness.

Innovative solutions raise the scientific potential for ensuring the sustainability of the further development of the agriculture and food processing industries in the ECA region. It is absolutely necessary to pay great attention to the nature of specific challenges – and the combinations of challenges – that induce key innovation trends and new systems of socioeconomic interaction, making it possible to more clearly define the problems of national scientific, technical and economic development. Otherwise, the technological gaps among countries worldwide may significantly increase, and entire markets could simply cease to exist in the next decade for agricultural products from some ECA countries.

**The rapid growth of private investment in relevant technology projects** (start-ups) indicates the activation of transformation processes in world agriculture and its transition to a new way of life. According to AgFunder[40] data, the volume of the global agribusiness 4.0 market has more than tripled in 2014–2019 alone (CAGR 28 percent) and reached USD 20 billion in the past two years. According to experts' consensus forecast,[41] by 2025 the volume will increase 58 percent and reach USD 2.3 trillion. The key drivers of growth will be innovative agricultural products, technology and the means of production, marketing techniques (online platforms for the delivery of food products), and therapeutic nutrition products, including traditional products with added properties and organic products. This segment includes products with excluded undesirable ingredients for diet therapy and to manage various types of intolerance (lactose, gluten, etc.), plant-based protein alternatives, and non-food agricultural products (biorefining). **Digital**

**technologies to provide nutrition information and promote healthy diets** are cost-effective for informing consumers about good nutrition.

The innovative technologies affecting production processes that have the most potential for growth include:

- integrated technological solutions for Agriculture 4.0 (farm management technologies, robots and equipment, new farming systems);
- closed agriculture (vertical and container farms, deep-water crop systems, greenhouses) and production systems (hydroponics, aeroponics, aquaponics, ground and hybrid) and specialized equipment and software services;
- food production equipment and the active introduction of innovative conservation technologies, including non-thermal methods;
- agrobiotechnologies: biologics for crop production, technologies in the field of genetics and breeding; and
- security and supply chain tracking technologies, including product safety testing and smart packaging.

### Global challenges for countries in Europe and Central Asia: preconditions for the transition to "Agriculture 4.0"

In recent years, **Kazakhstan, Russian Federation** and **Ukraine** have achieved impressive results in strengthening national food security and have joined the ranks of the largest agricultural powers. So far, the main drivers of the sector's development have been increased investment in more industrialized systems and improved management quality and the increased purchasing power of the population.

EECCA countries – being principal world producers of raw materials (cereals, vegetable oils and some others) and localizing import dependence on certain commodity groups of deep processing products – remain critically dependent on inputs. Agriculture in EECC countries uses genetic material, technologies and equipment that are mainly of foreign origin.

According to calculations carried out by the HSE University Institute for Agrarian Studies in the Russian Federation, **the level of import dependence in the agricultural biotechnology sector in the Russian Federation was over 80 percent** (International Trade Centre, 2022) in the segment of functional food supplements – up to 95 percent – by the end of 2019 and is also high in the absolute majority of other segments. This is an Achilles' heel for EECCA countries' global competitiveness, even within the current technological structure; purchasing feed additives, veterinary drugs, etc. at world prices makes it impossible to achieve price competitiveness in foreign markets.

Recent innovations involve technologies that can extract more food products from conventional processing. Many of these processing innovations mean that the demand for workers who are technologically trained in highly automated production systems will be higher than for unskilled workers (Swenson, 2019). This process is already taking place in Kazakhstan, Russian Federation and Ukraine and, to a lesser extent, in Belarus and Republic of Moldova. In Central Asia, it is just beginning. Policies to address the effects of innovations on labour – namely, social safety nets and investments in education – will be required for a smooth transition to innovative production systems.

**The results of an expert survey[42] conducted by the HSE University Institute for Agrarian Studies** confirms a strong interest among sector actors to be informed about the main global technological trends, tested international practices, and ready-made commercial technologies associated with a fairly short horizon (no more than three to five years) of strategic planning.

Only companies affiliated with foreign players, as well as representatives of the dairy cattle industry, operate with more distant horizons.

The survey results show strong interest among sector representatives in the transition to a new technological stage and readiness to invest in innovations and form public–private partnerships in the scientific and technical sphere. Survey experts identified that the key barriers to innovative business transformation require linking production, science and governance. Ensuring the access of smallholders to the results of scientific research through partnerships among academia, the public sector and small-scale producers is needed for improved inclusiveness and sustainability in agrifood systems.

**Infrastructure development is required for improving long-term competitiveness in Europe and Central Asia**

Deficiencies in infrastructure development are pronounced in **Albania, Kyrgyzstan and Tajikistan** (FIGURE 32), where food security issues are the most severe in the region. Information and communications technology adoption and innovation capability are limited in all countries but Israel and those in Western Europe. While providing better infrastructure, rural development policies must be inclusive and address the need of smallholders, rural women and youth.

Investments in infrastructure improve agricultural productivity, incomes and resilience to crisis. Designing risk-sensitive and climate-resilient infrastructure in food supply chains is essential for food security in the region. Cold storage and transportation infrastructure, still lacking in many ECA countries, are required to reduce food loss and improve market access for food commodities (FAO *et al.,* 2021a).

Transportation networks not only are a major factor of agricultural competitiveness, as they affect the costs of the final product, but they also are important for providing access to food for consumers. The **Russian Federation** is among the countries for which the risks of transportation networks have been analysed by FAO (2021a), and it was concluded that while the resilience of the transportation network is generally good, the risks of disruptions for food security are high.

BOX 7 provides a case study of investment for providing livelihoods to farmers and rural communities in Tajikistan.

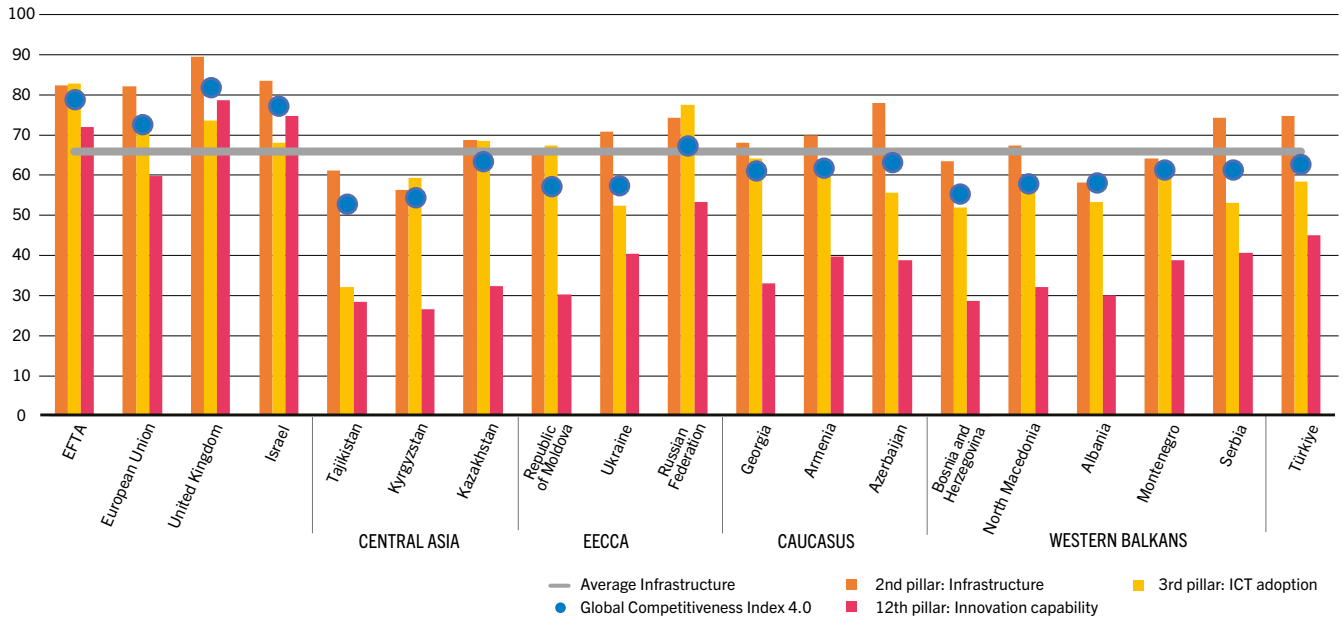
### 2.2.2.4 Policy discussion: managing the trade-offs from repurposing agricultural support with a focus on benefiting the livelihoods of farmers and others connected to the agriculture sector in Europe and Central Asia

**Repurposing support to aim at improved inclusiveness of small farmers and other rural entrepreneurs in food value chains**

There are synergies and trade-offs in the various scenarios for repurposing food and agriculture policies and incentives, as discussed above. It is important to consider these trade-offs when repurposing agricultural support and developing coherent policies related to farmers' incomes and addressing income inequality.

Agrifood systems are constrained by the "triple challenge" of providing food security and ensuring healthy diets for a growing population, providing livelihoods for hundreds of millions of people involved in farming and along the food value chains, and contributing to environmental sustainability. Today's agrifood systems are failing to deliver decent livelihoods to those working within them (IFAD, 2021). Prevailing agricultural policies often are implemented at the expense of smallholder producers responsible for the majority of food production in most lower- and middle-income countries and who often are among the poorest in their economies (IFAD, 2021). In order to overcome this triple challenge, it is essential that agricultural support policies be geared towards and support the creation and maintenance of a productive small-scale farming sector, with strong market linkages and a well-functioning agrifood system midstream.

**FIGURE 32**
Global competitiveness of countries in Europe and Central Asia (0=low, 100=high)




SOURCE: World Bank. 2021. World Economic Forum Global Competitiveness Index. In: *TCdata360*. https://tcdata360.worldbank.org/indicators/gci

The inclusiveness of food value chains is among the important aspects of sustainable practices. Small-scale farmers – as well as smaller processors, logistics companies and other smaller players in agrifood systems – face severe problems related to value chain integration in order to get a fair share of the final food cost and comply with key food safety requirements. In addition to providing livelihoods to millions, small farms play a key role in sustainable development by using more climate-smart farming practices and practices that support biodiversity.

Farmers' incomes are very important for food security; therefore, simply removing the policies protecting farmers would harm the food security of rural inhabitants. **Input subsidies and consumer price regulations** are instruments most commonly used in developing countries to improve food security and nutrition. However, the research suggests that those instruments are not always suitable to improve overall nutrition and may even harm micronutrient intake (Ecker and Qaim, 2010). Policy measures that support farmer's incomes regardless of their production decisions are less harmful for consumers. Consumer income-related policies, i.e. cash transfer and employment-generating programmes, also can have positive overall nutrition impacts.

Improving the inclusiveness of smallholder farmers and other rural entrepreneurs in agriculture value chains means improving their access to finance, inputs, services and markets (FAO, 2020b). According to the World Bank, policies to enhance extension services, risk management and **producer's organizations** are particularly important to help integrate smallholders in value chains (World Bank, 2020a). This is to be achieved through a number of activities, including establishing and strengthening of producer organizations, including cooperatives or other forms of farmer groups; supporting the quality and marketing/branding of locally produced products, including potential registration of geographical indications and products with traditional specificities; organizing and encouraging the participation of smallholders in business and investment fairs; providing business development, extension and advisory services to farmers; and providing farmers access to finance and instruments for risk mitigation and management.

The participation of smallholders in food value chains contributes to the sustainability and social and economic well-being of rural localities in **Central Asian and Eastern European countries**. Small farms represent the major part of global agriculture, producing one-third of the global food supply, with the remaining two-thirds produced by larger farms, most of which are family farms (OECD, 2021b). In the ECA region, farm structures are dominated by smallholders and small family farms (except in **Belarus, Kazakhstan, Russian Federation** and **Ukraine**, which have a dualistic agrarian structure, with the presence of both large-scale agricultural holdings and small family farms) (FAO, 2020c), and non-inclusive value chains cause the growth of poverty in rural areas. In the countries with a dualistic agrarian structure, non-inclusive chains determine the marginalization of small players and the concentration of production in the big players. This compromises the sustainability of agrifood systems.

The "confrontation" between large and small forms of agriculture in the ECA countries is aggravated by the fact that most of the subsidies go to the large agroholdings. This is especially true for Belarus, Kazakhstan, Russian Federation and Ukraine (Uzun, Shagaida and Lerman, 2021). Repurposing agricultural support to smallholdings not only will bring better equality but also will increase the sustainability of agrifood systems.

**BOX 7**

Investment for providing livelihoods to farmers and rural communities in Tajikistan

The Tajikistan Khatlon Livelihoods Support Project, which was completed in 2015, aimed to reduce poverty for 18 750 households in five project districts by increasing the profitability of small farms (including household plots) across the project area. The project showed the effectiveness of a central International Fund for Agricultural Development value proposition that interventions to increase productivity paired with institutional support can successfully integrate smallholder producers into agrifood systems to increase the returns on their productive activities. In general, the project expanded farmers' and livestock owners' access to improved agricultural (including animal) technologies and inputs. While it is impossible to quantify the impact of technology adoption in terms of higher productivity at this time, the qualitative results and field visits showed positive results. Overall, 65 on-farm adaptive research and demonstration trials were conducted, which included 46 field days with 1 062 participants. The trial plots were focused on the improvement of crop and livestock management, especially soil fertility and erosion control; the management of cereals, oil crops, vegetables and potatoes; the demonstration of new crop varieties; the development and application of modern plant protection techniques, including integrated pest management; the improvement of local breeds of livestock; and fodder production and seed production of fodder crops. In addition, some 74 specialists participated in training of trainers (48 in livestock and 26 in crops topics) conducted by international and national consultants.

During the project's initial phase, the technology demonstration programme engaged 1 062 farmers through field days. In the second phase, almost 1 000 farmers (43 percent of whom were women) received season-long training and inputs in contemporary crop and grassland management, livestock husbandry and animal health procedures. Field days drew around 460 farmers (50 percent of whom were women). Diversification of cropping systems was shown on 2 ha in Muminobod and 5 ha in Shurobod utilizing no-till planters and alternative crops (rye, safflower, oats, barley, flax and mung bean) in wheat-based cropping systems. No-till planters were also used to plant several winter crops (cereals, pulses and fodder) for seed production. A total of 40 women were taught beekeeping management, and each received ten beehives and all essential beekeeping gear. The beneficiaries produced 1 800 kg of honey in 2015.

The capacity-building activities were paired with interventions to increase beneficiaries' physical access to markets. These activities were funded through a community development fund based on local demand, showing the necessity of tailoring support to local needs in order to achieve market integration. The demands from the Community Development Fund also showed that for the poorest, increasing production and profitability relied on securing basic resources for productive activities. Despite the project's initial focus on productivity enhancement, nine villages asked for construction and rehabilitation of drinking water supplies. Beyond the economic benefits of such interventions, drinking water supply was also the source of several social benefits: (i) the households' quality of life was significantly enhanced by using drinking water any time of the day; (ii) their hygienic conditions were improved; (iii) illnesses decrease; (iv) water for livestock was secured; (v) and vegetables could be grown and watered in home gardens, contributing to improved nutrition.

SOURCE: IFAD. 2021. Khatlon Livelihoods Support Project. In: *Independent Office of Evaluation.* https://www.ifad.org/en/web/ioe/w/khatlon-livelihoods-support-project

Inclusiveness in agrifood systems is an important aspect for food security. Small and economically sound producers and small processors, middlemen and retailers create a buffer for the food supply in social and economic crisis situations. Policies addressed to support smallholders, women and youth farmers, therefore, contribute to enhancing agrifood systems sustainability. In ECA countries, national policies do not always treat big and small producers equally; very often, the majority of governmental support to agriculture is accumulated at a few of the biggest farms, making the entire agrifood system more vulnerable. More support to smallholders should strengthen their capacities, competitiveness and livelihoods and make them more resilient. Increased and more efficient and inclusive agricultural and food production will also make ECA farmers more food secure.

BOX 8 describes the agrarian structure in Central Asian and Eastern European countries.

- Support to investments, a widely applied policy instrument in the ECA region, mainly benefits larger agricultural holdings. Repurposing support to aim at improved inclusion requires addressing the issue of small farms through private–public cooperation, support to producer organizations, ensuring access to information, and strengthening value chains.
- Promoting economic inclusion in social protection programmes is essential to reducing poverty and ensuring long-run fiscal sustainability (FAO *et al.,* 2021a).

### Agricultural cooperatives are powerful instruments to increase the inclusiveness of smallholders

In several countries, agricultural cooperatives are a powerful sector. The share of cooperative processing and marketing in Europe is about 40 percent. It is considered that cooperatives can play an important role in helping subsistence-oriented households boost their output and productivity by shifting to small-scale commercial farming. However, there is no evidence of such progress in EECCA countries, where agricultural cooperatives do not appear to be beneficial. No more than 1.5 percent of all products produced in Kazakhstan and the Russian Federation are supplied and sold via agricultural cooperatives – despite that the state supported the development of agricultural cooperative systems in these two countries for more than 25 years, since 1995. While there is state support for cooperatives in laws and government programmes, this support is not followed by real policy actions, and there are not sufficient legal conditions to unify agricultural producers in production, marketing, processing and storage and supply them with material, technical resources and other services (International Cooperative Alliance, undated). The poor legal framework, the absence of cooperative education and information services, and poorly targeted financial support are three major impediments (OECD, 2019). Building confidence and trust in managers and peers is another important feature of a successful cooperative organization.

Cooperation among commercially oriented smallholders and family farms is one way of getting better access to value chains. This is also supported in some of the countries through support for the development and operation of cooperatives, for example in Albania and North Macedonia. The Agricultural Cooperatives Development Agency in Georgia, now part of the Rural Development Agency, has in the past provided investment subsidies for cooperatives (honey producers as well as those in milk, hazelnut and grape production) through grants of up to 70 percent of the investment costs. Furthermore, women-only cooperatives and cooperatives representing vulnerable groups receive grants of 80 percent of their eligible investments. These subsidies contribute to increased honey production and an important formalization of the sector, which is considered to be a precondition for smallholders to get access to value chains downstream (FAO, 2020c).

### The importance of rural youth inclusiveness

The majority of rural youth are employed in the informal economy as contributing family workers, subsistence farmers, home-based micro-entrepreneurs or unskilled workers. They typically earn

**BOX 8**

Agrarian structure in Central Asian and Eastern European countries is a foundation for sustainable development

In the Caucasus, most farms are small. In Georgia, 77 percent of farms are smaller than 1 ha. In Azerbaijan, the average size of private farms is below 5 ha, and in Armenia there are 1.4 ha per household.

The agrarian structure of Central Asian countries is dominated by the sector of small *dehqan* farms and their cooperatives. In Tajikistan, 1.2 million subsistence households have less than 1 ha of land. The average size of Kyrgyz farms is 2.5 ha. Seventy percent of the total agricultural output in Uzbekistan in 2018 was attributable to *dehqan* farms.

In the Western Balkans, farm structures are either fully dominated by smallholders or dualistic, with many small farms and a few large corporate farms. In all, 88 percent of farms are smaller than 5 ha, and they operate about 44 percent of the total agricultural area. Even where land is concentrated in larger holdings, the farm structure is based on small family enterprises. This differs from countries with a distinctly dualistic agriculture, such as in Serbia (FAO, 2020c).

Even in the countries with a dual structure, such as Kazakhstan, Russian Federation and Ukraine, small-scale rural households account for over 50 percent of the production of potatoes, vegetables, meat, milk and wool. In the Russian Federation in 2016, the corporate sector cultivated 97.2 percent of all agricultural land and received 94.7 percent of all revenue. This is a little more than 3 million agricultural units. The remaining 25.5 million agricultural units are subsistent (Yanbykh, Saraikin and Lerman, 2020).

Agroholdings in the Russian Federation and Ukraine have built their own vertically integrated chains, with limited access among small farms. More than 40 percent of Ukraine's farmland is cultivated by farms that are more than 500 ha, with farms of 2 500 ha or more not uncommon. This compares with an average European Union farm size of just 17 ha.

low wages, are employed under casual or seasonal work arrangements and face unsafe, often exploitive working conditions that compel many to migrate to urban areas. Re-engaging youth in agriculture requires addressing the numerous constraints that they face when trying to earn a livelihood. Among others, these include insufficient access to skills development and education, limited access to land and other resources, and low levels of involvement in decision-making processes. Rural youth also are typically excluded from those institutions that provide access to financial services, such as credit, savings and insurance, which further hinders their ability to participate in the sector.

Rural youth are often unheard and not consulted. Although it is increasingly recognized that youth participation has an important role in decision-making, too often their participation remains symbolic or passive.

Maintaining interest among young people in farming as a profession is vital to food security and agricultural development in the future. To that end, it is important to cultivate the upcoming generation of farmers, food entrepreneurs, scientists, agronomists, extension agents, and union and government leaders.

FAO supports its Members in developing a strong enabling environment in which youth can thrive and seize decent farm and non-farm rural employment opportunities now and in the future.

### Gender inequalities remain an issue in the region

Empowering smallholders and family farms is not possible without addressing gender-based inequalities. Gender-based discrimination persists in the region, especially in rural areas. Although women are actively engaged in agricultural activities, working long hours and participating in the financial management of their households, men have the final say as the decision-makers in control of incomes and assets. Patriarchal attitudes, for example, are

prevalent in the **Caucasus** and **Central Asia**, especially in rural areas.[43] According to the Asian Development Bank, women in **Tajikistan** work 30 percent more hours than do men overall, with 9.6 daily hours of paid and unpaid work for women and 7.4 hours for men (Asian Development Bank, 2020).

While women are important contributors to agriculture, they usually are limited to low-paying or non-paid jobs. Their work is largely considered informal, and often they are not covered by pension schemes.

There is a strict gender-based division of labour, and men are usually considered responsible for the tasks that are more capital-intensive (FAO, 2020c). These existing social practices and stereotypes that limit women's access to assets critical for production not only create problems for women but also have serious implications for agricultural development in general. Sometimes, systems themselves are built in a manner that is not conducive to gender equality, even if it is not intentional but simply gender-blind. The lack of child care, maternity leave and other supporting policies and services, or the way work and education are organized may obstruct women's participation in these activities. It also is important to note that gender inequality can lead to food insecurity and malnutrition for some members of households more than others, even within households where this cannot be seen from data that are not disaggregated.

### Other agricultural policies to improve livelihoods for smallholder farmers and the rural poor

The increasing importance of **standards, labelling** and **certification** for the creation of a variety of new products is also an issue. Some certification schemes, such as Fairtrade, help to improve farmers' livelihoods. The promotion of local and organic agricultural products also contributes to the sustainability of smallholder farms, which rely not on economies of scale, but on the unique characteristics of their products. The rational use of natural resources and the responsible disposal of food waste within the framework of small farms and personal subsidiary plots also are important. Incentives for the development of alternative energy will make it possible to reduce dependence on central distribution networks and make small-scale forms of business more self-sufficient.

Investing in the rural poor empowers them to increase their food security, improve the nutrition of their families and increase their incomes through integration into their local agrifood systems. This has been confirmed by projects implemented by IFAD. By empowering local institutions and providing policy support, IFAD's work has facilitated smallholders' access to and integration into the policymaking process. Overall, IFAD investments are directed towards ensuring food security for all, better livelihoods for smallholder farmers and rural people, and environmentally sensitive investments in the ECA region. Across the fund's portfolio in the region, projects have shown that policy support in the form of capacity building, market formation, institutional support, women's empowerment and adaptation to climate change support have the potential to achieve meaningful impacts among poor rural smallholders and producers by empowering them within their agrifood systems.

## 2.2.3 COMPLEMENTING POLICIES OUTSIDE AGRIFOOD SYSTEMS REQUIRING SUPPORT FOR REPURPOSING EFFORTS IN EUROPE AND CENTRAL ASIA

Healthy, sustainable, equitable and efficient agrifood systems transformation will need policy options, interactions and coordination of multisectional policies within and outside of agrifood systems (BOX 7). Following the discussion in Section 2.2.2 on complementing policies within agrifood systems, Section 2.2.3 address the issues and complementing policies outside agrifood systems that are needed to support repurposing efforts in the ECA region.

### 2.2.3.1 Double-duty actions to overcome the double burden of malnutrition to promote healthy diets and the food environment

The coexistence of overweight, obesity and undernutrition (stunting, underweight, wasting and micronutrient deficiencies) is referred to as the double burden of malnutrition (Global Financing Facility, 2020). The many forms of malnutrition have previously been managed separately, which has led to the exclusion of child overweight and adult obesity from the intervention programmes implemented to tackle undernutrition.

The coexistence of nutritional deficiencies and overweight or obesity with associated diet-related NCDs has been observed within communities, households and individuals. To a large extent, this requires building "coherent portfolios of policies, investments and legislation and enable win-win solutions while managing trade-offs; these include territorial approaches, ecosystems approaches," as outlined in *The State of Food Security and Nutrition in the World 2021* (FAO *et al.,* 2021a). It is necessary for future progress by creating incentives to sustainable agrifood systems and nutrition-sensitive policies and programmes.

Thus, the current situation in the region, due to the multiple burdens of malnutrition, outlines a need for a comprehensive and holistic set of multisectoral policy measures and actions. The double-duty actions are a path towards implementing a holistic, coherent approach to simultaneously preventing or reducing the risk of nutritional deficiencies leading to underweight, wasting, stunting or micronutrient deficiencies and overweight and obesity or diet-related NCDs with the same intervention, programme or policy.

For repurposing scenarios such as those discussed in the preceding section to materialize, other agrifood system policies – and policies and incentives outside agrifood systems – will be needed. The complementing policies in health, education, environment, trade, social protection and programmes for children can support in two ways (FAO *et al.,* 2022): 1) they can provide incentives (and disincentives) to support shifts in food supply chains and consumer behaviour towards healthy diets; and 2) they can ease or mitigate the unintended consequences or trade-offs from repurposing support, in particularly for vulnerable and disadvantaged population groups.

In order to build more efficient and effective agrifood systems and thus contribute to the achievement of the SDGs, it is essential to formulate and implement coherent and systematic policies and investments on agrifood, health, social protection and environmental systems.[44] It is a comprehensive entry point, since it includes data collection, research, analysis and capacity building, but it is necessary for current diagnostics and for the formulation and integration of double-duty actions in national policies and programmes.

The current food security and nutrition challenges in the ECA region require a holistic approach covering multisectoral policy measures that address all forms of malnutrition as a guiding frame for enabling stronger policy coherence across sectors. It also is important to reconsider current strategic policy documents as an integrated framework, ensuring that they include sectoral programmes on **health, social protection, education, agriculture, environment, advocacy, awareness raising and empowering consumers to choose healthy diets**. The increased demand for healthy diets will require consumer-oriented measures assuming the transformation of agrifood systems, including food production and food supply chains.

To achieve the SDGs and ensure access by all people to safe, nutritious and sufficient food, it is essential to understand the policy environment in the region to take actual steps and actions towards the transformation of agrifood systems that deliver healthy diets.

The data on food security and nutrition policy documents among the countries of the ECA region (WHO, 2022b) reflect the existence of a strategic approach to regulation oriented towards health issues to a large extent at 90 percent (TABLE A6.1). The analysis confirms that 75 percent

of the countries include nutrition issues in their policy documents (food security programmes, agricultural strategies, etc.). The adoption of food safety or nutrition codes and other measures contributes to the quality of food and nutrition, although adoption levels are slightly above half of the countries (59 percent). Moreover, the various policy documents are not linked or have weak linkages for integrated, comprehensive policy and actions covering aspects of food security and nutrition in agricultural or rural development strategies, confirming that the holistic approach in these directions is missing, since they are recorded in 47 percent and 14 percent of the countries, respectively. Thus, the link between agriculture and rural development, covering aspects including environmental and social issues, does not address nutritional elements. This is also due to a lack of understanding and knowledge about nutrition and healthy diets; only 50 percent of the countries have national food-based dietary guidelines. These guidelines are intended to establish a basis for public food and nutrition, health and agricultural policies and nutrition education programmes to foster healthy eating habits and lifestyles. The lack of these guidelines makes it hard for governments to formulate or implement policies to promote healthy diets. The guidelines that do exist primarily address child or maternal nutrition; existing approaches do not cover all population groups or specific vulnerable groups.

### 2.2.3.2 Health system policies to complement repurposing

The overall trend of premature deaths linked to NCDs in the European region has been declining since the late 1990s. Mortality from the four major NCDs in those aged 30–69 years decreased by 7.3 percent from 1994 to 2014. It is proposed that the region should aim to reduce premature mortality from NCDs by 45 percent or more between 2010 and 2030 as part of an accelerated effort to harness the momentum (WHO, 2018d).

The economic consequences of NCDs are significant. In the region, economic losses in lower- or middle-income countries from the four main NCDs are estimated to surpass USD 7 trillion between 2011 and 2025, equivalent to approximately 4 percent of their annual output in 2010. The loss of productivity linked to NCDs is also significant; it has been estimated that there is a reduction in economic growth of 0.5 percent for every 10 percent increase in NCD mortality (WHO, 2018d).

Addressing NCDs and their risk factors supports the educational development of children, including food and nutrition education. Overweight and obese children are more likely to suffer from depression, low self-esteem and other behavioural and emotional difficulties, as well as stigmatization and social isolation. Gender disparities in NCDs vary substantially across the European region.

Premature mortality due to NCDs among men ranges from 11 percent to 15 percent across the ECA region (WHO, 2022c). With some exceptions, the relative differences between genders tend to be smallest among the Scandinavian and northern European countries and highest among the countries in the EECCA and the Baltics and in some Mediterranean countries. In the EECCA countries, which have the highest mortality from cardiovascular disease in the region, establishing adequate prevention strategies, improving access to health care services, and ensuring access to healthy diets will be essential to reducing inequalities among men and women (WHO, 2017b). Although women live, on average, eight years longer than do men in the region, they also spend a greater percentage of their lives in poor health, mainly because of NCDs (WHO, 2015a). It is necessary to adjust interventions to local situations and focus on vulnerable groups, for example, women (WHO, 2016).

The levels of and progress on premature mortality have been uneven among the subregions in the ECA region. Significant inequalities in premature NCD mortality persist among countries, with almost a six-fold difference in the probability of dying prematurely from NCDs between the highest (30.1 percent in Turkmenistan in 2013) and lowest (5.2 percent in San Marino in 2015)

levels and a decreasing probability from east to west in the region. Inequalities persist due to countries' differences in economic and social dimensions and the affordability of food among and within them.

**Health policy as an instrument to promote healthy diets and support sustainability**

Another aspect of moving towards the sustainability of agrifood systems requires adequate funding and investments. The actual data of public expenditures on health do not correlate with incomes or health expenditures per capita. However, the data comparison on these expenditures with nutrition indicators clearly shows that countries with higher spending on health and education face more minor malnutrition problems.

In general, as a share of the GDP in the ECA region, health expenditures are about the world level (9.3 percent in the ECA region and 9.86 percent worldwide) (FIGURE 33). However, these figures differ significantly among the high-income, middle-income and lower-middle-income countries of the region. For example, the health expenditure per capita varies from USD 59.84 in Tajikistan to USD 9870.56 in Switzerland. The comparison of food security and nutrition situations confirms that the relevant indicators are much better in Switzerland, where the government promotes a varied and balanced diet through the Swiss Nutrition Policy by increasing nutritional competency, improving framework conditions and integrating food industry with nutrition (Federal Food Safety and Veterinary Office, 2017).

### 2.2.3.3 Education on nutrition and raising awareness on healthy diets

The data on education expenditures show that the countries with a lower share of expenditures on education are Armenia (2.7 percent), Turkmenistan (3.1 percent) and North Macedonia (3.2 percent). The current share of education expenditures is markedly lower than health expenditures in all countries of the region. This suggests that the inclusion of nutritional and healthy diet issues in education programmes requires an increase in financial resources for strengthening these programmes. This was also noted in the WHO nutrition reports (WHO, 2018a).

It is imperative that the role of the education system in supporting healthy diets is further explored and invested in. The education system is an essential entry point for improving nutrition among children in schools, including children aged 3–5 years (in preschools) and adolescents. It is a cost-effective platform that can serve as foundation to foster positive life-long dietary choices and practices (UNSCN, 2017).

Improving the nutrition of school-age children can have measurable positive impact on cognition, linear growth and other health outcomes. Children who consume healthy meals, nutritious snacks and beverages that contribute to healthy diets in school have shown to perform well in class and adopt healthy eating habits and behaviours.

As a component of agrifood system support, authorities could work on reducing the availability and accessibility of foods of high energy density and minimal nutritional value in and around schools, particularly in urbanized settings where highly processed foods have become more widely available. This increased availability has been tied to increasing demands and higher consumption among students.

Further, linking with the school meals programme, there is an opportunity to better connect smallholder farmers through local procurement, creating a market for local businesses while ensuring that children in schools have access to fresh and diverse meals.

TABLE 11 presents the types of nutrition education in the ECA region and worldwide.

Currently, the observed multiple burden of malnutrition in the ECA region exists alongside two challenging blocks:

- the livelihoods of farmers and others connected to the sector, either vertically along the value chain or spatially across rural economies; and
- environmental conditions of the agrifood sector that contribute to greenhouse gas emissions, fragility due to climate change, and limited natural resources.

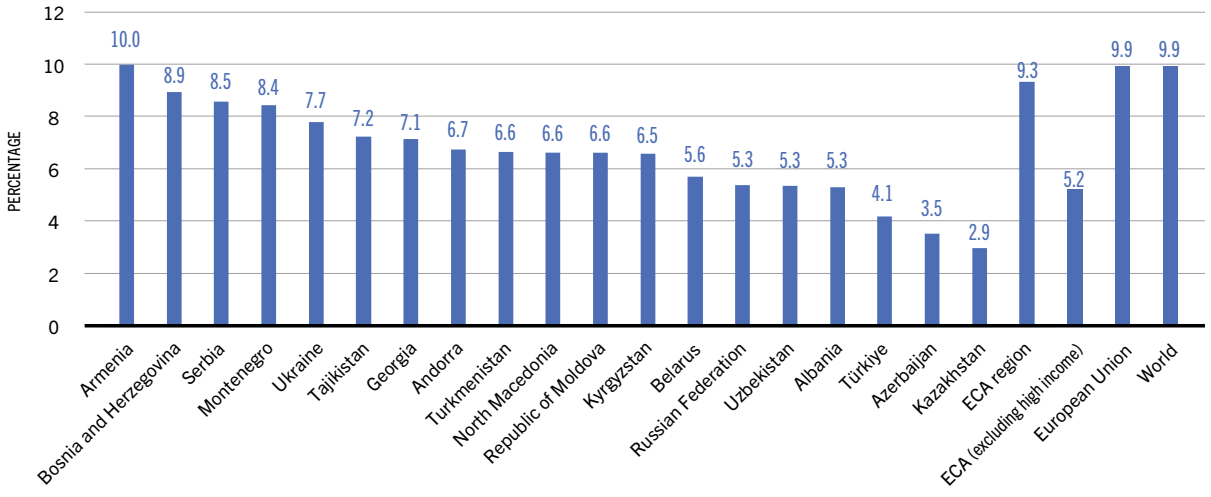
To overcome these challenging blocks interfering with sustainable development, various policy tools are used by countries to various extents. As a starting point for enhancing food security and nutrition and transforming agrifood systems, the agrifood sector needs adequate, reasonable and

**TABLE 11**
Types of nutrition education in Europe and Central Asia and the world

| Types of education | **ECA region** (% of countries) | **World** (% of countries) |
|---|---|---|
| **Training in healthy nutrition aspects** | 54 | 56 |
| **School feeding programmes** | 37 | 54 |
| **National health and nutrition education in schools** | 49 | 61 |
| **School gardens** | 26 | 40 |

SOURCE: World Bank. 2022. Current health expenditure per capita, PPP (current international $) | Data. In: *The World Bank Data*. https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD

**FIGURE 33**
Share of public health expenditure, percent of GDP in countries of Europe and Central Asia, 2019




SOURCE: World Bank. 2022. Current health expenditure per capita, PPP (current international $) | Data. In: *The World Bank Data*. https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD

efficient policy measures that consider all food value chain participants' interests and positions. These blocks attract attention from state authorities, since they are significant for sustainability.

The following activities would contribute to reducing the multiple burden of malnutrition and addressing the two blocks above:

- Nutrition education can increase attention on the importance of healthy diets for people and the planet.
- Demand for nutritious foods such as fresh, minimally processed, sustainably produced foods should be at the core of the nutrition education curriculum.
- Nutrition education must be aligned consistently with the implementation of school health and nutrition policies, e.g. normative guidance on vendors' canteen and school products.
- School-based health and nutrition programmes, including nutritious school meals, can reduce hunger, prevent malnutrition among school-age children, serve as a social safety net, and contribute to positive education outcomes, including retaining children in schools.

### 2.2.3.4 Trade facilitation and good practices

Agricultural trade facilitation is important for increasing access to nutritious food and must be considered with a due objective approach given the crisis situation in the ECA region due to the COVID-19 pandemic and the war in Ukraine.

As discussed in *The State of Food Security and Nutrition in the World 2020* (FAO *et al.,* 2020), achieving the twin goals of reduced environmental degradation and improved health will require moving to healthy diets that include sustainability considerations, including a higher consumption of fresh fruits and vegetables. Given the seasonal nature of agricultural produce, trade is important to ensure a continuous supply. Trade also facilitates production taking place where it is most efficient, thus increasing competitiveness. However, for these benefits to materialize, and to minimize loss and waste, it is critical that agricultural produce arrives quickly at its destination (BOX 9).

Trade facilitation – streamlining, simplifying and harmonizing technical and legal procedures for trading across borders – is critical, as it helps reduce trade costs and trading time. This is particularly important for trade in fresh produce, which, due to its perishable nature, is highly sensitive to delays. Ensuring quick customs clearance is thus important for enabling produce to arrive at its destination in a marketable condition, thus reducing food loss and waste. Lowering trade costs and speeding up trade also contributes to making it profitable to export, which can lead to increased produce supply and potentially reduced prices.

Key agricultural trade facilitation measures include special treatment for perishable goods at border crossings and facilitating testing and compliance with sanitary and phytosanitary certificates. The biennial UNECE Regional Report on Digital and Sustainable Trade Facilitation (UNECE, 2021) provides an overview of the progress of trade facilitation measures in the UNECE region. The 2021 report shows that agricultural trade facilitation measures are given relatively high importance in the region's economies. As seen in the graph, 37 of the 44 surveyed countries provide special treatment for perishable goods at border crossings, while 34 countries have fully or partially implemented testing and laboratory facilities to meet sanitary and phytosanitary requirements. The measure lagging the most is the digital application and issuance of sanitary and phytosanitary certificates.

Hence, the facilitation of trade through the above-mentioned measures and instruments contributes to improving access to healthy diets through relevant joint actions and the implementation of existing instruments (BOX 10).

### 2.2.3.5 Social protection for agrifood system transformation to improve nutrition and ensure affordable healthy diets

Extreme poverty rose globally in 2020 for the first time in the past 25 years (Suckling, Christensen and Walton, 2021). Disruptions caused by COVID-19 were compounded by conflict and climate change, which already had been slowing progress in poverty reduction. Because of the pandemic, around 100 million more people around the world are living in extreme poverty (on less than USD 1.90 per day). According to World Bank forecasts, in the ECA region, the number people living in poverty (on less than USD 5.50 per day) was estimated to have increased by 4.3 million by the end of 2021 (World Bank, 2021). There is a growing need for continued attention to the provision of access to comprehensive and adequate social protection that is nutrition sensitive and addresses dietary diversity, the nutritional status of children and women, and the differentiated needs of vulnerable groups.

#### Social protection coverage

Comparatively high percentages of the populations of ECA countries are covered by social assistance and insurance. About 34.3 percent of people do not receive any transfers, the second-lowest rate in the world, after South Asia, according to available data (World Bank, 2022a).[45] The region also has the highest ratio worldwide of the population benefiting from more than one social assistance and insurance programme (26.4 percent), according to available data (World Bank, 2022a). There are considerable differences between European Union and non-European Union countries. Non-European Union countries in the ECA region dedicate, on average, 10.1 percent of their GDP to social protection, compared with 19.3 percent among European Union countries (FAO *et al.,* 2022; ILO, 2022). Within subregions, the shares are different as well, from 4 percent in Central Asia (Tajikistan) to 16.2 percent in Eastern Europe (Ukraine) (IMF, 2019).

Responding to the COVID-19 pandemic, the countries of the ECA region increased the sizes of in-cash transfer benefits (relative to pre-pandemic years) to children, the elderly and other

**BOX 9**
UNECE work on trade facilitation of food and agricultural products

UNECE helps facilitate the trade of agricultural produce through its standard-setting work. Through the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), a subsidiary intergovernmental body of UNECE, it has developed a number of electronic business standards that facilitate trade in agricultural and food products, including the electronic sanitary and phytosanitary certificate (eCERT); Rapid Alert System for Food and Feed (RASFF); Fisheries Language for Universal E-Exchange (FLUX); Electronic Laboratory Observation Reporting (eLabs); animal traceability; traceability of primary natural products; the Crop Data Sheet process (eDAPLOS); electronic crop reports; and electronic animal passports.

UNECE also is working to facilitate the development of electronic conformity certificate management systems for products covered by agricultural marketing standards subject to conformity certificates. This complements UNECE's long-standing work on agricultural quality standards, which includes more than 100 minimum quality standards for fresh fruit and vegetables, dry and dried produce, meat and seed potatoes. By providing a common trading language, these standards facilitate international trade and increase transparency on international and national markets.

UNECE also works on supporting traceability of products related to environmental, social and governance (ESG) aspects. Initially focused on textiles and footwear, ECE's work on traceability is expanding to agri-food and critical raw materials value chains.

vulnerable groups (Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova, Tajikistan, Türkiye, Uzbekistan) (Gentilini *et al.,* 2020). The most recent comparative data on targeting accuracy and adequacy measures is limited to pre-COVID years. Nevertheless, across the region, increases also were accompanied by supportive measures for making social assistance more accessible. Some countries temporarily waived requirements, reduced the waiting time, or expanded coverage to groups that owned assets but faced challenges (Emmanouil-Kalos and Prokakis, 2021; Gentilini *et al.,* 2020).

Among ECA countries, with the exception of the Russian Federation, the coverage of social insurance is higher compared to social assistance programmes both in rural and urban areas (TABLE 12). In the former socialist countries, this is largely due to the legacy of social insurance systems included in the state pension system covering all workers, including in some cases farm owners/holders. For social insurance benefits, the urban populations have higher coverage than the rural populations in most of countries, with the exception of Belarus. Rural populations have higher coverage of social assistance than urban populations, with the exceptions of Azerbaijan and, to a lesser extent, Ukraine. Despite the legacy of social protection systems, only one-third of the poorest quintile in rural areas is covered by social assistance in FAO programme countries in the ECA region (FAO, 2022d; World Bank, 2022a). TABLE 12 presents the overall gap in coverage by the numbers and the share of the rural population in the lowest quintile not covered by any social insurance or social assistance benefits for the selected countries in the ECA region.

Contributory coverage is higher among men than among women across all categories, with the exception of maternity benefits.[46] Women's informal labour in agriculture is higher than men's across the region; poverty and food insecurity indicators are comparably higher among women in comparison to rural men and urban women and men (FAO, 2022g). Given these facts, and considering that women face more structural challenges in accessing resources and services, it is safe to assume that the coverage is even lower among women in rural areas.

**BOX 10**
Food loss and waste and the UNECE Code of Good Practice

Currently, a third of all food harvested goes to waste along supply chains or by consumers. This means that the resources used to produce it – water, land, fossil fuels and labour – also go wasted. As around 70 percent of fresh water is used for agriculture, this in turn means that around 25 percent of the world's fresh water supply, 8–10 percent of greenhouse gas emissions and large tracts of land and soil are used to grow food that ends up being discarded. Reducing food loss and waste will thus be critical both for increasing the availability of food and for reducing its environmental footprint, thus increasing resource efficiency and contributing to a circular economy.

Due to their perishable nature, fresh fruit and vegetables are particularly at risk of loss and waste. To help reduce food loss, under its Working Party on Agricultural Quality Standards, UNECE has developed a Code of Good Practice for reducing food loss and ensuring the optimum handling of fresh fruit and vegetables along the value chain. The Code of Good Practice aims to guide supply chain actors on what they can do to maintain the quality of fresh fruit and vegetables along supply chains, thus preventing food loss and waste. It consists of four chapters targeting the major segments of the fruit and vegetables supply chain – producers, traders, transporters and retailers – and includes simple and practical steps that each actor can take to reduce food loss and waste. By setting out measures to be taken at each stage in the value chain before the fruit and vegetables reach the consumer, from harvest to retail, the code is intended to strengthen the work done by actors in the food supply chain and to support continued improvement. The code complements the FAO Voluntary Code of Conduct for Food Loss and Waste Reduction, which provides a generic framework for food loss and waste reduction, by specifically addressing fresh fruit and vegetables. Originally adopted in 2019, the Code of Good Practice was expanded in 2021 with a chapter on transporters and adapted to consider the challenges faced by developing countries.

SOURCE: UNECE. 2020. *Simply measuring – Quantifying food loss & waste: UNECE food loss and waste measuring methodology for fresh produce supply chains*. Geneva, Switzerland, United Nations. https://unece.org/sites/default/files/2021-04/FoodLossMeasuringMethodology.pdf

In fact, 39 percent of rural populations are covered by contributory pensions (old-age, survivors', disability), while less than 1 percent are covered by other aspects of social insurance such as occupational injury benefits, sickness leave benefits, and maternity/paternity benefits. Only 5 percent of rural populations in the region receive non-contributory social pensions, and less than 1 percent receive unemployment benefits (both contributory and non-contributory for those with insufficient or no contribution history) (FAO, 2022d).

### Adequacy and impact

The size of benefits is often too low to have an impact on poverty reduction; benefits are estimated to be the equivalent of just 25 percent of post-transfer household consumption, on average (FAO, 2022d; World Bank, 2022a). FIGURE 34 shows the adequacy of social insurance and assistance programmes in most ECA countries. Echoing the coverage patterns, social insurance payments (the vast majority being old-age pensions) account for a larger share of total household welfare than social assistance, on average. Within this category, old-age pensions for men retirees dominate, pointing at gender- and age-specific gaps. Thus, in order to address the differentiated needs of children and women in rural areas, there is a pressing need to extend the coverage and transfer adequacy.

As a result, social protection systems have shown limited capacity to accompany and protect rural populations during the structural transformation processes and agricultural reforms of the past two decades.

**TABLE 12**
Social protection coverage in urban and rural areas in percentages (latest data available since 2015)

| Country | Social insurance coverage (%) | | | Social assistance coverage (%) | | |
|---|---|---|---|---|---|---|
| | Rural | Urban | Total | Rural | Urban | Total |
| **Armenia (2018)** | 52.6 | 52.2 | 52 | 31.7 | 28.0 | 29.5 |
| **Azerbaijan (2015)** | 55.5 | 47.2 | 50.6 | 23.1 | 29.6 | 26.9 |
| **Belarus (2019)** | 46.3 | 47.9 | 47.5 | 49.9 | 46.1 | 47.1 |
| **Bosnia and Herzegovina (2015)** | 42.5 | 38.5 | 40.2 | 17.2 | 17.6 | 17.4 |
| **Georgia (2018)** | - | - | - | 68.5 | 60.1 | 63.6 |
| **Kazakhstan (2015)** | 31.8 | 26.3 | 28.7 | 37.2 | 25.6 | 30.6 |
| **Russian Federation (2017)** | 60.7 | 54.9 | 56.4 | 71.5 | 63.9 | 65.8 |
| **Serbia (2015)** | 54.6 | 50.4 | 52.1 | 16.9 | 11.0 | 13.4 |
| **Türkiye (2019)** | | | 37.2 | | | 14.5 |
| **Ukraine (2018)** | 57.9 | 45.6 | 49.8 | 29.9 | 30.3 | 30.2 |
| **Uzbekistan (2015)** | 22.2 | 12.9 | 20.1 | 7.4 | 4.4 | 6.7 |

SOURCE: World Bank. 2022. ASPIRE: The Atlas of Social Protection Indicators of Resilience and Equity. In: *World Bank*. https://www.worldbank.org/en/data/datatopics/aspire

**BOX 11**
Social insurance and social assistance

**Social insurance** includes contributory pensions (old-age, survivors', disability) and other social insurance comprising occupation injuries benefits, paid sickness leave benefits, health, and maternity/paternity benefits.

**Social assistance** includes unconditional and conditional cash transfers, non-contributory social pensions (old-age, disability, survivors'), food and in-kind transfers, school feeding, public works/workfare, fee-waivers/subsidies (health, education, utility, food, housing), and others (e.g. scholarships, social care).

The countries with relatively higher adequacy of social assistance in household welfare include Georgia (34.1 percent), Serbia (22.2 percent) and Montenegro (22.1 percent). Several countries have a share of social assistance in household welfare of less than 10 percent: Ukraine (9.7 percent), Türkiye (9.5 percent), Russian Federation (6.8 percent), Azerbaijan (6.1 percent), Albania (6.0 percent) and Tajikistan (2.4 percent).

Ten of the 15 countries with data available have a higher adequacy of social insurance in urban areas than in rural areas, while just four of the 16 countries with data available have a higher adequacy of social assistance in urban areas than in rural areas (TABLE 13).

### Social protection for nutrition and affordable healthy diets (nutrition-sensitive social protection programmes)

Higher-level food security and nutrition goals are embedded in national social protection strategies and school feeding programmes, but the experience in nutrition-sensitive social protection remains limited. In a number of ECA countries, the coherent integration of social services, including social support and protection, is required for the consolidation of food security, agricultural and rural aspects for better nutritional outcomes and diets, especially among vulnerable groups. This covers cash and in-kind programmes and linking nutrition-sensitive social protection with agriculture aiming to enhance food security, improve nutrition and reduce inequalities.

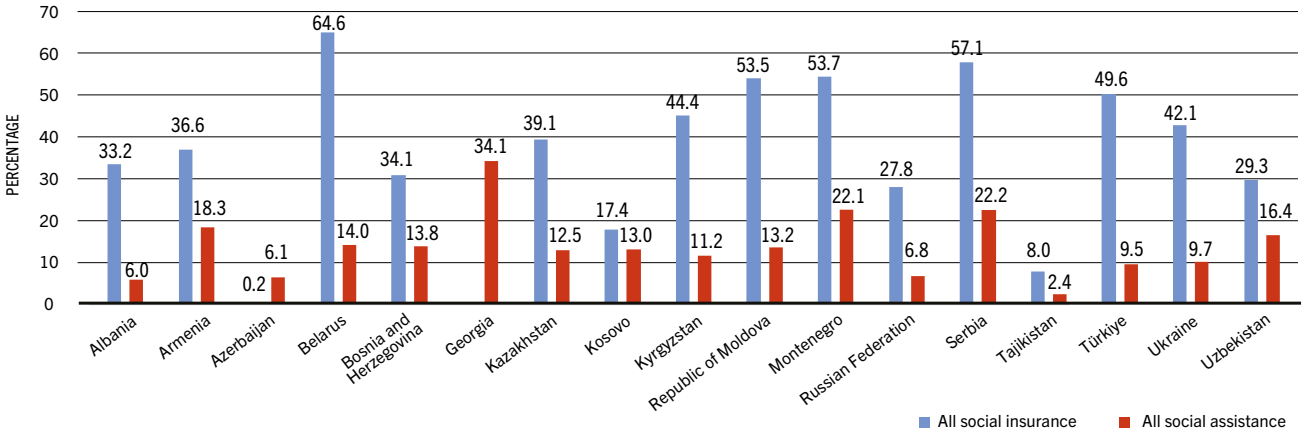
At the Second International Conference on Nutrition (ICN2) in 2014, countries identified the role of social protection in improving nutrition. It is essential to encourage long-term cooperation and strategic partnerships among national and international stakeholders through the sharing of knowledge and information and the exchange of experiences and good practices; by strengthening institutional capacities in making nutrition-sensitive social protection programmes; and by investing in research, digitalization and communication for changing the behaviours of producers, consumers and other agrifood system actors.

The populations of ECA countries are affected by the multiple burden of malnutrition – including undernutrition, micronutrient deficiencies and overweight and obesity – with rural populations and women and girls having a higher risk of being poor and food insecure. The underlying causes are related to a combination of factors: poverty, low dietary awareness and discriminatory norms, and vulnerability to fluctuations in international food prices due to high rates of food import dependency in some countries (WFP, 2018).

It is important to understand that improved food security outcomes are more than mere positive impacts of social protection measures. Policymakers should incorporate desired nutrition outcomes when designing and implementing programmes to accelerate the eradication of food insecurity and hunger. Although cash transfers can contribute to food security by raising

## FIGURE 34

Adequacy of benefits: Social insurance and social assistance in selected countries and areas of Europe and Central Asia




NOTE: All social assistance: total transfer amount received by all beneficiaries in a population group as a share of the total welfare of beneficiaries in that group. All social insurance: total transfer amount received by all beneficiaries in a population group as a share of the total welfare of beneficiaries in that group. Information is from 2019 or the latest year for which data were available. All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

SOURCE: World Bank. 2021. The Atlas of Social Protection: Indicators of Resilience and Equity. In: *DataBank*. https://databank.worldbank.org/source/the-atlas-of-social-protection:-indicators-of-resilience-and-equity/Type/TABLE/preview/on

## TABLE 13

Adequacy of benefits: all social insurance and assistance in ECA countries, percent, 2019 or latest data available

| | All social insurance | | | All social assistance | | |
|---|---|---|---|---|---|---|
| | National | Rural | Urban | National | Rural | Urban |
| **Albania** | 33.2 | 27.5 | 38.1 | 6.0 | 4.9 | 7.7 |
| **Armenia** | 36.6 | 32.2 | 39.4 | 18.3 | 17.0 | 19.4 |
| **Azerbaijan** | 0.2 | 0.2 | 0.3 | 6.1 | 6.8 | 5.8 |
| **Belarus** | 64.6 | 77.5 | 61.1 | 14.0 | 16.4 | 13.3 |
| **Bosnia and Herzegovina** | 34.1 | 36.1 | 32.2 | 13.8 | 14.7 | 13.1 |
| **Georgia** | | | | 34.1 | 38.1 | 31.4 |
| **Kazakhstan** | 39.1 | 34.9 | 41.7 | 12.5 | 12.6 | 12.3 |
| **Kyrgyzstan** | 44.4 | 50.6 | 41.6 | 11.2 | 13.5 | 10.9 |
| **Montenegro** | 53.7 | 42.8 | 60.8 | 22.1 | 23.5 | 21.6 |
| **Republic of Moldova** | 53.5 | 50.9 | 56.5 | 13.2 | 14.2 | 12.0 |
| **Russian Federation** | 27.8 | 33.0 | 26.5 | 6.8 | 10.8 | 5.9 |
| **Serbia** | 57.1 | 45.0 | 64.8 | 22.2 | 21.8 | 22.6 |
| **Tajikistan** | 8.0 | 7.5 | 9.3 | 2.4 | 1.7 | 6.6 |
| **Türkiye** | 49.6 | 45.1 | 41.2 | 9.5 | 7.6 | 5.0 |
| **Ukraine** | 42.1 | 36.8 | 45.1 | 9.7 | 10.3 | 9.4 |
| **Uzbekistan** | 29.3 | 27.9 | 36.5 | 16.4 | 16.9 | 13.4 |

SOURCE: World Bank. 2021. The Atlas of Social Protection: Indicators of Resilience and Equity. In: *DataBank*. https://databank.worldbank.org/source/the-atlas-of-social-protection:-indicators-of-resilience-and-equity/Type/TABLE/preview/on

beneficiary households' purchasing power, attaching nutrition goals to social protection programmes could improve dietary diversity and micronutrient intake among children and women. Emerging evidence indicates that the design of social assistance measures is key for reaching the most vulnerable populations – such as targeting children or including gender-sensitive design in assistance programmes – while addressing both individuals and households (Olney *et al.,* 2022). Thus, nutrition-specific and nutrition-sensitive programmes are necessary to comprehensively address the issue (WFP, 2018).

In Armenia and Kyrgyzstan, FAO, jointly with national teams, has supported the implementation of projects to strengthen nutrition-sensitive social protection programmes in rural areas.[47] The FAO Cash+ approach combines cash transfers with complementary support or productive inputs, training and components that enhance livelihoods, food security and nutrition. The cash component addresses immediate needs and can relieve constraints arising from limited and irregular incomes. The additional elements further strengthen the impacts on livelihoods and improvements in food security and nutrition.

The experiences of Cash+ projects in Armenia and Kyrgyzstan have highlighted the potential of such programmes to the extent that Cash+ interventions have been included in Kyrgyzstan's National Food Security and Nutrition Programme 2019–2023 and the draft Employment and Social Protection Development Programme 2020–2023. The Cash+ pilots also emphasize the importance of promoting coherence and coordination among agriculture, social protection and complementary services and the integration of nutrition objectives in programme design to attain improvements in nutrition for vulnerable households (Kangasniemi *et al.,* 2022, forthcoming).

The Cash+ pilot in Armenia has provided a foundation for the development of a new governmental programme – "1 000 cows for the poorest families" – aimed at boosting the productive capacities of vulnerable rural households. It endorsed the food security and nutrition objectives of Armenia's Prospective Development Strategy 2014–2025 and leaned towards implementing the Sustainable Agricultural Development Strategy for 2016–2025.

To address the multiple burden of malnutrition observed in the ECA region, especially in lower-middle-income countries (such as Kyrgyzstan and Tajikistan) as well as in upper-middle-income countries (such as Albania, Armenia and Georgia), it is necessary to focus on implementing nutrition-sensitive social protection programmes led by governments and international organizations.

The experiences of **school feedings programmes** in three countries (Armenia, Kyrgyzstan and Tajikistan) are good examples for those considering nutrition in their programmes. The school feeding programmes are strongly incorporated into national social protection strategies and are the basis for delivering nutrition-sensitive social protection to children and families. Governments should develop the institutional and budgetary frameworks needed to arrange the expanded programmes implemented in cooperation with international partners (WFP, FAO and others). This action requires capacity building, monitoring and coordination mechanisms throughout the food chain, including food production for home-grown school feeding.

### 2.2.3.6 Key conditions for integrating double-duty actions in food security and nutrition policy and programmes for children

In spite of the progress made by the ECA region in exclusive breastfeeding during the first 6 months of life, the prevalence remains below the global average. At the global level, exclusive breastfeeding has increased from 37.1 percent in 2012 to 43.8 percent in 2020 (see Part I of this report). This is particularly observed in EECCA Europe (from 20.7 percent in 2012 to 21.7 percent in 2020) and the Western Balkans (from 20.2 percent in 2012 to 26.7 percent in 2020). In addition to breastfeeding, the region faces problems with overweight and obesity among children.

One of the region's food security and nutrition concerns is linked to childhood malnutrition issues at all ages, outlining that every child and adolescent has the right to adequate nutrition. This assumes good nutrition for all children, including healthy diets and services and practices supporting their achievement. In the ECA region, malnutrition in all its forms and diet-related NCDs affect children of different ages, including in young childhood, but the periods of middle childhood and adolescence are regularly overlooked in international and national development priorities, policies and guidelines. This is clearly articulated in a recent UNICEF study (UNICEF ECARO, 2021).

The data show the coexistence of overweight and obesity together with micronutrient deficiencies and anaemia as significant nutrition issues. Anaemia is a serious global public health problem that particularly affects young children and pregnant women. It also raises serious concerns among adolescents. For example, in Armenia, the prevalence of anaemia in girls aged 15–19 years was 8.0 percent in the 2000 Demographic and Health Survey and rose to 17.1 percent in the 2015/16 Demographic and Health Survey. For boys aged 10–24 years is reported at 19.3 percent (UNICEF ECARO, 2021).

Micronutrient deficiencies, including deficiencies in vitamin D and iodine, are further nutrition challenges in this region. The presence of anaemia ranges from 12.5 percent in girls aged 10–24 in Montenegro to 36.5 percent in girls aged 15–19 years in Azerbaijan. The data also show the existence of vitamin D deficiency in Bosnia and Herzegovina and Türkiye and iodine deficiency in a few countries (such as Tajikistan), where fortification is needed (UNICEF ECARO, 2021).

A WHO report (2018a) found that three-quarters of the 53 WHO Member States in Europe have either **adopted or planned to develop a national child and adolescent health strategy**. The differences among these strategies exist in the nutritional efforts to address childhood obesity. Implementing school nutrition and school feeding programmes requires improvements in the food composition of school meals, the understanding and recognition of healthy diets, and adequate conditions around and in school or educational institutions and families. In addition, the WHO report found that two-thirds of countries have **policies supporting health promotion in schools**. Twenty of the 53 countries have no policy to address the availability of energy-dense foods high in fats, sugars and/or salt at school. In many countries, regulations on the marketing of these foods to children are not efficient in protecting them. High childhood obesity and low physical activity levels abound. Twenty-six of the 53 WHO Member States in Europe (54 percent) reported having legislation that restricts marketing to children, while 14 (29 percent) had none and seven (15 percent) had plans to introduce such legislation. Of the 26 countries reporting having laws or regulations restricting marketing to children, 25 provided a further explanation that revealed a broad spectrum of policies, including guidelines, rules and pledges. One in ten countries focused on advertisements, while two in three focused on the prohibition of marketing to children. TABLE 16 presents the findings of nine countries included in this review regarding the availability of child and adolescent health strategies, policies on "unhealthy" foods in schools, and regulations restricting marketing to children (WHO, 2018a).

The desk review did not find any national regulations in place in Montenegro, though they were listed as "available" in the WHO report. These results suggest that countries in the region are increasingly putting in place measures for controlling the presence of energy-dense foods that are high in fats, sugars and/or salt in schools, but they are less advanced in applying approaches to tackle wider marketing beyond the school environment.

The report also discovered that the majority of the 112 policy documents reviewed did not even mention adolescent nutrition or targets on overweight or obesity for this age group, though they had a strong focus on infants, children younger than 5 and women of reproductive age. NCD strategies tended to focus almost exclusively on adults. In addition, it should be mentioned that there is a lack of knowledge in society, especially among families, on their awareness for informing and outlining the importance of considering what and how it is appropriate to feed kids at home, in schools and outdoors. Unfortunately, malnutrition and hunger are a result of the

poverty and vulnerability of families. Many low-income households in rural areas find it difficult to meet their immediate basic needs and to achieve sustainable livelihoods, and they send their children to work to improve their livelihoods. Thus, child labour is a cross-cutting issue, interplaying with all of FAO's strategic programmes to end poverty and hunger (especially in rural areas, where child labour is frequent). Additional studies, research and effort are required, focused on these interconnected issues – particularly child labour in Central Asia.

Despite the overall progress made in the availability and diversity of food for consumption and food security and nutrition as a whole, the data also show significant differences across subregions and countries. Aside from this picture at the national average level, there may also be considerable inequities in consumption across population groups and regions within countries. These considerations call for intensifying efforts towards nutrition-sensitive agricultural, food and social protection policies and interventions targeted at vulnerable population groups and remote areas. Increasing access to affordable healthy diets should be taken seriously and should initiate comprehensive agrifood system interventions that promote healthy diets (FAO, 2019).

A double-duty action road map to overcome the double burden of malnutrition in Europe and Central Asia has been suggested (TABLE A6.2). Shifting to double-duty action policies means priority actions such as marketing policies and the reformulation of food safety and quality standards by using fiscal, labelling, packaging and transportation instruments. Particular attention must be given to the promotion of good nutrition among infants and children and exclusive breastfeeding up to 6 months. The provision of nutritious food in school settings also is a key point. Finally, nutrition counselling and body weight management are recommended in primary health care settings to highlight the importance of addressing the needs of people who are already overweight or obese.

Accordingly, for the consideration and implementation of the above in consolidated and coordinated forms globally, regionally and nationally, the following issues require immediate action through the review of platforms and strategies to update or develop policies and regulatory frameworks for a better healthy agrifood system, with governments in a leading role.

**TABLE 14**

Availability of child and adolescent health strategies and policies on "unhealthy" foods in schools and marketing to children, 2017

| Country | Child and adolescent health strategy | Policy on the availability of "unhealthy" foods in schools | Regulations restricting marketing to children |
|---|---|---|---|
| **Armenia** | In progress | Available | Available |
| **Azerbaijan** | Available | Available | In progress |
| **Bosnia and Herzegovina** | No strategy | In progress | Available |
| **Georgia** | Available | Available | No regulations |
| **Kyrgyzstan** | In progress | Available | Available |
| **North Macedonia** | No strategy | In progress | No regulations |
| **Montenegro** | Available | In progress | Available** |
| **Tajikistan** | In progress | Available | No regulations |
| **Türkiye** | Available | Available | In progress |

SOURCES: Adapted from:

i. WHO. 2018. *Better food and nutrition in Europe: a progress report monitoring policy implementation in the WHO European Region*. WHO/EURO:2018-3300-43059-60262. World Health Organization Regional Office for Europe. https://apps.who.int/iris/handle/10665/345370

ii. WHO. 2018. *Global nutrition policy review 2016-2017: Country progress in creating enabling policy environments for promoting healthy diets and nutrition*. Geneva, World Health Organization. https://apps.who.int/iris/handle/10665/275990

The consolidation and coordination of the agrifood system approach, entirely and by selected components, would be given to regional organizations and institutions dealing with related issues, such as agriculture, land, governance, trade, technology, capacity building and financing.

- Providing an enabling environment and mobilizing resources that allow agrifood systems to respond to nutritional national and local needs influenced by changing economic, social and environmental factors at all levels, under the umbrella of regional organizations and in close cooperation with governments.

- Promoting North–South Cooperation and South–South Cooperation and partnerships, including with the private sector, by facilitating cross-border issues, including agriculture, food production, water, energy, health, trade and transport through mutually beneficial trade agreements and technology transfer.

- Following up on the monitoring and collecting of data and building regularly updated databases with food security and nutrition components. Scaling up nutritional health indicators with the strong involvement of regional and national civil society organizations leading the process by organizing required consultations, raising awareness and building capacity.

- Sharing best practices, scaling up promising initiatives and successful programmes, and developing regional and national roadmaps for implementation across key actors and sectors within agrifood systems. There is a need to identify, promote and strengthen regional advocates, facilitate regional dialogue, support public–private partnerships for investments, and reduce costs across the board while improving access to regional information, strengthening the regulatory framework and building the necessary capacity. ■

**ARARAT REGION, ARMENIA**
First graders having lunch in the canteen of an FAO beneficiary school of a food security and nutrition project.
©FAO/Karen Minasyan

# 2.3 REORIENTING AGRICULTURAL PRODUCTION FOR ENVIRONMENTAL SUSTAINABILITY

## Key messages

- Significant commodity-specific support is linked to the overuse of inputs and land and water resources. More than USD 20 billion is spent on support to the commodities most harmful for the environment, of which USD 6.1 billion is spent in middle-income ECA countries. Commodity-specific support should be redirected towards measures that increase environmental sustainability and resilience.
- Total greenhouse gas emissions for agricultural food products for 17 middle-income countries in the ECA region[48] confirms a large share of emissions accounted for by animal-source food products (74 percent) and a small share from food crops (26 percent).
- Animal-source food products have much higher emissions intensities per kilo of produced food while also being an important source of protein and micronutrients. Emissions intensities indicate that there are big difference in greenhouse gas emissions between livestock and crops and among livestock products and crops. Policies on food and agriculture should consider country's specific emissions intensities by agricultural products when designing nutrition sensitive agrifood systems.
- Emissions from agriculture is strongly related to the size of agricultural production and land use. Thus, among the 17 countries of the ECA region, the four highest-producing countries (Türkiye, Uzbekistan, Ukraine and Kazakhstan) account for most of the total food agriculture-related greenhouse gas emissions. The repurposing of agricultural support is thus critical for reducing greenhouse gas emissions in the region while allowing these countries to continue to play a role in ensuring food security.
- Overall, pasture has a more significant impact on biodiversity than do crops in the 17 ECA countries, and biodiversity impacts from agriculture are slightly less concentrated than climate impacts (greenhouse gas emissions).
- Few of the countries in Eastern Europe and Central Asia have adequate water available for agriculture, and multiple countries face high levels of water stress. As with greenhouse gas emissions, livestock food products generally require more water than crop food products, and prioritizing crop products is therefore likely to reduce the overall water footprint from agriculture.

- Agro-environmental payments are insufficient to increase the environmental sustainability of production. Production-related support to producers often contributes to increased deforestation, soil erosion and chemical runoff into waterbodies. While the amount of spending on conservation programmes in European Union countries is missing, only a small number of countries have such policies in place in the EECCA and the Western Balkans. Repurposing agricultural policy to increase environmental sustainability is expected to become an important issue in the ECA region.
- The rise of self-sufficiency policies and protectionism across the world as a result of the impacts of the COVID-19 pandemic and the war in Ukraine also may increase the impact of agriculture on the environment due to increases in the types of support promoting the increased use of inputs with no consideration of sustainability.
- The initiative of the Global Framework for Climate Service (GFCS) in the ECA region (led by the World Meteorological Organization) can accelerate, coordinate and promote the development and application of climate services to assist decision-making at all levels in support of addressing climate-related risks. Specialized centres, such as the WMO Regional Agrometeorological Centre, commonly agreed upon by Europe, the Near East and the Caucasus could enhance the national, subregional and regional social-economic benefits from hydrometeorological services and products.
- The WMO Integrated Global Greenhouse Gas Information System can meet the expressed needs of decision-makers through information that guides valuable and additional emission reduction actions, building confidence in the role of atmospheric composition measurements as an essential part of the climate change mitigation tool-kit.
- Climate-smart agriculture is an approach that helps guide the actions needed to transform agricultural systems to support development and ensure food security in a changing climate. The use of weather and climate analyses and forecasts are an integral part of climate-smart agriculture and provide useful information to farmers and policymakers on agricultural production decisions and policies (OECD, 2022). It is critical that the agrifood sector's resilience to climate change be increased through targeted investments that reduce the sector's vulnerability to extreme weather events. Accelerating the adoption of climate technologies and practices is an essential piece of repurposing some of the current domestic support towards these objectives (FAO and EBRD, 2022a, 2022b).
- Promoting research and development in the region increases the potential to provide **innovative solutions** that address both environmental and agricultural productivity and farm income support goals. It should be a priority to reorient budgetary support towards research and development on emission-reducing technologies and production methods (OECD, 2022).

The most important synergies and trade-offs between the affordability of a healthy diet and climate (greenhouse gas emissions from agriculture) are observed when budgetary transfers are repurposed (see Section 2.2.1). Ensuring affordable healthy diets and pursuing environmental and climate goals can offer important synergies with the repurposing of food and agricultural support. Sections 2.2.2 and 2.2.3 discussed policies with a focus on food security and nutrition (cost and affordability of healthy diets). This section (2.3) aims to provide a detailed analysis of environmental and climate-related policies and incentives to achieve environmental and climate goals in the ECA region.

Agrifood systems significantly impact environmental conditions, if managed incorrectly, by changing them and, unfortunately, raise challenges: climate change, degradation of natural

resources, biodiversity losses and constraints, deforestation, air and water pollution, GHG emissions and landscape distortion. This proceeds in parallel with a growing population and increasing food demand and such external and internal factors as conflicts, natural disasters, consumer behaviours in food consumption, and food waste and loss. In addition, since 2020, the COVID-19 pandemic has complicated all these challenges, putting a burden on agrifood systems, food security, nutrition and livelihoods.

The promotion of agricultural production through agricultural support has its own cost on the environment. According to projections of the extreme scenario of – removing all agricultural support by 2030, GHG emissions would be expected to fall by 78.4 million tonnes of $CO_2$ (FAO, UNDP and UNEP, 2021). However, these benefits to the environment would come at the cost of reduced farm incomes. Crop production, livestock farming production and farm employment would drop by 1.3 percent, 0.2 percent and 1.27 percent, respectively. Farm employment in BRIC countries (Brazil, Russian Federation, India and China) would fall by 2.7 percent.

Therefore, improving agricultural support for sustainable development requires considering farmers' income and livelihood. More data, studies and research are needed to develop and implement appropriate action plans for moving towards the achievement of the SDGs.

One of the aspects of sustainable development related to agriculture is the GHG emissions level. According to data from the World Bank, GHG emissions in the ECA region decreased by 20 percent from 1990 to 2012. During that same period, worldwide figures showed an increase of 40 percent. However, in the region's high-income countries, the decrease has been smaller. The level of agricultural emissions remains high. Climate change and the improper use of natural resources by agriculture and other sectors have resulted in degradation and deforestation. Farmland area has decreased by almost a third (as of 2018), and forest areas have decreased by about 39 percent (as of 2020). These data send alarms regarding future opportunities to increase food production to satisfy food needs and affordability by putting pressure on overall sustainable development. According to figures from the 2020 Living Planet Report (World Wildlife Fund, 2020), the conversion of land to agriculture has led to 70 percent of global biodiversity loss and half of all tree cover loss.

## 2.3.1 REORIENTING AGRICULTURAL PRODUCTION FOR A HEALTHIER PLANET: AGRICULTURE'S IMPACT ON THE ENVIRONMENT IN EUROPE AND CENTRAL ASIA

### 2.3.1.1 Greenhouse gas emissions

In support of Paris Agreement Article 13 paragraph 7, an Integrated Global Greenhouse Gas Information System (IG3IS) was established by the seventeenth World Meteorological Congress. IG3IS focuses on existing use cases for which scientific and technical skill are proven and where IG3IS information can meet the expressed needs of the decision-makers who will value the information. The ultimate success criteria are that the IG3IS information is "used" and guides valuable and additional emission reduction actions, building confidence in the role of atmospheric composition measurements as an essential part of the climate change mitigation tool-kit.

Observed climate change already is affecting food security through increasing temperatures, changing precipitation patterns, and a greater frequency of some extreme events (Mbow *et al.,* 2019).

The atmospheric deposition of air pollutants is an important transport process for gases and particles from the atmosphere to terrestrial and aquatic surfaces and is the ultimate fate of most reactive chemical species in the atmosphere. It constitutes a key process in the functioning of the planet's systems, having important effects on the environment – notably on ecosystem health, agricultural production and climate change.

The main drivers of atmospheric deposition are the air concentrations or atmospheric pollutants and the capacity of soils, water bodies and vegetation to absorb these airborne pollutants. Many factors, both natural and anthropogenic (i.e. those emissions resulting from human activities), affect atmospheric deposition. Among the natural factors are precipitation, temperature, relative humidity and wind. Anthropogenic emissions of atmospheric pollutants affect the airborne concentrations of these constituents and can be a strong factor in driving atmospheric deposition, leading to significant increases in both wet and dry deposition of these pollutants.

The impact of atmospheric deposition on agriculture is manifold. When air concentrations of pollutants such as nitrogen, sulphur and carbon dioxide reach or exceed what is known as critical loads (i.e. the upper limit of harmful depositions), primarily for nitrogen and sulphur, increases in both wet and dry deposition of these pollutants can occur onto soils, leading to soil acidification, a form of soil degradation that can lead to permanent reduction in soil quality and in turn negatively impact crop yields. High concentrations of tropospheric ozone, particularly during episodes of high temperatures and/or drought conditions, can lead to increased ozone dry deposition onto plants and crops, causing visible plant injury, biomass loss and negative effects on photosynthesis and stomatal conductance. The impacts of ozone dry deposition on food production have been estimated to result in crop yield losses of wheat, rice, maize and soybeans of approximately 3–16 percent and production losses ranging from USD 14–26 billion. Additional yield losses to wheat, maize and soybeans of 0.1–11 percent are predicted by 2030.

On the other hand, atmospheric deposition of nitrogen and phosphorus, particularly in the form of nitrates and phosphates, can lead to the excessive enrichment of these nutrients in water bodies, resulting in a nutrient-induced increase in phytoplankton productivity known as eutrophication. Eutrophication can result in substantial ecological degradation in water bodies and associated streams, affecting irrigation water and thus affecting food production.

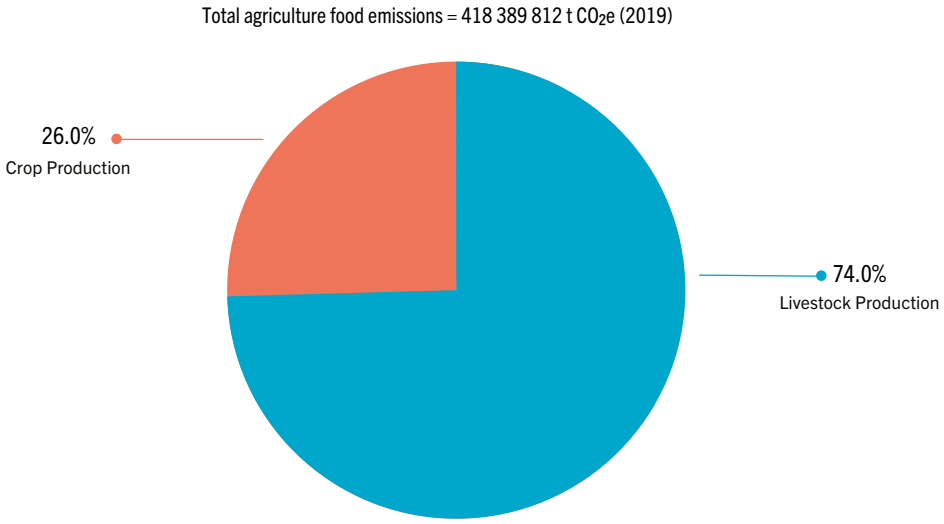
**Emission controls in Europe** during the 1980s and 1990s resulted in significant decreases in the air concentrations of sulphur and other pollutants. This, in turn, led to improvements in air quality and a decrease in soil acidification. Strict emission controls may lead to similar improvements in Central Asia. Likewise, a reduction in human-caused hydrocarbon and nitrogen oxide emissions may lead to reductions in ozone formation, which may in turn lead to decreases in ozone deposition and reductions in crop yield loss.

In 2020, agrifood systems accounted for 31 percent of global GHG emissions, with 65 percent of this amount coming from pre-supply chain production and 45 percent from within the farm gate (FAO, 2022e). Therefore, addressing emissions from agricultural food production at the farm level is critically important for reducing national emissions in the countries of Eastern Europe and Central Asia (see Annex 5).

FAO data show that total GHG emissions for agricultural food products for the 17 countries in the ECA region was equal to 220 million tonnes of $CO_2e$ in 2019 (FAO, 2022e). Food crops accounted for 26 percent of emissions, while animal-source food products accounted for 74 percent of emissions (FIGURE 35). Though animal-source food products account for just 17.6 percent of the total tonnes of food products, they generally have much higher emissions intensities than crops due to specific processes that emit methane in large amounts, such as enteric fermentation within ruminant digestive systems.

Total emissions largely result from the main commodity crops. In terms of individual food products, wheat accounts for the largest share (14.7 percent) of emissions, followed closely by beef meat (13.6 percent) and milk from cows (12.8 percent) (TABLE A5.1). The remaining food products among the top ten in terms of total emissions are sunflower seeds (10.0 percent), maize (6.8 percent), sugar beets (4.5 percent), sheep meat (3.8 percent), tomatoes (3.5 percent), rapeseed (2.4 percent) and potatoes (2.1 percent). Some products make significant contributions to emissions because they have high emissions intensities (e.g. beef meat and sheep meat),

**FIGURE 35**
Total agriculture food emissions in Europe and Central Asia




SOURCE: FAO. 2022. FAOSTAT: Emissions Totals. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/GT

and some products have large contributions even though they have relatively low emissions intensities, because they are produced in mass quantities (e.g. cow milk, wheat and maize).

The emissions intensity figures (TABLE 15) indicate large differences in GHG emissions among livestock and crop products, by product and by country, in Europe and Central Asia. For example, in Europe, sheep and cattle meat generate 27.72 kg $CO_2$eq/kg product and 17.16 kg $CO_2$eq/kg product, respectively – 185 and 114 times as much emissions as cereals, excluding rice (0.15 kg $CO_2$eq/kg product). The figures also indicate large differences in emissions intensity among livestock and crop products in Europe and Central Asia. For livestock products, chicken meat, eggs, pig meat and raw milk have much lower emissions intensities than meat products from cattle, goats and sheep. Rice (which is not a dominant food crop in most ECA countries) has a much higher emissions intensity than cereals, excluding rice.

In terms of emissions intensity by country, there also are large differences – with different potential reductions in GHG emissions – among countries. For example, the emissions intensity of cattle meat varies from 62.62 in North Macedonia to 4.47 in Albania. For cereals, excluding rice, the emissions intensity varies from 1.29 in Armenia to 0.09 in Kyrgyzstan. Country-specific agriculture programmes for the reduction of emissions intensity are important.

For each of the 17 countries, the percentage above or below the average emissions intensity for 14 products are reported by FAOSTAT. Türkiye (57.8 percent), Serbia (62.9 percent), Kazakhstan (68.9 percent) and Azerbaijan (74.9 percent) have the lowest relative average emissions intensities, with the average of emissions intensities across the 14 products being more than 20 percent below the average. By contrast, Bosnia and Herzegovina (246.5 percent), Georgia (139.4 percent) and Tajikistan (124.6 percent) have emissions intensity averages greater than 20 percent above the average across the 14 products.

According to FAOSTAT data, among the 17 countries, Türkiye (24 percent), Uzbekistan (17 percent), Ukraine (13 percent) and Kazakhstan (13 percent) accounted in 2019 for the largest share of total agriculture GHG emissions, representing nearly two-thirds of all emissions in the region (FIGURE 36).

Uzbekistan (10.7 percent) and Kazakhstan (9.6 percent) also have significant shares of the total emissions from food production, and these top four countries account for more than 80 percent of the emissions from food agriculture in the Eastern Europe and Central Asia subregions among the studied countries.

An environmental scenario produced by the European Commission shows that lower livestock density would have large environmental benefits, leading to a significant drop of greenhouse gas emissions in the European Union. Livestock density reduction also can reduce the European Union average ammonia emissions from agriculture and average nitrate pollution per hectare (European Commission, 2022).

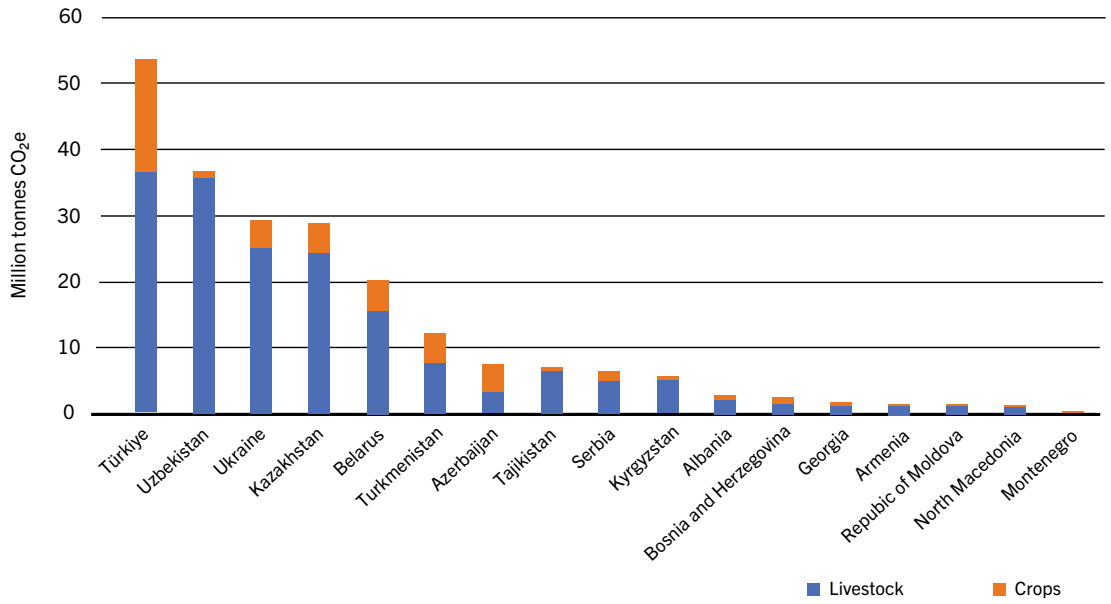
**TABLE 15**

Emissions intensity (kg $CO_2$eq/kg product), by food product and country, in selected countries of Europe and Central Asia, 2020

| | Cereals excluding rice | Rice | Hen eggs in shell, fresh | Meat of buffalo, fresh or chilled | Meat of cattle with the bone, fresh or chilled | Meat of chickens, fresh or chilled | Meat of goat, fresh or chilled | Meat of pig with the bone, fresh or chilled | Meat of sheep, fresh or chilled | Raw milk of buffalo | Raw milk of camel | Raw milk of cattle | Raw milk of goats | Raw milk of sheep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Albania** | 0.27 | | 0.94 | | 4.47 | 0.50 | 4.21 | 5.43 | 8.48 | 5.00 | | 1.57 | 2.00 | 4.99 |
| **Armenia** | 1.29 | | 0.39 | | 6.51 | 0.50 | 47.12 | 3.24 | 3.77 | | | 0.83 | 0.94 | 2.15 |
| **Azerbaijan** | 0.23 | 2.59 | 0.68 | | 11.63 | 0.51 | | 2.88 | 17.59 | | | 1.18 | 4.55 | 2.25 |
| **Belarus** | 0.26 | | 1.42 | | 18.13 | 0.18 | | 1.51 | 24.77 | | | 0.70 | 0.58 | |
| **Bosnia and Herzegovina** | 0.17 | 0.42 | 1.60 | | 33.27 | 0.67 | | 20.78 | 259.04 | | | 1.54 | 5.56 | |
| **Georgia** | 0.42 | | 0.38 | | 28.88 | 0.97 | 223.95 | 1.84 | 30.84 | 3.22 | | 1.58 | 0.75 | 4.14 |
| **Kazakhstan** | 0.11 | 1.35 | 0.42 | | 18.23 | 0.32 | 27.20 | 1.20 | 24.69 | | | 1.08 | 5.48 | 2.57 |
| **Kyrgyzstan** | 0.09 | 2.41 | 0.75 | | 13.58 | 0.03 | 13.54 | 0.27 | 16.27 | | | 1.31 | 108.71 | 2.65 |
| **Montenegro** | 0.70 | | 0.96 | | 8.80 | 0.14 | 70.96 | 2.59 | 26.64 | | | 1.56 | | 3.90 |
| **North Macedonia** | 0.20 | 2.20 | 1.35 | | 62.62 | 1.06 | | 3.18 | 18.25 | | | 1.28 | 1.13 | 5.42 |
| **Republic of Moldova** | 0.23 | | 1.29 | | 10.16 | 2.88 | | 1.14 | 19.95 | | | 1.09 | 1.38 | 10.10 |
| **Serbia** | 0.13 | | 1.02 | | 15.23 | 0.20 | 7.07 | 2.85 | 17.73 | | | 1.28 | 0.86 | 2.27 |
| **Tajikistan** | 0.17 | 1.59 | 0.57 | | 13.76 | 7.06 | | 0.01 | 13.95 | | | 2.77 | 0.92 | |
| **Turkiye** | 0.26 | 1.06 | 0.54 | 446.41 | 16.45 | 0.45 | 99.62 | | 49.04 | 2.02 | | 0.63 | 2.23 | 3.62 |
| **Turkmenistan** | 0.44 | 8.04 | 0.35 | | 15.85 | 2.25 | 51.63 | 4.66 | 24.18 | 0.00 | | 1.48 | | |
| **Ukraine** | 0.15 | 21.80 | 1.51 | | 8.45 | 0.27 | 6.83 | 1.73 | 19.81 | 0.00 | 10.46 | 0.71 | 0.54 | 6.27 |
| **Uzbekistan** | 0.24 | 3.92 | 0.45 | | 17.01 | 1.20 | | 1.39 | 24.12 | | | 0.96 | | |
| **Europe** | 0.15 | 4.27 | 0.87 | 47.87 | 17.16 | 0.27 | 13.84 | 1.74 | 27.72 | 0.08 | 10.35 | 0.64 | 0.91 | 3.27 |
| **Central Asia** | 0.15 | 2.95 | 0.45 | | 16.77 | 0.68 | 63.93 | 1.08 | 22.31 | | 1.15 | 2.29 | 2.61 | |

SOURCE: FAO. 2022. *Greenhouse gas emissions from agrifood systems: Global, regional and country trends, 2000–2020.* Rome. https://www.fao.org/3/cc2672en/cc2672en.pdf

**FIGURE 36**
Total food agriculture emissions in 17 countries in Europe and Central Asia, 2019




SOURCE: FAO. 2022. FAOSTAT: Emissions Totals. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/GT

### 2.3.1.2 Biodiversity impacts from food crops and pastures

The data for agricultural impacts on biodiversity are slightly murkier than for climate impacts, but the overall story of agricultural biodiversity impacts is similar to the story for climate impacts in the ECA region: a few large countries (Kazakhstan, Türkiye and Ukraine) and few major commodities and pastures have, by far, the greatest impacts on biodiversity (see ANNEX V).

Overall, pasturelands have a more significant impact on biodiversity than do crops, mainly due to their larger footprint, accounting for almost three-fourths of agricultural land.

However, in the case of biodiversity, there are some notable impacts in many of the smaller countries as well. Turkmenistan accounts for a significant share (more than 10 percent) of impacts, mainly due to impacts related to pasturelands, as does Uzbekistan. In addition, crops and pastures in Kyrgyzstan account for 4.6 percent of impacts on range rarity – namely, the range of species' distribution and their abundance – while the figure is 4.0 percent for Georgia. Therefore, overall, biodiversity impacts from agriculture are slightly less concentrated among countries than are climate impacts.

In addition, it should be kept in mind that biodiversity impacts are local and are not fungible between countries, as climate impacts are. In other words, a tonne of $CO_2e$ is the same from one country to the next, but that is not the case in terms of species, threatened species and range rarity.

The crops with the largest overall total impact are wheat, barley, maize, sunflower seeds, potatoes, rye, sugar beets and oats. However, the crops with relatively higher impact on a per yield basis are a different set of crops, with oil seed crops, nuts, pulses and spices having a proportionally higher impact. The crops with the lowest per yield impact on biodiversity are fruits and vegetables.

Given the above findings, the agricultural impacts on biodiversity present a more complex picture than do climate impacts. Therefore, it may be more challenging to identify widely applicable policy responses to agriculture impacts on biodiversity. However, considering the significant impact of pasture as a whole, it will be important to identify sustainable pasture management systems that mainstream biodiversity considerations as much as possible.

Beyond this, it will be necessary to examine in greater detail specific crop types in specific countries to identify biodiversity-friendly practices for those crop systems. For example, it will be important to develop and apply biodiversity-friendly agricultural practices related to wheat, barley, maize and sunflower seeds in Kazakhstan, Türkiye and Ukraine – but also, for example, for the production of lentils and chickpeas in Azerbaijan.

#### 2.3.1.3 Water footprints

Few of the countries in Eastern Europe and Central Asia have adequate water available for agriculture throughout their territories, and multiple countries face high levels of water stress (see Annex V).

In addition to being responsible for more GHG emissions, livestock food products generally require more water than crop food products. Therefore, prioritizing the production of crop food products over livestock food products is likely to reduce the overall water footprint from agriculture.

The crops with the smallest water footprint on a per yield basis are root vegetables and a variety of other fresh fruits and vegetables. The most water-efficient crops have water footprints approximately 20 to 40 times smaller than the crops with the largest water footprints.

However, given the relatively low level of deployment of water-efficient technologies across Eastern Europe and Central Asia, pursuing policies and initiatives that increase the use of water-efficient irrigation technologies may be a more effective policy, at least in the short and medium term, than trying to shift the production of specific crops to specific geographic areas based on their water footprint.

At the same time, it is logical that countries under high levels of water stress should seek to minimize the production of crops with large water footprints (and, conversely, promote crops with low water footprints).

### 2.3.2 POLICY DISCUSSION: REPURPOSING AGRICULTURAL SUPPORT WITH A FOCUS ON ENVIRONMENTAL PROTECTION AND SUSTAINABILITY

#### 2.3.2.1 Environmental and climate-related policies and incentives

Climate change is having an impact on the ability to produce food. It causes production variability and adds a burden to the costs of agricultural production and therefore impacts consumer prices and the affordability of food. Adapting to a changing climate and building resilience to adverse climate events increases production costs. On the other hand, the environmental requirements for agricultural producers to reduce the use of natural resources and purchased inputs and limit emissions (i.e. following COP-26) also create additional costs for agricultural producers.

Production-related support to producers often contributes to increased deforestation, soil erosion and chemical runoff into waterbodies. While the amount of spending on conservation programmes in the largest-spending countries – European Union countries, the United States of America and China – increased more than twofold from 2006 to 2016, only a small number of countries have such policies in place, and globally they amount to just 5 percent of agricultural

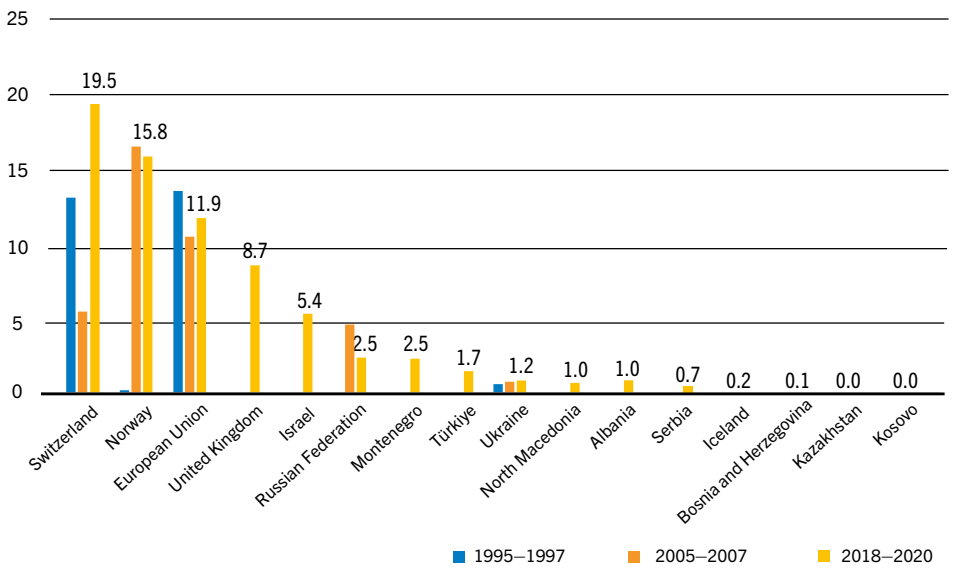
support (Searchinger *et al.,* 2020). In EECCA and Western Balkans countries, conservation programmes are almost non-existent in agricultural budgets, and there are no requirements to implement environmentally friendly practices for receiving public support as in the European Union, where agro-environmental payments account for 12 percent of agricultural expenditures. Only in the Russian Federation are substantial resources allocated to soil improvement (FIGURE 37), but since the goal of this programme is to expand production, its net effect on the environment may be negative.

The trend to increase the share of producers' subsidies in public support will exacerbate this issue by leaving fewer public funds to catalyse the innovations required for sustainable growth in agricultural productivity.

While European Union countries currently use the most intensive production practices among the ECA countries, with high use of fertilizers and pesticides, going forward, the growth of environmental impacts is expected to be the fastest in low- and middle-income countries as the European Union's Farm to Fork strategy aims to promote more sustainable food production. Therefore, repurposing agricultural policy to increase environmental sustainability is expected to become an important issue in the EECCA and Western Balkans countries.

The rise of self-sufficiency and protectionism across the world may also increase agriculture's impact on the environment. According to the World Bank, "by locating production where it is most efficient, global value chains can lower the net resource intensity of global agricultural production" (World Bank, 2020a), while a focus on self-sufficiency and local value chains can lead to the suboptimal use of resources. However, local and regional trade still can have an important contribution in enhancing food security and nutrition. It will therefore be necessary to achieve a combination of policies that supports local, sustainable production with appropriate trade.

**FIGURE 37**
Agro-environmental payments as a share of budget transfers to agriculture, percent




NOTE: All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

SOURCE: calculated from the OECD PSE Database. OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the challenges facing food systems*. https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2021_2d810e01-en

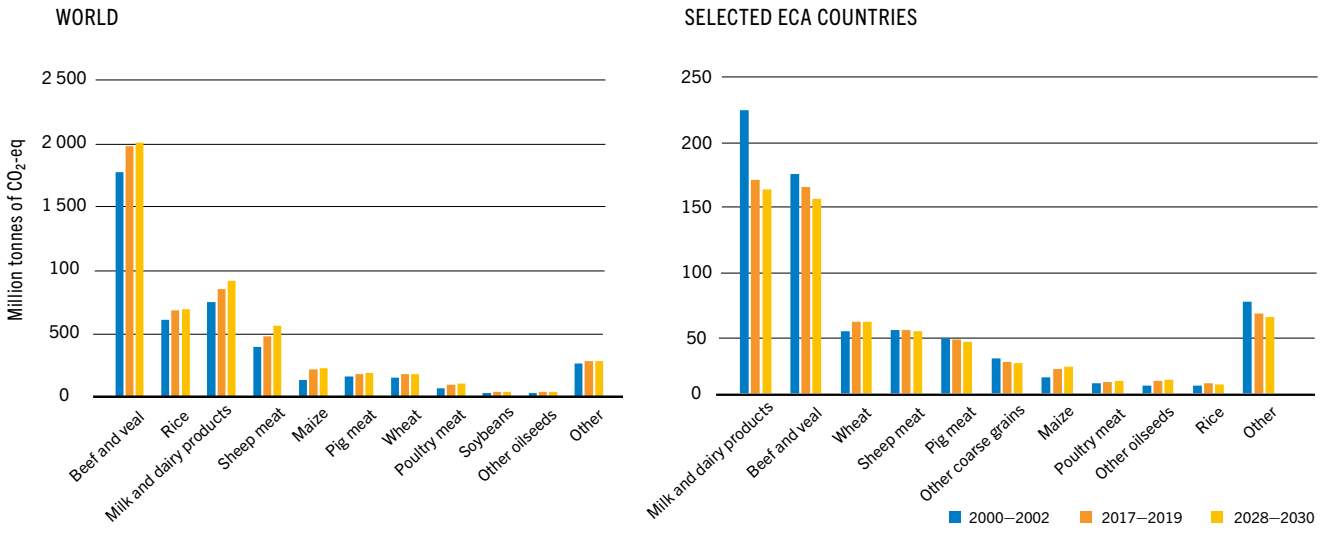
Agricultural policy plays an important role in mitigating adverse climate change effects. Insufficient investment in the mitigation of climate-related risks is another common problem for the Central Asian, Caucasus and Eastern European countries. According to an index measuring the strength of future climate change relative to today's natural variability, among the ECA countries, Albania, Armenia, Russian Federation and Türkiye would be the most exposed to climate change (Baettig, Wild and Imboden, 2007). Before the COVID-19 crisis, among ECA countries, Georgia, Republic of Moldova and Uzbekistan invested in agricultural technology for building climate change resilience (World Bank, 2020b). Those efforts are undermined by budget constraints and the prioritization of funding of producers' subsidies, which raises concerns for mid-term productivity growth in the Central Asian countries with high climate risks.

### 2.3.2.2 Agricultural support is higher for commodities with higher nature and climate footprints, but this varies

Generally, the agricultural commodities that generate the most emissions are ruminant meat, milk, cereals, pig meat, poultry meat and eggs (Mamun, Martin and Tokgoz, 2019). Beef, milk and rice are responsible for 70 percent of the world's agricultural carbon emissions (Mamun, Martin and Tokgoz, 2019). In ECA countries, due to the higher share of wheat in production and land use, the share of wheat in the total carbon footprint is higher than world's average (FIGURE 38).

In addition to GHG emissions, **increased land use for staple crop production** is an important nature footprint from agricultural production in ECA countries. Subsidies to crop producers support production extensification and provoke soil erosion, deforestation and water pollution.

**FIGURE 38**
Greenhouse gas emissions by commodity, million tonnes of $CO_2$-eq




NOTE: The selected ECA countries (those for which data is monitored in the Agricultural Outlook (OECD and FAO, 2021) include: European Union: the European Union (27) and the United Kingdom of Great Britain and Northern Ireland; European Free Trade Association (EFTA): Iceland, Norway, Switzerland; European countries in Eastern Europe, the Caucasus and Central Asia (EECCA Europe): Russian Federation and Ukraine; Central Asia: Kazakhstan; Other: Israel; the Western Balkans and Türkiye: Türkiye.

SOURCE: OECD & FAO. 2022. *OECD-FAO Agricultural Outlook (Edition 2021)*. OECD Publishing, Paris. https://www.oecd-ilibrary.org/agriculture-and-food/data/oecd-agriculture-statistics/oecd-fao-agricultural-outlook-edition-2021_4bde2d83-en

Mamun, Martin and Tokgoz (2019) calculated a relative incentive to produce emission-intensive commodities for OECD members and non-member countries and discovered that for OECD countries, the rate is 0.9, meaning that the incentives are higher for more environmentally friendly commodities. At the same time, in non-OECD members, the trend is moving towards support of more emission-intensive commodities (with the relative incentive at 1.05).

The relative incentive is calculated to produce emission-intensive commodities for ECA countries as measured by the ratio of the coefficients of support for more and less environmentally friendly commodities.[49]

Meat and dairy products have significant nature and climate footprints in ECA countries. Support for the production of those commodities is higher, on average, in the ECA region, with the relative incentive to produce emission-intensive commodities at 1.3. An average support to emission-intensive commodities was 13 percent of the value of their output, and for the rest of the commodities, only 10 percent. At the same time, this is mostly an issue in the high-income countries (European Union, Israel). In Central Asia, both commodity groups receive disincentives to produce, as support to agricultural producers is negative for rice and oil crops. In the Russian Federation and Ukraine, as well as in Türkiye, while support to milk and meat commodities is high in absolute values (transfers to beef producers were USD 1.9 billion, on average, in 2018–2020 in Türkiye and USD 1 billion in EECCA countries), support to less-emission-intensive oil crops (in Türkiye) and sugar (in Ukraine) is higher as a share of the value of the outputs of those commodities (TABLE 16, FIGURE 39).

**TABLE 16**

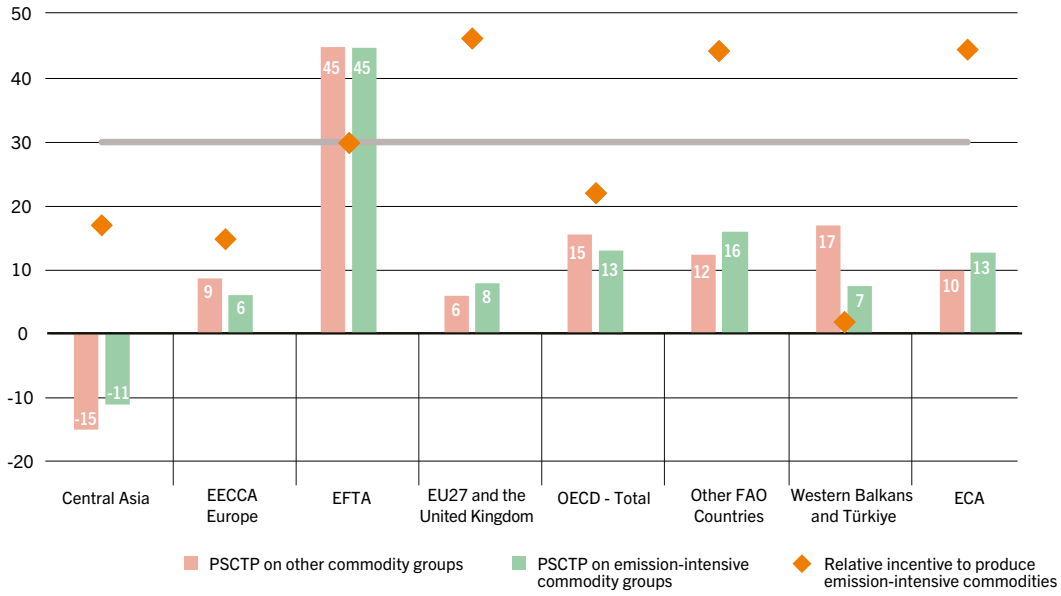
Support to producers largely benefit emission-intensive commodities, USD million

| | Central Asia | EECCA Europe | EFTA | EU (EU27 and the United Kingdom) | Other FAO countries | Western Balkans and Türkiye | ECA | ECA excluding high-income | ECA share in GHG emissions (percent) |
|---|---|---|---|---|---|---|---|---|---|
| **Beef and veal** | 215.8 | 860.8 | 816.0 | 9 895.9 | (1.0) | 1 970.0 | 13 757.5 | 3 046.5 | 27 |
| **Dairy** | 43.1 | 2 045.2 | 1 324.7 | 2 064.8 | 276.1 | (3.7) | 5 750.3 | 2 084.6 | 36 |
| **Cereals** | 51.1 | (907.6) | 226.0 | 1 166.4 | 3.0 | 216.2 | 755.0 | (640.4) | 16 |
| **Sheep meat** | 26.1 | | 118.4 | 642.4 | 34.2 | (1.3) | 819.8 | 24.8 | 8 |
| **Pig meat** | 7.2 | 1 672.5 | 630.7 | (131.4) | | | 2 179.0 | 1 679.7 | 7 |
| **Eggs** | 20.8 | 41.3 | 225.4 | (43.2) | 59.2 | (1.3) | 302.3 | 60.9 | |
| **Fruits and vegetables** | | | | - | 236.4 | 20.0 | 256.4 | 20.0 | 1 |
| **Oil crops** | (157.2) | (552.5) | 28.1 | - | | 586.3 | (95.3) | (123.5) | 2 |
| **Potatoes** | - | 130.9 | | 1 504.8 | - | 448.4 | 2 084.2 | 579.3 | |
| **Poultry meat** | 27.0 | 609.4 | 413.7 | 5 760.4 | 318.4 | 5.9 | 7 134.8 | 642.3 | 2 |
| **Rice** | (136.3) | | | 291.9 | | | 155.6 | (136.3) | 1 |
| **Sugar** | | 559.3 | 36.7 | 616.4 | | 91.0 | 1 303.4 | 650.3 | 0 |
| **Other** | (276.4) | 70.6 | 1 138.4 | 5 503.9 | 502.9 | 2 215.7 | 9 155.1 | 2 009.9 | 0 |

SOURCE: calculated from the OECD PSE Database. OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the challenges facing food systems*. Paris, https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2021_2d810e01-en

**FIGURE 39**

Agricultural support as a share of output is higher for commodities with higher nature and climate footprint, 2018–2020, percent




NOTE: Emission-intensive commodity groups include livestock, milk, cereals and rice. The selected ECA countries include: European Union: the European Union (27) and the United Kingdom; European Free Trade Association (EFTA): Iceland, Norway, Switzerland; European countries among Eastern Europe, Caucasus and Central Asia countries (EECCA Europe): Russian Federation, Republic of Moldova and Ukraine; Central Asia: Kazakhstan; other: Israel; the Western Balkans and Türkiye: Türkiye. Horizontal line indicates neutral effect of the policy (no incentives or disincentives).

SOURCE: calculated from the OECD PSE Database. OECD. 2021. *Agricultural Policy Monitoring and Evaluation 2021: Addressing the challenges facing food systems.* Paris, https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2021_2d810e01-en

**BOX 12**

Inclusive Rural Economic and Climate Resilience Programme in the Republic of Moldova

The ultimate purpose of this programme is to boost rural poor incomes and climate resilience. As a result, its development objective is to promote rural economic investment and to strengthen the capacity of rural society's poorest members to adapt to climate change. The project was designed to provide a variety of environmental advantages, both locally and globally. Notably, any improvement in agriculture land management will protect below-ground carbon stores, contributing to climate change mitigation. The adoption of reduced/no till agriculture residues as mulching and crop rotation will significantly improve soil carbon stocks and reduce $CO_2$ emissions to the atmosphere. This will furthermore protect biodiversity in agro-forestry ecosystems and reduce the risk of desertification.

The adoption of conservation agriculture systems and technologies sought to strengthen farmers' capacities for more sustainable food sufficiency and value-added production through climate-adaptive crop and animal production systems and market opportunities.

Overall, the impact assessment confirmed that the project delivered its three core outcomes synergistically, thus contributing to the economic and climatic resilience objective. These are: (i) the climate change resilience outcome, which enhanced the resilience and adaptive capacity of farmers to climate change, ensuring higher and more stable incomes; (ii) inclusive rural enterprise development, which enhanced access to relevant enterprise capacity development, financial services and entrepreneurship support; and (iii) infrastructure for rural resilience and growth, which improved productivity and competitiveness, increased investment and business opportunities, and improved market access and resilience against economic and climate shocks.

SOURCE: IFAD. 2022. Inclusive Rural Economic and Climate Resilience Programme. In: *IFAD*. https://www.ifad.org/en/web/operations/-/project/1100001669

### 2.3.2.3 Climate-smart agriculture

It is clear that the COVID-19 pandemic and its enduring impacts have complicated the goal of ending hunger, food insecurity and malnutrition by 2030. In the context in which hunger and malnutrition have reached critical levels – due to conflicts, climate variability and change, and economic slowdowns and downturns – it is time to take action and retransform food and agricultural policies to make healthy diets affordable and agrifood systems sustainable.

There is a growing need for deeper reflection on how to better address the global food security and nutrition situation.

Climate variability and climate change are the most obvious; we need to build more resilient food value chains to ensure the availability of safe and nutritious food. In addition, as climate variability and change are among the drivers behind the recent changes to food security and nutrition, the sciences of meteorology, climatology and agrometeorology could contribute significantly to the mitigation of the combined negative effects by helping policymakers carry out adequate food and agricultural policies.

**BOX 13**

Agricultural Modernization, Market Access and Resilience project in Georgia

The **Agricultural Modernization, Market Access and Resilience (AMMAR) project in Georgia** combined investments in irrigation and value chains to stimulate landscape restoration through improved assessment of climate risks to address wind and erosion that threaten irrigation systems while also upgrading priority value chains to allow smallholders better access to high-functioning value chains and agribusinesses. The project's focus on value chain development emphasized climate-smart agriculture that aimed to link and build the capacities of targeted value chains in "climate-smart good agricultural practices."

Out of the nine total value chains supported by AMMAR, four (100 percent of the target) are considered to be fully operational and maintaining sustainability – apples, peaches, vegetables (especially tomatoes, cucumbers and "greens") and berries. This has been achieved through a combination of rehabilitated infrastructure, the adoption of good agricultural and climate-smart agriculture practices, the modernization of primary production equipment and processing and value-addition facilities, and the optimization of sales channels.

A key component of AMMAR's climate-smart value chain approach was allowing beneficiaries to better cope with the effects of climate change to smooth their production while increasing their resilience. In so doing, producers were able to more reliably produce and enter climate-smart value chains. Key in allowing producers to connect to value chains was agricultural support in the form of training and grants that increased technical efficiency and facilitated entry. Importantly, the project also emphasized access to irrigation infrastructure and erosion prevention through the installation of windbreaks. A total of 53.1 km of windbreaks were planted, protecting more than 2 800 ha of land from wind erosion and potentially providing habitat for more than 1 000 animal species, with approximately 45 percent of the cost shared by beneficiaries. The windbreaks also complemented the value chain investments by providing protection to targeted crops. Moreover, the results of the AMMAR pilot windbreaks have been scaled up in the Windbreak Law institutionalizing this form of climate-sensitive agricultural support that increases the value of agricultural land by insulating it from the effects of climate change.

To ensure that the productivity enhancements generated by the introduction of climate-smart technologies were met by demand for the increased production and a well-functioning market, the project developed an extensive database of suppliers and products that will be made publicly available, and it introduced female beneficiaries to an online selling platform. Overall, the AMMAR project's irrigation beneficiaries reported improved physical access to markets that empowered them to change their selling practices, with 65 percent of beneficiaries compared to 51 percent in the control group opting to sell at regional markets instead of relying only on farm gate sales to traders or neighbours.

SOURCE: IFAD. 2022. Agriculture Modernization, Market Access and Resilience Project. In: *IFAD*. https://www.ifad.org/en/web/operations/-/project/1100001760

According to FAO, climate-smart agriculture is an approach that helps guide the actions needed to transform agricultural systems to support development and ensure food security in a changing climate. Climate-smart agriculture has three main objectives: sustainably increasing agricultural productivity and incomes; adapting and building resilience to climate change; and reducing and/or removing greenhouse gas emissions, where possible. The use of weather and climate analyses and forecasts are an integral part of climate-smart agriculture and provide useful information to farmers and policymakers on agricultural production decisions and policies.

Accelerating the adoption of climate technologies and practices is an essential piece of repurposing some of the current domestic support towards these objectives (FAO and EBRD, 2022a, 2022b). Examples of such technologies and practices include reduced tillage, conservation agriculture, pasture improvement, feed supplements that reduce livestock emissions while increasing productivity, drip irrigation, renewable energies (solar and biogas), and energy efficiency technologies along the value chain. Promoting these technologies would require policy incentives (including fiscal policy measures) and public investments in research, extension and other areas (FAO and EBRD, 2022a, 2022b).

FAO and the European Bank for Reconstruction and Development (EBRD) have developed a methodology to identify and prioritize climate technologies based on their potential to mitigate GHG emissions and contribute to climate change adaptation. The methodology includes the analysis of several criteria, including technical and financial parameters, economy-wide impacts and sustainability, and institutional and regulatory aspects. Rapid assessments of climate technologies have been conducted in the agrifood sectors of both Kazakhstan and Kyrgyzstan, providing recommendations and insights for policymakers on resetting policies and repurposing a portion of current domestic support to address the global threat of climate change and better meet nutritional and social needs through the adoption of green innovations that reduce both emissions and costs (FAO and EBRD, 2022a, 2022b).

### 2.3.3 GLOBAL FRAMEWORK FOR CLIMATE SERVICES AND REGIONAL AGROMETEOROLOGICAL CENTRE

The risks of climate variability and change and adaptation to climate change can be better managed through the development and incorporation of science-based climate information and prediction into planning, policy and practice on global, regional and national scales.

To facilitate the flow of weather, water, climate and related environment information, a global framework for weather, water, climate and related environmental services was established, with implementation at the regional and national levels through its five components.

- observations and monitoring
- climate services information system
- research, modelling and prediction
- user interface platform
- capacity development

Regional and national implementation of the global framework for weather, water, climate and related environmental services accelerates and coordinates the technically and scientifically sound implementation of measures. As a framework with broad participation, it enables the development and application of weather, water, climate and related environment services to assist decision-making at all levels in support of addressing related risks.

A concrete example of the global framework consists of the implementation of **acute undernutrition early warning systems**. These systems involve quasi-real time (updated monthly) monitoring and tailored predictions of the number of **cases of acute undernutrition among children younger than 5 years** in a country or region of interest. Previous studies (Goddard *et al.,* 2020; White *et al.,* 2022) suggest that a combination of climate and non-climate factors can be used in such early warning systems. For instance, variables such as total rainfall or frequency of rainy days can provide information on environmental conditions leading to **yield estimates of staple crops** and thus local food availability. In general, however, the entire year-to-year observed evolution of acute undernutrition is not captured; **non-climate factors** such as staple crops' yields and prices and the presence of gastrointestinal diseases in the target population tend to improve the predictive capacity and hence the usability of these early warning systems.

**Localized and tailored climate information services** must consider community perceptions, local knowledge, livelihood patterns, vulnerability, gender and reliable communication channels. Such a service motivates community participation and enhances two-way feedback. Enabling user interface platforms at the local level is crucial to ensuring the collection and synthesis of data on local weather, climate, crops and market price of crops and inputs; use of weather and climate forecasts; analysis and development of impact outlooks and management practices; and communication to end users. An example of successful user interfaces developed by WMO have been the Roving Seminars for Farmers on Weather and Climate. These seminars sensitize farmers about weather and climate information and its applications in operational farm management. These seminars also increase interactions between the local farming communities and the local staff of the national meteorological and hydrological services. This feedback is crucial for the national meteorological and hydrological services in providing better services for the agricultural community. Several of these seminars already have been organized in Central and Eastern European countries.

### Regional Agrometeorological Centre

A good example of a double-duty action is the establishment of a WMO Regional Agrometeorological Centre for Regional Association VI – commonly agreed upon by Europe, the Near East and the Caucasus – that could enhance the national, subregional and regional social-economic benefits from hydrometeorological services and products. This initiative was presented and launched on the occasion of the eighteenth session of the World Meteorological Congress in 2019. The Government of Romania has expressed its readiness to host it based on its national expertise.

The main purpose of the proposed **Regional Agrometeorological Centre** iis to determine the impact of weather and climate on current and future agricultural systems and to assess the needs for the long-term sustainability of the agricultural system in Europe, the Near East and the Caucasus. The centre will provide a full range of activities as its main outputs, including monitoring, observation, data exchange, processing, service and product delivery.

The issues of climate change and environment degradation, along with the impact of the COVID-19 pandemic, have put at risk the livelihoods of millions of people, particularly those living in rural areas. This is critical if the SDGs are to be met by 2030, because two-thirds of the extreme poor worldwide depend on agriculture for their livelihoods (Fuglie *et al.,* 2019), including smallholder farmers. It is challenging to link environmental protection with the growth and diversification of agrifood production while making it nutrition-sensitive.

### Recommendations

One of the major challenges of agrifood system development today is sustainability. Agrifood systems require a structural transformation towards more sustainable models that improve efficiency of use and the conservation and protection of resources and that enhance ecosystem

and community resilience. **The motivation to use sound natural resource management practices** at farm, local and national levels is key for effectively mitigating climate change and **enhancing innovative, integrated and climate-smart agrifood systems**.

- Governments and regional and global institutions, in consultation with business and NGO actors, should work towards putting in place a comprehensive set of policy measures that will enable a rapid and efficient transformation of agrifood systems that will promote rather than hinder the **affordability of healthy diets that include sustainability considerations**. The political push towards the new sustainable paradigm of agrifood production should not fuel an increase in food prices for consumers.

- One of the effective instruments for reducing GHG emissions is the implementation of **carbon pricing schemes**.[50] While in the European Union countries, the emission trading system is one of the oldest in the world, other countries in the region are in the early stages of carbon regulations.

- Promoting research and development in the region increases the potential to provide **innovative solutions that are two-pronged** to address both environmental and farm income support goals. Reorienting budgetary support for the provision of public goods and key general services, such as research and development on emission-reducing technologies and production methods, should support mitigation, foster sustainable productivity growth, and reduce income pressures from stricter environmental and emission standards. Country-level policy support related to science and innovation will be a priority, and FAO will provide a global platform to facilitate science and technology transfers among countries on mutually agreed terms, including through South–South and Triangular cooperation (FAO, 2022h).

- Redirecting agricultural support from maximizing the production of commodities will allow more funds to be spent on budget transfers directed toward agro-environmental objectives, such as sustainable land use and the efficient use of chemical inputs and water.

- Focusing on policies to promote the transition to nature- and climate-friendly production of vegetables, fruit and fish should be combined with **increasing efficiency and ensuring sustainability in meat production on natural pastures** through sustainable pasture management practices and improved technologies, breeds and veterinary care.

- While in high-income countries with high caloric intake (Western Europe), the reduction of meat consumption and the promotion of a plant-based diet may have a significant effect on the mitigation of GHG emissions, **it cannot be recommended** in the countries where a significant portion of calorie consumption comes from cereals and potatoes (EECCA countries), as meat is an important source of protein and micronutrients. ■

# ANNEX 1
# DATA TABLES FOR PART I

TABLE A1.1
**PREVALENCE OF UNDERNOURISHMENT, PERCENT**

| | 2000–2002 | 2004–2006 | 2009–2011 | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 |
|---|---|---|---|---|---|---|---|
| **WORLD** | **13.1** | **12.2** | **8.9** | **7.9** | **7.8** | **8.3** | **9.0** |
| **Europe and Central Asia** | 2.9 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Caucasus** | 16.2 | 6.0 | 3.4 | 3.3 | 3.0 | 3.0 | 3.0 |
| **Central Asia** | 16.3 | 14.2 | 7.4 | 3.9 | 2.9 | 2.9 | 2.9 |
| **CIS Europe and Ukraine** | 4.1 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **EFTA countries** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **EU27 and the United Kingdom** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Other** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Western Balkans** | 4.1 | 3.7 | 2.9 | 3.5 | 3.1 | 3.1 | 3.0 |
| **Albania** | 4.9 | 8.9 | 5.8 | 4.9 | 4.6 | 4.3 | 3.9 |
| **Andorra** | | | | | | | |
| **Armenia** | 26.1 | 12.3 | 3.7 | 2.8 | 2.9 | 3.1 | 3.5 |
| **Austria** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Azerbaijan** | 17.0 | 4.8 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Belarus** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Belgium** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Bosnia and Herzegovina** | 3.2 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Bulgaria** | 4.0 | 4.9 | 4.0 | 3.4 | 2.8 | 3.0 | 3.0 |
| **Croatia** | 6.8 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Cyprus** | 5.1 | 7.6 | 3.0 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Czechia** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Denmark** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Estonia** | 3.6 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Finland** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **France** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Georgia** | 7.7 | 4.1 | 6.7 | 8.1 | 7.8 | 7.8 | 7.6 |

**TABLE A1.1** (Continued)

| | 2000–2002 | 2004–2006 | 2009–2011 | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 |
|---|---|---|---|---|---|---|---|
| **Germany** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Greece** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Hungary** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Iceland** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Ireland** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Israel** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Italy** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Kazakhstan** | 6.5 | 7.3 | 3.2 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Kyrgyzstan** | 15.0 | 8.5 | 7.3 | 6.3 | 5.4 | 5.2 | 5.3 |
| **Latvia** | 4.6 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Lithuania** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Luxembourg** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Malta** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Montenegro** | 9.6 | 5.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Netherlands** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **North Macedonia** | 7.5 | 5.0 | 3.4 | 3.3 | 2.5 | 3.1 | 3.3 |
| **Norway** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Poland** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Portugal** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Republic of Moldova** | 24.6 | 34.3 | 17.6 | 6.2 | 6.2 | 6.5 | 6.7 |
| **Romania** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Russian Federation** | 4.0 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Serbia** | 3.1 | <2.5 | <2.5 | 4.1 | 3.8 | 3.7 | 3.3 |
| **Slovakia** | 6.1 | 5.5 | 5.0 | 5.8 | 3.9 | 3.7 | 3.8 |
| **Slovenia** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Spain** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Sweden** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Switzerland** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Tajikistan** | 40.9 | 38.7 | 26.5 | 15.8 | 9.9 | 9.2 | 8.6 |
| **Türkiye** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Turkmenistan** | 6.8 | 4.2 | 4.3 | 3.4 | 3.5 | 3.5 | 3.5 |
| **Ukraine** | 3.0 | <2.5 | <2.5 | <2.5 | <2.5 | 2.6 | 2.8 |
| **United Kingdom** | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| **Uzbekistan** | 17.9 | 14.7 | 5.4 | <2.5 | <2.5 | <2.5 | <2.5 |

SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

## TABLE A1.2
## NUMBER OF UNDERNOURISHED PEOPLE, MILLIONS

| | 2000–2002 | 2004–2006 | 2009–2011 | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 |
|---|---|---|---|---|---|---|---|
| **WORLD** | **816.7** | **798.9** | **620.6** | **581.8** | **594.1** | **643.5** | **702.7** |
| **Europe and Central Asia** | 25.2 | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Caucasus** | 2.5 | 0.9 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| **Central Asia** | 9.1 | 8.3 | 4.7 | 2.6 | 2.1 | 2.1 | 2.2 |
| **CIS Europe and Ukraine** | 8.6 | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **EFTA countries** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **EU27 and the United Kingdom** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Other** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Western Balkans** | 0.8 | 0.7 | 0.5 | 0.6 | 0.6 | 0.6 | 0.5 |
| **Albania** | 0.2 | 0.3 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| **Andorra** | | | | | | | |
| **Armenia** | 0.8 | 0.4 | 0.1 | <0.1 | <0.1 | <0.1 | 0.1 |
| **Austria** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Azerbaijan** | 1.4 | 0.4 | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Belarus** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Belgium** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Bosnia and Herzegovina** | 0.1 | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Bulgaria** | 0.3 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 |
| **Croatia** | 0.3 | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Cyprus** | <0.1 | <0.1 | <0.1 | n.r. | n.r. | n.r. | n.r. |
| **Czechia** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Denmark** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Estonia** | <0.1 | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Finland** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **France** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Georgia** | 0.3 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| **Germany** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Greece** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Hungary** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Iceland** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Ireland** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |

**TABLE A1.2** (Continued)

| | 2000–2002 | 2004–2006 | 2009–2011 | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 |
|---|---|---|---|---|---|---|---|
| **Israel** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Italy** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Kazakhstan** | 1.0 | 1.1 | 0.5 | n.r. | n.r. | n.r. | n.r. |
| **Kyrgyzstan** | 0.7 | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 |
| **Latvia** | 0.1 | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Lithuania** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Luxembourg** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Malta** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Montenegro** | <0.1 | <0.1 | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Netherlands** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **North Macedonia** | 0.2 | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Norway** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Poland** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Portugal** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Republic of Moldova** | 1.0 | 1.4 | 0.7 | 0.3 | 0.2 | 0.3 | 0.3 |
| **Romania** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Russian Federation** | 5.9 | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Serbia** | 0.3 | n.r. | n.r. | 0.4 | 0.3 | 0.3 | 0.3 |
| **Slovakia** | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 |
| **Slovenia** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Spain** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Sweden** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Switzerland** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Tajikistan** | 2.6 | 2.6 | 2.0 | 1.3 | 0.9 | 0.9 | 0.8 |
| **Türkiye** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Turkmenistan** | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| **Ukraine** | 1.4 | n.r. | n.r. | n.r. | n.r. | 1.1 | 1.2 |
| **United Kingdom** | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. | n.r. |
| **Uzbekistan** | 4.5 | 3.9 | 1.6 | n.r. | n.r. | n.r. | n.r. |

NOTE: n.r. = data not reported as the prevalence is less than 2.5 percent.

SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

## TABLE A1.3
## PREVALENCE OF FOOD INSECURITY, PERCENT

| | Moderate or severe food insecurity | | | | Severe food insecurity | | | |
|---|---|---|---|---|---|---|---|---|
| | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 |
| **WORLD** | **21.8** | **24.8** | **26.6** | **28.1** | **7.7** | **8.9** | **9.7** | **10.7** |
| **Europe and Central Asia** | 10.6 | 10.1 | 10.3 | 11.2 | 1.9 | 1.7 | 1.8 | 2.3 |
| **Caucasus** | 14.2 | 17.3 | 16.8 | 16.5 | 2.0 | 2.0 | 2.5 | 2.5 |
| **Central Asia** | 9.2 | 13.6 | 14.9 | 17.1 | 1.7 | 2.4 | 3.1 | 3.9 |
| **CIS Europe and Ukraine** | 11.1 | 10.1 | 9.7 | 9.8 | 1.0 | 0.8 | 0.9 | 1.0 |
| **EFTA countries** | 4.8 | 3.6 | 2.9 | 3.1 | 1.4 | 0.9 | 0.6 | 0.7 |
| **EU27 and the United Kingdom** | 7.7 | 6.3 | 6.2 | 6.3 | 1.6 | 1.2 | 1.2 | 1.5 |
| **Other** | 27.1 | 27.2 | 30.3 | 35.6 | 5.2 | 5.5 | 6.2 | 7.5 |
| **Western Balkans** | 16.0 | 16.1 | 15.9 | 17.4 | 3.3 | 3.4 | 3.8 | 4.5 |
| **Albania** | 38.8 | 37.1 | 33.8 | 30.9 | 10.0 | 10.0 | 8.8 | 7.7 |
| **Andorra** | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Armenia** | n.a. | 14.8 | 12.7 | 10.7 | n.a. | 1.1 | 1.1 | 1.0 |
| **Austria** | 5.5 | 3.6 | 3.0 | 3.3 | 1.1 | 1.1 | 0.9 | 1.3 |
| **Azerbaijan** | 5.9 | 9.6 | 8.9 | 9.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Belarus** | | | | | | | | |
| **Belgium** | n.a. | n.a. | 3.7 | 4.8 | n.a. | n.a. | 1.1 | 1.3 |
| **Bosnia and Herzegovina** | 9.6 | 9.2 | 10.0 | 12.6 | 1.5 | 1.5 | 2.0 | 2.8 |
| **Bulgaria** | 14.9 | 12.5 | 13.2 | 15.5 | 1.9 | 1.9 | 2.4 | 2.9 |
| **Croatia** | 6.5 | 10.0 | 11.0 | 11.4 | 0.6 | 0.9 | 1.3 | 1.6 |
| **Cyprus** | | | | | | | | |
| **Czechia** | 5.8 | 3.8 | 4.2 | 5.8 | 0.7 | <0.5 | 0.8 | 1.6 |
| **Denmark** | 5.9 | 5.2 | 5.0 | 5.5 | 1.0 | 1.1 | 1.1 | 1.4 |
| **Estonia** | 9.5 | 7.4 | 7.9 | 7.9 | 0.9 | 0.9 | 0.8 | 0.8 |
| **Finland** | 9.3 | 7.7 | 8.0 | 8.8 | 2.4 | 2.0 | 1.9 | 2.4 |
| **France** | 6.8 | 6.0 | 5.8 | 5.9 | 1.6 | 0.7 | 0.7 | 1.0 |
| **Georgia** | 31.8 | 38.3 | 39.7 | 38.8 | 7.0 | 7.3 | 9.5 | 9.5 |
| **Germany** | 4.1 | 3.5 | 3.4 | 3.5 | 1.0 | 0.7 | 0.7 | 1.1 |
| **Greece** | 15.8 | 13.3 | 8.6 | 6.8 | 2.6 | 2.3 | 1.7 | 1.6 |
| **Hungary** | 11.3 | 6.9 | 8.6 | 10.6 | 1.4 | 0.8 | 1.4 | 2.1 |
| **Iceland** | 6.4 | 7.2 | 6.6 | 6.3 | 1.7 | 1.5 | 1.5 | 1.3 |

**TABLE A1.3** (Continued)

| | Moderate or severe food insecurity | | | | Severe food insecurity | | | |
|---|---|---|---|---|---|---|---|---|
| | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 |
| **Ireland** | 8.9 | 7.2 | 8.3 | 6.5 | 3.4 | 3.5 | 4.3 | 3.2 |
| **Israel** | 11.0 | 12.9 | 13.7 | 14.2 | 1.3 | 1.7 | 1.9 | 2.0 |
| **Italy** | 8.6 | 7.2 | 6.7 | 6.3 | 1.2 | 1.1 | 1.2 | 1.9 |
| **Kazakhstan** | n.a. | 2.1 | 2.3 | 2.7 | n.a. | <0.5 | <0.5 | <0.5 |
| **Kyrgyzstan** | n.a. | 6.3 | 6.4 | 6.6 | n.a. | 0.8 | 0.9 | 1.0 |
| **Latvia** | 9.9 | 9.5 | 10.2 | 9.4 | 0.6 | 0.6 | 0.7 | 0.7 |
| **Lithuania** | 15.3 | 10.7 | 11.3 | 9.8 | 2.5 | 1.1 | 1.7 | 1.9 |
| **Luxembourg** | 4.7 | 3.3 | 3.1 | 2.8 | 1.8 | 0.9 | 0.8 | 0.7 |
| **Malta** | 5.9 | 4.4 | 4.3 | 5.2 | 1.5 | 0.8 | 0.9 | 1.4 |
| **Montenegro** | 12.6 | 12.9 | 13.5 | 14.0 | 2.1 | 2.2 | 2.8 | 3.4 |
| **Netherlands** | 5.7 | 5.1 | 4.7 | 4.4 | 1.5 | 1.7 | 1.4 | 1.4 |
| **North Macedonia** | 15.1 | 14.4 | 17.7 | 20.9 | 3.6 | 3.2 | 5.0 | 6.0 |
| **Norway** | 4.8 | 4.8 | 4.1 | 4.3 | 1.1 | 1.1 | 1.0 | 1.0 |
| **Poland** | 8.9 | 4.3 | 5.8 | 7.4 | 1.8 | <0.5 | <0.5 | 0.9 |
| **Portugal** | 14.7 | 10.7 | 11.5 | 11.6 | 4.1 | 2.9 | 3.2 | 3.2 |
| **Republic of Moldova** | 19.3 | 27.5 | 27.2 | 24.9 | 1.6 | 4.0 | 4.5 | 4.9 |
| **Romania** | 19.3 | 14.5 | 13.9 | 13.4 | 5.6 | 3.4 | 3.4 | 3.7 |
| **Russian Federation** | 8.2 | 7.1 | 6.0 | 5.5 | 0.7 | <0.5 | <0.5 | <0.5 |
| **Serbia** | 11.4 | 12.4 | 12.0 | 14.1 | 1.7 | 2.0 | 2.6 | 3.8 |
| **Slovakia** | 6.2 | 5.0 | 6.0 | 7.7 | 1.1 | 0.8 | 1.1 | 1.6 |
| **Slovenia** | 12.3 | 10.2 | 8.2 | 7.4 | 0.9 | <0.5 | <0.5 | 0.6 |
| **Spain** | 7.1 | 8.6 | 8.8 | 8.6 | 1.1 | 1.8 | 1.8 | 2.0 |
| **Sweden** | 4.5 | 5.7 | 5.3 | 5.3 | 0.8 | 1.2 | 1.2 | 1.3 |
| **Switzerland** | 4.8 | 2.6 | 2.0 | 2.2 | 1.5 | 0.7 | <0.5 | <0.5 |
| **Tajikistan** | | | | | | | | |
| **Türkiye** | | | | | | | | |
| **Turkmenistan** | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Ukraine** | 19.8 | 18.3 | 19.9 | 22.7 | 2.0 | 1.6 | 2.5 | 3.2 |
| **United Kingdom** | 6.3 | 4.9 | 3.9 | 3.5 | 1.9 | 1.3 | 0.7 | 1.1 |
| **Uzbekistan** | 11.2 | 17.2 | 19.7 | 23.5 | 1.9 | 2.8 | 4.0 | 5.6 |

NOTE: n.a. = data not available.

SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022.https://www.fao.org/faostat/en/#data/FS

## TABLE A1.4
## NUMBER OF FOOD INSECURE PEOPLE, MILLIONS

| | Moderately or severely food insecure | | | | Severely food insecure | | | |
|---|---|---|---|---|---|---|---|---|
| | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 |
| **WORLD** | **1 609.1** | **1 888.9** | **2 053.0** | **2 187.4** | **569.3** | **675.4** | **751.5** | **830.2** |
| **Europe and Central Asia** | 97.2 | 93.7 | 96.1 | 104.2 | 17.1 | 15.6 | 16.9 | 21.1 |
| **Caucasus** | 2.3 | 2.9 | 2.9 | 2.8 | 0.3 | 0.3 | 0.4 | 0.4 |
| **Central Asia** | 6.3 | 9.8 | 10.9 | 12.7 | 1.1 | 1.8 | 2.2 | 2.9 |
| **CIS Europe and Ukraine** | 22.6 | 20.6 | 19.7 | 19.9 | 2.1 | 1.6 | 1.8 | 2.1 |
| **EFTA countries** | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.1 | <0.1 | 0.1 |
| **EU27 and the United Kingdom** | 39.0 | 32.4 | 31.5 | 32.1 | 8.3 | 6.2 | 6.0 | 7.8 |
| **Other** | 23.5 | 24.7 | 27.9 | 33.2 | 4.5 | 5.0 | 5.7 | 6.9 |
| **Western Balkans** | 2.9 | 2.9 | 2.8 | 3.1 | 0.6 | 0.6 | 0.7 | 0.8 |
| **Albania** | 1.1 | 1.1 | 1.0 | 0.9 | 0.3 | 0.3 | 0.3 | 0.2 |
| **Andorra** | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Armenia** | n.a. | 0.4 | 0.4 | 0.3 | n.a. | <0.1 | <0.1 | <0.1 |
| **Austria** | 0.5 | 0.3 | 0.3 | 0.3 | <0.1 | <0.1 | <0.1 | 0.1 |
| **Azerbaijan** | 0.6 | 1.0 | 0.9 | 1.0 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Belarus** | | | | | | | | |
| **Belgium** | n.a. | n.a. | 0.4 | 0.6 | n.a. | n.a. | 0.1 | 0.1 |
| **Bosnia and Herzegovina** | 0.3 | 0.3 | 0.3 | 0.4 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Bulgaria** | 1.1 | 0.9 | 0.9 | 1.1 | 0.1 | 0.1 | 0.2 | 0.2 |
| **Croatia** | 0.3 | 0.4 | 0.5 | 0.5 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Cyprus** | | | | | | | | |
| **Czechia** | 0.6 | 0.4 | 0.4 | 0.6 | <0.1 | <0.1 | <0.1 | 0.2 |
| **Denmark** | 0.3 | 0.3 | 0.3 | 0.3 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Estonia** | 0.1 | <0.1 | 0.1 | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Finland** | 0.5 | 0.4 | 0.4 | 0.5 | 0.1 | 0.1 | 0.1 | 0.1 |
| **France** | 4.4 | 3.9 | 3.7 | 3.9 | 1.0 | 0.5 | 0.4 | 0.7 |
| **Georgia** | 1.3 | 1.5 | 1.6 | 1.5 | 0.3 | 0.3 | 0.4 | 0.4 |
| **Germany** | 3.3 | 2.9 | 2.9 | 2.9 | 0.8 | 0.6 | 0.6 | 0.9 |
| **Greece** | 1.7 | 1.4 | 0.9 | 0.7 | 0.3 | 0.2 | 0.2 | 0.2 |
| **Hungary** | 1.1 | 0.7 | 0.8 | 1.0 | 0.1 | <0.1 | 0.1 | 0.2 |
| **Iceland** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

**TABLE A1.4** (Continued)

| | Moderately or severely food insecure | | | | Severely food insecure | | | |
|---|---|---|---|---|---|---|---|---|
| | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 | 2014–2016 | 2017–2019 | 2018–2020 | 2019–2021 |
| **Ireland** | 0.4 | 0.3 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 |
| **Israel** | 0.9 | 1.1 | 1.2 | 1.2 | 0.1 | 0.1 | 0.2 | 0.2 |
| **Italy** | 5.2 | 4.4 | 4.0 | 3.8 | 0.7 | 0.7 | 0.7 | 1.2 |
| **Kazakhstan** | n.a. | 0.4 | 0.4 | 0.5 | n.a. | <0.1 | <0.1 | <0.1 |
| **Kyrgyzstan** | n.a. | 0.4 | 0.4 | 0.4 | n.a. | <0.1 | <0.1 | <0.1 |
| **Latvia** | 0.2 | 0.2 | 0.2 | 0.2 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Lithuania** | 0.4 | 0.3 | 0.3 | 0.3 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Luxembourg** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Malta** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Montenegro** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Netherlands** | 1.0 | 0.9 | 0.8 | 0.8 | 0.3 | 0.3 | 0.2 | 0.2 |
| **North Macedonia** | 0.3 | 0.3 | 0.4 | 0.4 | <0.1 | <0.1 | 0.1 | 0.1 |
| **Norway** | 0.2 | 0.3 | 0.2 | 0.2 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Poland** | 3.4 | 1.6 | 2.2 | 2.8 | 0.7 | 0.2 | 0.2 | 0.4 |
| **Portugal** | 1.5 | 1.1 | 1.2 | 1.2 | 0.4 | 0.3 | 0.3 | 0.3 |
| **Republic of Moldova** | 0.8 | 1.1 | 1.1 | 1.0 | <0.1 | 0.2 | 0.2 | 0.2 |
| **Romania** | 3.8 | 2.8 | 2.7 | 2.6 | 1.1 | 0.7 | 0.6 | 0.7 |
| **Russian Federation** | 11.9 | 10.3 | 8.8 | 8.0 | 1.0 | 0.7 | 0.4 | 0.4 |
| **Serbia** | 1.0 | 1.1 | 1.1 | 1.2 | 0.2 | 0.2 | 0.2 | 0.3 |
| **Slovakia** | 0.3 | 0.3 | 0.3 | 0.4 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Slovenia** | 0.3 | 0.2 | 0.2 | 0.2 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Spain** | 3.3 | 4.0 | 4.1 | 4.0 | 0.5 | 0.8 | 0.9 | 0.9 |
| **Sweden** | 0.4 | 0.6 | 0.5 | 0.5 | <0.1 | 0.1 | 0.1 | 0.1 |
| **Switzerland** | 0.4 | 0.2 | 0.2 | 0.2 | 0.1 | <0.1 | <0.1 | <0.1 |
| **Tajikistan** | | | | | | | | |
| **Türkiye** | | | | | | | | |
| **Turkmenistan** | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Ukraine** | 8.9 | 8.1 | 8.7 | 9.9 | 0.9 | 0.7 | 1.1 | 1.4 |
| **United Kingdom** | 4.1 | 3.3 | 2.6 | 2.3 | 1.2 | 0.9 | 0.5 | 0.8 |
| **Uzbekistan** | 3.5 | 5.6 | 6.5 | 7.9 | 0.6 | 0.9 | 1.3 | 1.9 |

NOTE: n.a. = data not available.

SOURCE: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

## TABLE A1.5
## PREVALENCE OF STUNTING AMONG CHILDREN UNDER 5, PERCENT

| | 2000 | 2005 | 2010 | 2015 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|
| **WORLD** | **33.1** | **30.7** | **27.7** | **24.4** | **22.9** | **22.4** | **22.0** |
| **Europe and Central Asia** | 14.2 | 11.8 | 10.2 | 8.9 | 8.0 | 7.7 | 7.3 |
| **Caucasus** | 21.5 | 20.6 | 16.2 | 14.0 | 13.4 | 13.2 | 13.1 |
| **Central Asia** | 29.0 | 22.3 | 17.1 | 12.8 | 10.9 | 10.4 | 10.0 |
| **CIS Europe and Ukraine** | 18.9 | 17.4 | 16.1 | 15.6 | 14.9 | 14.3 | 13.1 |
| **EFTA countries** | | | | | | | |
| **EU27 and the United Kingdom** | 3.8 | 3.5 | 3.2 | 3.0 | 2.9 | 2.9 | 2.8 |
| **Other** | | | | | | | |
| **Western Balkans** | 14.9 | 12.9 | 9.9 | 8.2 | 7.4 | 7.1 | 6.8 |
| **Albania** | 29.7 | 27.5 | 20.3 | 14.3 | 11.4 | 10.4 | 9.6 |
| **Armenia** | 17.7 | 19.3 | 15.6 | 12.0 | 10.0 | 9.5 | 9.1 |
| **Azerbaijan** | 24.3 | 23.1 | 18.4 | 16.5 | 16.3 | 16.3 | 16.3 |
| **Belarus** | 4.9 | 4.5 | 4.1 | 3.9 | 3.9 | 3.9 | 3.9 |
| **Belgium** | 4.0 | 3.4 | 2.8 | 2.5 | 2.4 | 2.4 | 2.3 |
| **Bosnia and Herzegovina** | 12.7 | 10.9 | 9.8 | 9.0 | 9.1 | 9.1 | 9.1 |
| **Bulgaria** | 10.0 | 9.1 | 7.9 | 7.1 | 6.8 | 6.6 | 6.4 |
| **Czechia** | 2.7 | 2.6 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Estonia** | 2.1 | 1.6 | 1.4 | 1.3 | 1.2 | 1.2 | 1.2 |
| **Georgia** | 16.2 | 14.3 | 10.3 | 7.6 | 6.3 | 5.9 | 5.7 |
| **Germany** | 1.5 | 1.4 | 1.4 | 1.5 | 1.6 | 1.6 | 1.6 |
| **Greece** | 2.7 | 2.3 | 2.1 | 2.1 | 2.2 | 2.2 | 2.2 |
| **Kazakhstan** | 17.7 | 15.3 | 12.3 | 9.1 | 7.6 | 7.1 | 6.7 |
| **Kyrgyzstan** | 29.9 | 23.1 | 17.7 | 13.6 | 12.1 | 11.7 | 11.4 |
| **Montenegro** | 8.7 | 8.5 | 8.3 | 8.0 | 8.1 | 8.1 | 8.1 |
| **Netherlands** | 1.3 | 1.4 | 1.5 | 1.5 | 1.6 | 1.6 | 1.6 |
| **North Macedonia** | 8.8 | 8.7 | 6.6 | 5.0 | 4.4 | 4.2 | 4.1 |
| **Poland** | 3.3 | 2.7 | 2.4 | 2.3 | 2.3 | 2.3 | 2.3 |
| **Portugal** | 4.9 | 4.5 | 4.0 | 3.6 | 3.4 | 3.3 | 3.3 |
| **Republic of Moldova** | 12.3 | 9.9 | 7.8 | 6.2 | 5.4 | 5.1 | 4.9 |
| **Romania** | 13.7 | 12.7 | 11.1 | 10.2 | 10.0 | 9.9 | 9.7 |
| **Serbia** | 9.7 | 8.1 | 6.5 | 6.0 | 5.7 | 5.5 | 5.3 |
| **Tajikistan** | 41.6 | 36.9 | 29.5 | 21.2 | 17.0 | 16.0 | 15.3 |
| **Turkmenistan** | 27.4 | 20.4 | 14.7 | 10.4 | 8.5 | 8.0 | 7.6 |
| **Ukraine** | 22.4 | 20.8 | 19.2 | 18.9 | 18.3 | 17.5 | 15.9 |
| **Uzbekistan** | 29.5 | 21.0 | 15.8 | 12.1 | 10.7 | 10.3 | 9.9 |

SOURCE: UNICEF, WHO & World Bank. 2021. *Levels and Trends in Child Malnutrition. UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates. Key findings of the 2021 edition.* https://data.unicef.org/resources/jme-report-2021

## TABLE A1.6
## PREVALENCE OF WASTING AMONG CHILDREN UNDER 5, PERCENT

| | 2000 | 2005 | 2010 | 2015 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|
| **WORLD** | | | | | | | **6.7** |
| **Europe and Central Asia** | | | | | | | 1.9 |
| **Caucasus** | | | | | | | 2.3 |
| **Central Asia** | | | | | | | 2.3 |
| **CIS Europe and Ukraine** | | | | | | | |
| **EFTA countries** | | | | | | | |
| **EU27 and the United Kingdom** | | | | | | | 0.7 |
| **Other** | | | | | | | 1.7 |
| **Western Balkans** | | | | | | | 2.5 |
| **Albania** | 12.2 | 7.3 | | | | | |
| **Armenia** | 2.5 | 5.4 | 4.1 | | | | |
| **Azerbaijan** | 9.0 | | | | | | |
| **Belarus** | | 2.2 | | | | | |
| **Bosnia and Herzegovina** | 7.4 | | | | | | |
| **Georgia** | | 3.0 | | | 0.6 | | |
| **Kazakhstan** | | | 4.1 | 3.1 | | | |
| **Kyrgyzstan** | | | | | 2.0 | | |
| **Montenegro** | | 4.2 | | | 2.2 | | |
| **North Macedonia** | | 3.4 | | | | 3.4 | |
| **Republic of Moldova** | | 5.8 | | | | | |
| **Romania** | 4.3 | | | | | | |
| **Serbia** | | 4.5 | 3.5 | | | 2.6 | |
| **Tajikistan** | 9.4 | 8.7 | | | | | |
| **Türkiye** | | | | | 1.7 | | |
| **Turkmenistan** | 7.1 | | | 4.2 | | 4.1 | |
| **Ukraine** | 8.2 | | | | | | |

SOURCE: UNICEF, WHO & World Bank. 2021. *Levels and Trends in Child Malnutrition. UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates. Key findings of the 2021 edition.* https://data.unicef.org/resources/jme-report-2021

## TABLE A1.7
## PREVALENCE OF OVERWEIGHT AMONG CHILDREN UNDER 5, PERCENT

| | 2000 | 2005 | 2010 | 2015 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|
| **WORLD** | **5.4** | **5.7** | **5.6** | **5.6** | **5.7** | **5.7** | **5.7** |
| **Europe and Central Asia** | 9.0 | 10.4 | 10.4 | 8.5 | 7.5 | 7.3 | 7.1 |
| **Caucasus** | 10.2 | 12.9 | 13.1 | 10.6 | 9.6 | 9.4 | 9.3 |
| **Central Asia** | 9.6 | 10.8 | 9.5 | 6.9 | 6.0 | 5.8 | 5.6 |
| **CIS Europe and Ukraine** | 19.7 | 24.4 | 23.8 | 18.2 | 15.5 | 14.9 | 14.4 |
| **EFTA countries** | | | | | | | |
| **EU27 and the United Kingdom** | 5.0 | 5.5 | 5.9 | 5.7 | 5.7 | 5.7 | 5.7 |
| **Other** | | | | | | | |
| **Western Balkans** | 15.2 | 19.3 | 18.5 | 14.4 | 12.5 | 12.1 | 11.8 |
| **Albania** | 18.7 | 24.5 | 23.6 | 18.3 | 15.7 | 15.1 | 14.6 |
| **Armenia** | 12.3 | 16.0 | 15.9 | 12.6 | 11.3 | 11.0 | 10.8 |
| **Azerbaijan** | 7.3 | 9.9 | 11.3 | 10.2 | 9.6 | 9.5 | 9.4 |
| **Belarus** | 8.4 | 10.4 | 10.0 | 7.8 | 7.0 | 6.9 | 6.8 |
| **Belgium** | 3.9 | 4.0 | 4.3 | 4.7 | 4.9 | 5.0 | 5.1 |
| **Bosnia and Herzegovina** | 16.4 | 21.4 | 20.6 | 15.7 | 13.6 | 13.2 | 12.8 |
| **Bulgaria** | 8.6 | 10.1 | 9.1 | 6.7 | 5.9 | 5.7 | 5.7 |
| **Czechia** | 4.9 | 5.2 | 5.7 | 6.2 | 6.4 | 6.5 | 6.6 |
| **Estonia** | 4.0 | 4.3 | 4.9 | 5.3 | 5.6 | 5.6 | 5.7 |
| **Georgia** | 16.8 | 19.2 | 16.0 | 10.5 | 8.4 | 8.0 | 7.6 |
| **Germany** | 3.6 | 3.5 | 3.6 | 3.8 | 4.0 | 4.1 | 4.1 |
| **Greece** | 10.7 | 12.5 | 13.8 | 14.3 | 14.1 | 14.1 | 13.9 |
| **Kazakhstan** | 8.1 | 11.3 | 12.0 | 10.1 | 9.2 | 9.0 | 8.8 |
| **Kyrgyzstan** | 7.9 | 9.2 | 8.4 | 6.5 | 5.9 | 5.8 | 5.8 |
| **Montenegro** | 13.7 | 17.4 | 16.7 | 12.6 | 10.9 | 10.6 | 10.2 |
| **Netherlands** | 3.2 | 3.4 | 3.8 | 4.4 | 4.8 | 4.9 | 5.0 |
| **North Macedonia** | 11.3 | 14.6 | 14.4 | 11.5 | 10.4 | 10.2 | 10.0 |
| **Poland** | 4.5 | 5.0 | 5.6 | 6.2 | 6.5 | 6.6 | 6.7 |
| **Portugal** | 5.6 | 6.4 | 7.3 | 8.1 | 8.4 | 8.5 | 8.5 |
| **Republic of Moldova** | 6.8 | 7.7 | 6.9 | 5.1 | 4.5 | 4.4 | 4.3 |
| **Romania** | 8.9 | 10.9 | 10.3 | 7.9 | 7.0 | 6.8 | 6.7 |
| **Serbia** | 13.7 | 17.3 | 16.8 | 13.0 | 11.3 | 11.0 | 10.8 |
| **Tajikistan** | 6.6 | 7.5 | 6.4 | 4.4 | 3.7 | 3.6 | 3.5 |
| **Turkmenistan** | 4.9 | 5.9 | 5.4 | 4.3 | 3.9 | 3.8 | 3.8 |
| **Ukraine** | 23.1 | 28.8 | 27.9 | 21.4 | 18.3 | 17.6 | 17.0 |
| **Uzbekistan** | 12.2 | 12.9 | 10.1 | 6.6 | 5.4 | 5.2 | 5.0 |

SOURCE: UNICEF, WHO & World Bank. 2021. *Levels and Trends in Child Malnutrition. UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates. Key findings of the 2021 edition.* https://data.unicef.org/resources/jme-report-2021

## TABLE A1.8
## PREVALENCE OF ANAEMIA AMONG WOMEN AGED 15 TO 49 YEARS, PERCENT

| | 2000 | 2005 | 2010 | 2015 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|
| **WORLD** | **31.2** | **29.9** | **28.6** | **28.8** | **29.3** | **29.6** | **29.9** |
| **Europe and Central Asia** | 17.4 | 16.6 | 16.0 | 16.3 | 16.8 | 17.1 | 17.4 |
| **Caucasus** | 34.3 | 33.0 | 30.5 | 29.9 | 30.0 | 30.1 | 30.4 |
| **Central Asia** | 40.4 | 35.0 | 29.9 | 28.0 | 27.9 | 28.0 | 28.1 |
| **CIS Europe and Ukraine** | 20.2 | 19.6 | 18.8 | 19.1 | 19.7 | 20.0 | 20.4 |
| **EFTA countries** | 10.3 | 9.9 | 9.9 | 10.4 | 10.9 | 11.2 | 11.5 |
| **EU27 and the United Kingdom** | 12.3 | 11.9 | 11.8 | 12.5 | 12.9 | 13.2 | 13.5 |
| **Other** | 12.8 | 11.4 | 11.4 | 11.9 | 12.3 | 12.6 | 12.9 |
| **Western Balkans** | 23.4 | 22.3 | 21.3 | 21.8 | 22.3 | 22.5 | 22.8 |
| **Albania** | 26.2 | 23.5 | 21.1 | 22.9 | 24.2 | 24.5 | 24.8 |
| **Armenia** | 20.4 | 20.0 | 18.0 | 17.1 | 17.1 | 17.1 | 17.3 |
| **Austria** | 11.7 | 11.3 | 11.3 | 12.0 | 12.5 | 12.7 | 13.0 |
| **Azerbaijan** | 41.0 | 39.2 | 35.4 | 34.6 | 34.7 | 34.8 | 35.1 |
| **Belarus** | 21.9 | 21.0 | 19.1 | 19.5 | 20.1 | 20.3 | 20.6 |
| **Belgium** | 11.2 | 10.8 | 10.9 | 12.0 | 12.8 | 13.2 | 13.6 |
| **Bosnia and Herzegovina** | 25.3 | 24.4 | 23.9 | 23.8 | 23.9 | 24.1 | 24.4 |
| **Bulgaria** | 22.9 | 23.5 | 22.6 | 22.8 | 23.1 | 23.4 | 23.6 |
| **Croatia** | 21.3 | 20.8 | 20.4 | 20.5 | 20.6 | 20.7 | 21.0 |
| **Cyprus** | 12.4 | 12.0 | 11.8 | 12.4 | 12.9 | 13.2 | 13.6 |
| **Czechia** | 19.9 | 19.3 | 19.6 | 20.5 | 20.8 | 20.9 | 21.1 |
| **Denmark** | 12.2 | 11.6 | 11.2 | 11.6 | 12.0 | 12.1 | 12.2 |
| **Estonia** | 21.7 | 20.9 | 20.5 | 21.2 | 21.3 | 21.5 | 21.7 |
| **Finland** | 10.5 | 9.9 | 9.6 | 10.0 | 10.4 | 10.6 | 10.9 |
| **France** | 8.4 | 8.5 | 8.6 | 9.4 | 10.0 | 10.3 | 10.6 |
| **Georgia** | 31.5 | 28.9 | 27.4 | 26.8 | 26.9 | 27.2 | 27.5 |
| **Germany** | 9.9 | 9.5 | 9.4 | 10.2 | 10.9 | 11.3 | 11.7 |
| **Greece** | 13.0 | 12.5 | 12.6 | 13.6 | 14.3 | 14.7 | 15.1 |
| **Hungary** | 19.3 | 18.9 | 19.5 | 19.6 | 19.4 | 19.5 | 19.7 |
| **Iceland** | 10.2 | 9.4 | 9.3 | 9.6 | 9.9 | 10.1 | 10.3 |
| **Ireland** | 11.0 | 10.5 | 10.8 | 11.2 | 11.6 | 11.8 | 12.1 |
| **Israel** | 12.8 | 11.4 | 11.4 | 11.9 | 12.3 | 12.6 | 12.9 |
| **Italy** | 12.0 | 11.6 | 11.5 | 12.5 | 13.0 | 13.3 | 13.6 |
| **Kazakhstan** | 34.9 | 30.8 | 27.5 | 27.7 | 28.2 | 28.4 | 28.7 |

**TABLE A1.8** (Continued)

| | 2000 | 2005 | 2010 | 2015 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|
| **Kyrgyzstan** | 36.6 | 35.4 | 34.2 | 34.8 | 35.2 | 35.5 | 35.8 |
| **Latvia** | 23.9 | 21.7 | 20.7 | 21.2 | 21.3 | 21.4 | 21.6 |
| **Lithuania** | 22.2 | 19.5 | 18.5 | 19.1 | 19.4 | 19.6 | 19.9 |
| **Luxembourg** | 8.8 | 8.6 | 8.8 | 9.3 | 9.7 | 10.0 | 10.2 |
| **Malta** | 13.7 | 12.6 | 12.3 | 12.6 | 13.0 | 13.3 | 13.7 |
| **Montenegro** | 16.5 | 16.2 | 16.0 | 16.3 | 16.7 | 16.9 | 17.2 |
| **Netherlands** | 10.6 | 10.9 | 10.7 | 11.5 | 12.2 | 12.5 | 12.8 |
| **North Macedonia** | 15.8 | 16.4 | 16.8 | 17.9 | 18.5 | 18.9 | 19.3 |
| **Norway** | 11.6 | 10.9 | 10.7 | 11.0 | 11.4 | 11.7 | 12.0 |
| **Portugal** | 13.0 | 12.3 | 12.0 | 12.4 | 12.7 | 13.0 | 13.2 |
| **Republic of Moldova** | 29.0 | 26.9 | 26.0 | 25.9 | 26.0 | 26.0 | 26.1 |
| **Romania** | 23.4 | 22.3 | 22.1 | 22.0 | 22.1 | 22.3 | 22.7 |
| **Russian Federation** | 22.1 | 21.3 | 20.2 | 20.1 | 20.6 | 20.8 | 21.1 |
| **Serbia** | 23.9 | 22.8 | 21.9 | 22.0 | 22.4 | 22.6 | 22.8 |
| **Slovakia** | 22.4 | 22.1 | 22.0 | 22.9 | 23.2 | 23.3 | 23.5 |
| **Slovenia** | 20.3 | 20.1 | 20.1 | 20.6 | 21.1 | 21.4 | 21.8 |
| **Spain** | 11.5 | 11.3 | 11.8 | 12.4 | 12.8 | 13.1 | 13.4 |
| **Sweden** | 12.6 | 11.8 | 11.6 | 12.2 | 12.8 | 13.2 | 13.6 |
| **Switzerland** | 9.6 | 9.4 | 9.4 | 10.1 | 10.7 | 11.0 | 11.3 |
| **Tajikistan** | 39.2 | 34.4 | 31.2 | 32.0 | 33.8 | 34.5 | 35.2 |
| **Turkmenistan** | 32.7 | 28.7 | 25.5 | 25.4 | 25.9 | 26.2 | 26.6 |
| **Ukraine** | 13.5 | 13.4 | 13.8 | 15.5 | 16.5 | 17.1 | 17.7 |
| **United Kingdom** | 9.4 | 9.0 | 9.2 | 9.9 | 10.4 | 10.7 | 11.1 |
| **Uzbekistan** | 46.5 | 38.6 | 31.0 | 26.3 | 25.3 | 25.0 | 24.8 |

SOURCE: WHO. 2021. Global anaemia estimates, Edition 2021. In: *Global Health Observatory (GHO) data repository. Geneva*, Switzerland. Cited 25 May 2021. www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-anaemia-in-women-of-reproductive-age-(-)

## TABLE A1.9
## PREVALENCE OF OBESITY AMONG ADULTS, PERCENT

| | 2000 | 2005 | 2010 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| **WORLD** | **8.7** | **9.9** | **11.2** | **12.1** | **12.5** | **12.8** | **13.1** |
| **Europe and Central Asia** | 17.2 | 19.0 | 20.8 | 22.0 | 22.4 | 22.9 | 23.3 |
| **Caucasus** | 13.2 | 15.0 | 17.2 | 18.7 | 19.3 | 19.8 | 20.4 |
| **Central Asia** | 11.0 | 12.6 | 14.7 | 16.1 | 16.6 | 17.1 | 17.7 |
| **CIS Europe and Ukraine** | 19.0 | 20.2 | 21.5 | 22.4 | 22.7 | 23.0 | 23.3 |
| **EFTA countries** | 14.7 | 16.5 | 18.5 | 19.7 | 20.0 | 20.4 | 20.9 |
| **EU27 and the United Kingdom** | 16.7 | 18.5 | 20.5 | 21.7 | 22.1 | 22.5 | 22.9 |
| **Other** | 22.1 | 24.9 | 27.8 | 29.7 | 30.3 | 31.0 | 31.5 |
| **Western Balkans** | 14.7 | 16.4 | 18.4 | 19.6 | 20.1 | 20.5 | 20.9 |
| **Albania** | 13.2 | 15.4 | 18.2 | 19.9 | 20.5 | 21.1 | 21.7 |
| **Armenia** | 14.2 | 15.7 | 17.5 | 18.8 | 19.2 | 19.7 | 20.2 |
| **Austria** | 14.0 | 15.8 | 17.6 | 18.8 | 19.2 | 19.7 | 20.1 |
| **Azerbaijan** | 12.5 | 14.3 | 16.6 | 18.2 | 18.8 | 19.3 | 19.9 |
| **Belarus** | 18.8 | 20.5 | 22.3 | 23.4 | 23.7 | 24.1 | 24.5 |
| **Belgium** | 17.0 | 18.5 | 20.1 | 21.0 | 21.4 | 21.7 | 22.1 |
| **Bosnia and Herzegovina** | 12.6 | 14.0 | 15.6 | 16.7 | 17.1 | 17.5 | 17.9 |
| **Bulgaria** | 18.6 | 20.4 | 22.4 | 23.7 | 24.1 | 24.5 | 25.0 |
| **Croatia** | 17.5 | 19.4 | 21.6 | 22.9 | 23.4 | 23.9 | 24.4 |
| **Cyprus** | 16.4 | 18.2 | 19.8 | 20.7 | 21.1 | 21.4 | 21.8 |
| **Czechia** | 21.0 | 22.3 | 23.9 | 24.9 | 25.2 | 25.6 | 26.0 |
| **Denmark** | 14.0 | 15.7 | 17.4 | 18.5 | 18.9 | 19.3 | 19.7 |
| **Estonia** | 17.4 | 18.4 | 19.6 | 20.4 | 20.7 | 20.9 | 21.2 |
| **Finland** | 16.4 | 18.2 | 20.0 | 21.1 | 21.4 | 21.8 | 22.2 |
| **France** | 15.8 | 17.6 | 19.3 | 20.4 | 20.8 | 21.2 | 21.6 |
| **Georgia** | 13.7 | 15.7 | 18.2 | 19.9 | 20.5 | 21.1 | 21.7 |
| **Germany** | 16.3 | 18.0 | 19.9 | 21.1 | 21.5 | 21.9 | 22.3 |
| **Greece** | 18.5 | 20.4 | 22.4 | 23.6 | 24.0 | 24.4 | 24.9 |
| **Hungary** | 19.6 | 21.3 | 23.5 | 25.0 | 25.4 | 25.9 | 26.4 |
| **Iceland** | 16.0 | 17.8 | 19.6 | 20.7 | 21.1 | 21.5 | 21.9 |
| **Ireland** | 16.0 | 18.7 | 21.6 | 23.4 | 24.0 | 24.7 | 25.3 |
| **Israel** | 21.1 | 22.7 | 24.2 | 25.1 | 25.5 | 25.8 | 26.1 |
| **Italy** | 15.0 | 16.5 | 18.1 | 19.0 | 19.3 | 19.6 | 19.9 |
| **Kazakhstan** | 14.0 | 15.9 | 18.0 | 19.5 | 20.0 | 20.5 | 21.0 |

**TABLE A1.9** (Continued)

| | 2000 | 2005 | 2010 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| **Kyrgyzstan** | 9.6 | 11.3 | 13.4 | 14.9 | 15.5 | 16.0 | 16.6 |
| **Latvia** | 19.3 | 20.5 | 21.8 | 22.7 | 23.0 | 23.3 | 23.6 |
| **Lithuania** | 21.6 | 22.9 | 24.4 | 25.3 | 25.6 | 26.0 | 26.3 |
| **Luxembourg** | 15.8 | 17.9 | 20.0 | 21.3 | 21.7 | 22.2 | 22.6 |
| **Malta** | 23.1 | 25.0 | 26.8 | 27.8 | 28.2 | 28.5 | 28.9 |
| **Montenegro** | 16.2 | 18.6 | 20.8 | 22.0 | 22.4 | 22.8 | 23.3 |
| **Netherlands** | 13.0 | 15.4 | 17.7 | 19.1 | 19.5 | 20.0 | 20.4 |
| **North Macedonia** | 17.1 | 18.5 | 20.1 | 21.2 | 21.6 | 22.0 | 22.4 |
| **Norway** | 16.0 | 18.2 | 20.4 | 21.7 | 22.2 | 22.6 | 23.1 |
| **Poland** | 17.5 | 19.1 | 20.8 | 21.9 | 22.3 | 22.7 | 23.1 |
| **Portugal** | 13.7 | 15.9 | 18.1 | 19.5 | 19.9 | 20.4 | 20.8 |
| **Republic of Moldova** | 14.2 | 15.5 | 16.9 | 17.8 | 18.2 | 18.5 | 18.9 |
| **Romania** | 16.2 | 17.8 | 19.8 | 21.1 | 21.6 | 22.1 | 22.5 |
| **Russian Federation** | 19.0 | 20.2 | 21.4 | 22.2 | 22.5 | 22.8 | 23.1 |
| **Serbia** | 15.5 | 17.3 | 19.2 | 20.3 | 20.7 | 21.1 | 21.5 |
| **Slovakia** | 15.5 | 16.9 | 18.4 | 19.4 | 19.8 | 20.1 | 20.5 |
| **Slovenia** | 15.1 | 16.5 | 18.1 | 19.1 | 19.5 | 19.8 | 20.2 |
| **Spain** | 18.3 | 20.0 | 21.7 | 22.7 | 23.1 | 23.4 | 23.8 |
| **Sweden** | 14.6 | 16.3 | 18.2 | 19.4 | 19.8 | 20.2 | 20.6 |
| **Switzerland** | 13.9 | 15.5 | 17.3 | 18.4 | 18.7 | 19.1 | 19.5 |
| **Tajikistan** | 8.0 | 9.4 | 11.3 | 12.7 | 13.2 | 13.7 | 14.2 |
| **Türkiye** | 22.2 | 25.1 | 28.2 | 30.2 | 30.8 | 31.5 | 32.1 |
| **Turkmenistan** | 11.0 | 12.9 | 15.3 | 16.9 | 17.4 | 18.0 | 18.6 |
| **Ukraine** | 19.1 | 20.5 | 22.0 | 23.0 | 23.4 | 23.7 | 24.1 |
| **United Kingdom** | 18.6 | 21.4 | 24.2 | 26.0 | 26.6 | 27.2 | 27.8 |
| **Uzbekistan** | 9.8 | 11.4 | 13.5 | 14.9 | 15.4 | 16.0 | 16.6 |

SOURCE: WHO. 2020. Global Health Observatory (GHO) data repository. In: *World Health Organization*. Geneva, Switzerland. Cited 28 April 2020. https://apps.who.int/gho/data/node.main.A900A?lang=en

TABLE A1.10
**PREVALENCE OF OBESITY AMONG ADULTS BY SEX, PERCENT**

| | Male | | Female | |
|---|---|---|---|---|
| | 2000 | 2016 | 2000 | 2016 |
| Europe and Central Asia | 14.3 | 21.8 | 17.7 | 22.6 |
| Caucasus | 10.3 | 17.4 | 16.1 | 23.5 |
| Central Asia | 8.3 | 14.8 | 12.3 | 19.6 |
| CIS Europe and Ukraine | 12.9 | 19.6 | 21.8 | 25.0 |
| EFTA countries | 12.9 | 19.6 | 21.8 | 25.0 |
| EU27 and the United Kingdom | 15.7 | 23.4 | 18.0 | 22.4 |
| Other | 17.9 | 25.4 | 25.4 | 30.2 |
| Western Balkans | 13.3 | 21.1 | 16.4 | 21.4 |
| Albania | 11.7 | 21.6 | 14.7 | 21.8 |
| Andorra | 20.6 | 25.9 | 23.8 | 25.3 |
| Armenia | 10.9 | 17.1 | 16.8 | 23.0 |
| Austria | 14.3 | 21.9 | 13.5 | 18.3 |
| Azerbaijan | 9.0 | 15.8 | 15.6 | 23.6 |
| Belarus | 14.3 | 22.1 | 22.4 | 26.3 |
| Belgium | 16.3 | 23.1 | 17.5 | 21.0 |
| Bosnia and Herzegovina | 10.8 | 17.1 | 14.0 | 18.4 |
| Bulgaria | 17.1 | 25.5 | 19.8 | 24.3 |
| Croatia | 15.7 | 24.1 | 19.0 | 24.5 |
| Cyprus | 15.0 | 21.9 | 17.7 | 21.6 |
| Czechia | 19.4 | 26.4 | 22.3 | 25.4 |
| Denmark | 14.8 | 22.3 | 13.2 | 17.0 |
| Estonia | 14.3 | 20.3 | 19.6 | 21.8 |
| Finland | 16.4 | 23.7 | 16.1 | 20.6 |
| France | 14.8 | 22.0 | 16.7 | 21.1 |
| Georgia | 11.1 | 19.2 | 15.9 | 23.8 |
| Germany | 16.5 | 24.2 | 15.8 | 20.4 |
| Greece | 16.0 | 24.2 | 20.8 | 25.4 |
| Hungary | 19.1 | 28.2 | 19.8 | 24.6 |
| Iceland | 16.4 | 24.2 | 15.7 | 19.4 |
| Ireland | 15.4 | 25.1 | 16.5 | 25.5 |
| Israel | 18.8 | 25.9 | 23.1 | 26.2 |
| Italy | 14.0 | 20.1 | 15.9 | 19.5 |

**TABLE A1.10** (Continued)

| | Male | | Female | |
|---|---|---|---|---|
| | 2000 | 2016 | 2000 | 2016 |
| **Kazakhstan** | 11.7 | 18.9 | 15.7 | 22.7 |
| **Kyrgyzstan** | 7.6 | 14.0 | 11.3 | 18.6 |
| **Latvia** | 15.0 | 21.6 | 22.6 | 25.1 |
| **Lithuania** | 17.3 | 24.2 | 25.1 | 27.8 |
| **Luxembourg** | 15.9 | 24.5 | 15.7 | 20.7 |
| **Malta** | 21.2 | 29.2 | 24.8 | 28.5 |
| **Montenegro** | 14.5 | 23.3 | 17.6 | 23.1 |
| **Netherlands** | 12.0 | 20.8 | 13.9 | 20.0 |
| **North Macedonia** | 15.7 | 22.6 | 18.4 | 22.1 |
| **Norway** | 15.0 | 23.6 | 16.8 | 22.5 |
| **Poland** | 16.0 | 23.7 | 18.6 | 22.2 |
| **Portugal** | 12.0 | 20.3 | 15.1 | 21.2 |
| **Republic of Moldova** | 10.3 | 16.2 | 17.5 | 21.1 |
| **Romania** | 15.0 | 23.4 | 17.2 | 21.6 |
| **Russian Federation** | 12.0 | 18.1 | 24.6 | 26.9 |
| **Serbia** | 13.7 | 21.1 | 17.1 | 21.8 |
| **Slovakia** | 14.4 | 21.0 | 16.3 | 19.9 |
| **Slovenia** | 13.0 | 19.4 | 16.9 | 21.0 |
| **Spain** | 17.3 | 24.6 | 19.1 | 22.8 |
| **Sweden** | 15.2 | 23.1 | 13.9 | 18.1 |
| **Switzerland** | 14.8 | 22.2 | 12.8 | 16.9 |
| **Tajikistan** | 6.1 | 11.6 | 9.7 | 16.7 |
| **Türkiye** | 14.4 | 24.4 | 29.2 | 39.2 |
| **Turkmenistan** | 8.6 | 15.9 | 13.0 | 20.9 |
| **Ukraine** | 14.8 | 22.0 | 22.5 | 25.7 |
| **United Kingdom** | 17.1 | 26.9 | 20.1 | 28.6 |
| **Uzbekistan** | 7.6 | 13.8 | 11.6 | 19 |

SOURCE: WHO. 2020. Global Health Observatory (GHO) data repository. In: *World Health Organization*. Geneva, Switzerland. Cited 28 April 2020. https://apps.who.int/gho/data/node.main.A900A?lang=en

## TABLE A1.11
## PREVALENCE OF EXCLUSIVE BREASTFEEDING AMONG INFANTS 0 TO 5 MONTHS OF AGE, PERCENT

| | 2000 | 2005 | 2010 | 2012 | 2015 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|
| **WORLD** | | | | **37.1** | | | **43.8** |
| **Europe and Central Asia** | | | | n.a. | | | n.a. |
| **Caucasus** | | | | 24.1 | | | 31.1 |
| **Central Asia** | | | | 29.2 | | | 44.6 |
| **CIS Europe and Ukraine** | | | | 20.7 | | | 21.7 |
| **EFTA countries** | | | | n.a. | | | n.a. |
| **EU27 and the United Kingdom** | | | | n.a. | | | n.a. |
| **Other** | | | | 41.6 | | | 40.7 |
| **Western Balkans** | | | | 20.2 | | | 26.7 |
| **Albania** | 6.3 | 3.4 | | | | | |
| **Armenia** | 29.5 | 32.5 | 34.1 | | | | |
| **Azerbaijan** | 6.5 | | | | | | |
| **Belarus** | | 10.3 | | 19.0 | | 21.7 | |
| **Bosnia and Herzegovina** | | | | 18.2 | | | |
| **Georgia** | | 11.8 | | | | | |
| **Kazakhstan** | | | 31.8 | | 37.8 | | |
| **Kyrgyzstan** | | | | 56.0 | | | |
| **Montenegro** | | 19.3 | | | | | |
| **North Macedonia** | | 16.2 | | | | 27.5 | |
| **Republic of Moldova** | | 43.6 | | 36.4 | | | |
| **Serbia** | | 14.5 | 13.4 | | | 23.6 | |
| **Tajikistan** | 14.2 | 24.9 | | 32.6 | | | |
| **Turkmenistan** | 12.1 | | | | 58.3 | 56.5 | |
| **Ukraine** | | 6.0 | | 19.7 | | | |
| **Uzbekistan** | 13.4 | | | | | | |

SOURCE: UNICEF. 2021. Infant and young child feeding. In: *UNICEF*. New York, USA. Cited 6 April 2022. https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding

## TABLE A1.12
## PREVALENCE OF LOW BIRTHWEIGHT, PERCENT

| | 2000 | 2005 | 2010 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|
| **WORLD** | **17.5** | **16.4** | **15.3** | **15.0** | **14.8** | **14.7** | **14.6** |
| **Europe and Central Asia** | | | | 7.0 | | | 6.9 |
| **Caucasus** | | | | 6.7 | | | 7.3 |
| **Central Asia** | 6.0 | 5.6 | 5.6 | 5.6 | 5.5 | 5.5 | 5.4 |
| **CIS Europe and Ukraine** | | | | 5.8 | | | 5.7 |
| **EFTA countries** | | | | 5.7 | | | 5.6 |
| **EU27 and the United Kingdom** | | | | 7.0 | | | 7.0 |
| **Other** | | | | 11.2 | | | 11.0 |
| **Western Balkans** | | | | 4.9 | | | 5.0 |
| **Albania** | 4.9 | 4.8 | 4.7 | 4.6 | 4.6 | 4.6 | 4.6 |
| **Armenia** | 8.2 | 7.5 | 7.6 | 8.0 | 8.2 | 8.6 | 9.0 |
| **Austria** | 6.4 | 7.0 | 7.0 | 6.9 | 6.8 | 6.6 | 6.5 |
| **Azerbaijan** | 6.5 | 7.4 | 7.1 | 7.0 | 7.1 | 7.1 | 7.3 |
| **Belarus** | 5.0 | 5.3 | 5.0 | 4.9 | 4.9 | 5.0 | 5.1 |
| **Belgium** | 7.2 | 7.1 | 6.9 | 6.9 | 7.0 | 7.1 | 7.3 |
| **Bosnia and Herzegovina** | 3.5 | 3.5 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 |
| **Bulgaria** | 8.6 | 8.8 | 9.3 | 9.4 | 9.5 | 9.5 | 9.6 |
| **Croatia** | 5.4 | 5.1 | 4.8 | 4.8 | 4.9 | 5.0 | 5.1 |
| **Czechia** | 5.8 | 6.9 | 7.7 | 7.9 | 7.9 | 7.9 | 7.8 |
| **Denmark** | 5.1 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 |
| **Estonia** | 4.3 | 4.5 | 4.4 | 4.4 | 4.4 | 4.4 | 4.3 |
| **Finland** | 4.3 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.1 |
| **France** | 7.5 | 7.5 | 7.5 | 7.4 | 7.4 | 7.4 | 7.4 |
| **Georgia** | 6.1 | 5.8 | 4.8 | 4.8 | 5.1 | 5.5 | 6.1 |
| **Germany** | 6.5 | 6.9 | 6.9 | 6.8 | 6.8 | 6.7 | 6.6 |
| **Greece** | 9.0 | 8.8 | 8.7 | 8.7 | 8.7 | 8.8 | 8.7 |
| **Hungary** | 8.6 | 8.3 | 8.5 | 8.6 | 8.6 | 8.7 | 8.8 |
| **Iceland** | 3.5 | 3.6 | 3.7 | 3.9 | 4.0 | 4.1 | 4.2 |
| **Ireland** | 4.9 | 5.0 | 5.1 | 5.3 | 5.5 | 5.7 | 5.9 |
| **Israel** | 8.3 | 8.3 | 8.1 | 8.0 | 8.0 | 7.9 | 7.8 |
| **Italy** | 7.1 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 |
| **Kazakhstan** | 6.1 | 5.2 | 6.0 | 6.1 | 6.0 | 5.8 | 5.4 |
| **Kyrgyzstan** | 6.8 | 6.2 | 5.7 | 5.6 | 5.6 | 5.5 | 5.5 |

**TABLE A1.12** (Continued)

| | 2000 | 2005 | 2010 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|
| **Latvia** | 5.1 | 4.9 | 4.6 | 4.5 | 4.5 | 4.5 | 4.5 |
| **Lithuania** | 4.8 | 4.7 | 4.6 | 4.5 | 4.5 | 4.5 | 4.5 |
| **Luxembourg** | 6.6 | 5.6 | 6.5 | 6.8 | 6.8 | 6.7 | 6.5 |
| **Malta** | 5.9 | 6.8 | 7.1 | 7.0 | 6.8 | 6.6 | 6.3 |
| **Montenegro** | 5.3 | 4.5 | 5.0 | 5.2 | 5.3 | 5.4 | 5.5 |
| **Netherlands** | 7.1 | 6.3 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 |
| **North Macedonia** | 8.9 | 8.7 | 8.7 | 8.8 | 8.9 | 8.9 | 9.1 |
| **Norway** | 4.9 | 5.0 | 4.8 | 4.7 | 4.6 | 4.6 | 4.5 |
| **Poland** | 5.7 | 6.0 | 5.7 | 5.7 | 5.7 | 5.8 | 5.9 |
| **Portugal** | 7.4 | 7.6 | 8.2 | 8.5 | 8.6 | 8.8 | 8.9 |
| **Republic of Moldova** | 5.5 | 5.1 | 5.1 | 5.0 | 5.0 | 5.0 | 5.0 |
| **Romania** | 8.8 | 8.6 | 8.3 | 8.3 | 8.2 | 8.2 | 8.2 |
| **Russian Federation** | 7.4 | 5.8 | 6.0 | 6.0 | 6.0 | 6.0 | 5.8 |
| **Serbia** | 4.7 | 4.6 | 4.6 | 4.6 | 4.5 | 4.5 | 4.5 |
| **Slovakia** | 6.8 | 7.2 | 7.9 | 8.0 | 8.0 | 7.8 | 7.6 |
| **Slovenia** | 5.6 | 6.0 | 6.2 | 6.2 | 6.2 | 6.2 | 6.1 |
| **Spain** | 7.0 | 7.7 | 8.1 | 8.2 | 8.2 | 8.3 | 8.3 |
| **Sweden** | 4.5 | 4.2 | 4.2 | 3.8 | 3.4 | 3.0 | 2.4 |
| **Switzerland** | 6.0 | 6.3 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |
| **Tajikistan** | 6.2 | 5.9 | 5.7 | 5.7 | 5.7 | 5.6 | 5.6 |
| **Türkiye** | 12.9 | 12.2 | 11.7 | 11.6 | 11.5 | 11.4 | 11.4 |
| **Turkmenistan** | 5.4 | 5.2 | 5.1 | 5.0 | 5.0 | 5.0 | 4.9 |
| **Ukraine** | 5.4 | 5.1 | 5.2 | 5.4 | 5.4 | 5.5 | 5.6 |
| **United Kingdom** | 7.3 | 7.3 | 7.0 | 6.9 | 6.9 | 6.9 | 7.0 |
| **Uzbekistan** | 5.8 | 5.6 | 5.4 | 5.3 | 5.3 | 5.3 | 5.3 |

SOURCE: UNICEF & WHO. 2019. UNICEF-WHO joint low birthweight estimates. In: *United Nations Children's Fund*. New York, USA and Geneva, Switzerland. Cited 28 April 2020. www.unicef.org/reports/UNICEF-WHO-low-birthweight-estimates-2019

## TABLE A1.13
## AFFORDABILITY OF A HEALTHY DIET

| | Number of people unable to afford a healthy diet (million) | | | | Percentage of people unable to afford a healthy diet (percent) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 | 2017 | 2018 | 2019 | 2020 |
| **WORLD** | **3 049.1** | **2 973.8** | **2 961.9** | **3 074.2** | **42.9** | **41.5** | **40.9** | **42.0** |
| Europe and Central Asia | 32.8 | 29.0 | 29.5 | 30.4 | 3.9 | 3.5 | 3.5 | 3.6 |
| Caucasus | 1.2 | 1.2 | 1.3 | 1.3 | 9.4 | 9.5 | 9.9 | 9.7 |
| Central Asia | 7.6 | 6.8 | 7.0 | 7.5 | 22.9 | 20.3 | 20.5 | 21.5 |
| CIS Europe and Ukraine | 6.0 | 5.5 | 4.6 | 5.2 | 3.8 | 3.5 | 2.9 | 3.4 |
| EFTA countries | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.1 | 0.2 |
| EU27 and the United Kingdom | 8.4 | 7.2 | 6.8 | 7.0 | 1.6 | 1.4 | 1.3 | 1.4 |
| Other | 5.7 | 5.7 | 7.5 | 7.0 | 6.4 | 6.3 | 8.1 | 7.5 |
| Western Balkans | 3.8 | 2.5 | 2.3 | 2.3 | 24.1 | 15.6 | 14.5 | 14.6 |
| Albania | 1.1 | 0.8 | 0.6 | 0.6 | 37.8 | 27.9 | 19.8 | 20.1 |
| Armenia | 1.2 | 1.2 | 1.3 | 1.3 | 40.9 | 41.7 | 43.6 | 42.9 |
| Austria | 0.1 | 0.1 | 0.1 | 0.1 | 0.6 | 0.8 | 0.8 | 0.8 |
| Azerbaijan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Belarus | 0.1 | 0.0 | 0.0 | 0.0 | 0.8 | 0.5 | 0.3 | 0.2 |
| Belgium | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.2 | 0.2 |
| Bosnia and Herzegovina | 0.2 | 0.1 | 0.1 | 0.1 | 4.6 | 4.0 | 3.6 | 3.7 |
| Bulgaria | 0.8 | 0.6 | 0.6 | 0.6 | 11.3 | 9.0 | 8.0 | 8.5 |
| Croatia | 0.3 | 0.2 | 0.1 | 0.2 | 7.2 | 4.7 | 3.6 | 3.8 |
| Czechia | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.2 | 0.2 | 0.2 |
| Denmark | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.4 | 0.4 |
| Estonia | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.8 | 1.2 | 1.3 |
| Finland | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.1 | 0.1 |
| France | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Germany | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Greece | 0.5 | 0.3 | 0.3 | 0.3 | 4.3 | 2.7 | 3.1 | 3.2 |
| Hungary | 0.3 | 0.2 | 0.2 | 0.2 | 3.3 | 2.3 | 1.9 | 2.0 |
| Iceland | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Ireland | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.1 | 0.1 |
| Israel | 0.2 | 0.1 | 0.1 | 0.1 | 1.7 | 1.2 | 1.0 | 1.0 |

**TABLE A1.13** (Continued)

| | Number of people unable to afford a healthy diet (million) | | | | Percentage of people unable to afford a healthy diet (percent) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 | 2017 | 2018 | 2019 | 2020 |
| **Italy** | 1.7 | 1.7 | 1.7 | 1.7 | 2.9 | 2.9 | 2.8 | 2.9 |
| **Kazakhstan** | 0.3 | 0.2 | 0.2 | 0.2 | 1.5 | 1.1 | 1.0 | 1.2 |
| **Kyrgyzstan** | 3.5 | 3.0 | 2.9 | 3.3 | 56.6 | 47.5 | 45.3 | 49.6 |
| **Latvia** | 0.1 | 0.0 | 0.0 | 0.0 | 3.4 | 2.4 | 1.7 | 1.8 |
| **Lithuania** | 0.1 | 0.1 | 0.0 | 0.0 | 3.6 | 2.4 | 1.2 | 1.2 |
| **Luxembourg** | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.1 | 0.1 |
| **Malta** | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.7 | 0.7 |
| **Montenegro** | 0.1 | 0.1 | 0.1 | 0.1 | 17.4 | 18.1 | 17.8 | 17.5 |
| **Netherlands** | 0.1 | 0.1 | 0.0 | 0.0 | 0.4 | 0.3 | 0.2 | 0.2 |
| **North Macedonia** | 0.5 | 0.4 | 0.4 | 0.4 | 21.8 | 18.8 | 17.5 | 18.0 |
| **Norway** | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.4 | 0.3 | 0.4 |
| **Poland** | 0.4 | 0.5 | 0.3 | 0.4 | 1.0 | 1.4 | 0.8 | 1.0 |
| **Portugal** | 0.1 | 0.1 | 0.1 | 0.1 | 1.1 | 1.1 | 0.5 | 0.5 |
| **Republic of Moldova** | 0.2 | 0.1 | 0.2 | 0.2 | 5.9 | 4.7 | 5.8 | 6.7 |
| **Romania** | 2.3 | 1.3 | 1.6 | 1.7 | 11.9 | 6.9 | 8.3 | 8.8 |
| **Russian Federation** | 5.7 | 5.3 | 4.4 | 5.0 | 4.0 | 3.7 | 3.1 | 3.5 |
| **Serbia** | 2.0 | 1.0 | 1.1 | 1.1 | 29.0 | 14.9 | 16.3 | 16.3 |
| **Slovakia** | 0.1 | 0.1 | 0.1 | 0.1 | 2.0 | 2.4 | 1.2 | 1.2 |
| **Slovenia** | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| **Spain** | 0.9 | 1.0 | 0.9 | 0.9 | 1.9 | 2.1 | 1.9 | 2.0 |
| **Sweden** | 0.1 | 0.1 | 0.1 | 0.1 | 0.5 | 1.2 | 0.5 | 0.6 |
| **Switzerland** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Tajikistan** | 3.8 | 3.6 | 3.9 | 4.0 | 42.9 | 40.1 | 42.0 | 42.1 |
| **Türkiye** | 5.6 | 5.6 | 7.4 | 6.9 | 6.9 | 6.8 | 8.9 | 8.2 |
| **United Kingdom** | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | 0.5 | 0.5 | 0.5 |

SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable*. Rome, FAO. https://doi.org/10.4060/cc0639en

## TABLE A1.14
## COST OF A HEALTHY DIET (USD PER PERSON PER DAY)

| | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|
| **WORLD** | 3.314 | 3.350 | 3.425 | 3.537 |
| **Europe and Central Asia** | 2.955 | 3.018 | 3.038 | 3.139 |
| **Caucasus** | 2.722 | 2.782 | 2.848 | 2.890 |
| **Central Asia** | 2.796 | 2.826 | 2.987 | 3.106 |
| **CIS Europe and Ukraine** | 2.929 | 2.999 | 3.087 | 3.181 |
| **EFTA countries** | 2.687 | 2.757 | 2.718 | 2.848 |
| **EU27 and the United Kingdom** | 2.905 | 2.972 | 2.969 | 3.083 |
| **Other** | 2.655 | 2.748 | 2.759 | 2.760 |
| **Western Balkans** | 3.717 | 3.763 | 3.806 | 3.872 |
| **Albania** | 3.952 | 4.051 | 4.117 | 4.197 |
| **Armenia** | 3.096 | 3.166 | 3.237 | 3.247 |
| **Austria** | 2.772 | 2.848 | 2.818 | 2.981 |
| **Azerbaijan** | 2.348 | 2.399 | 2.459 | 2.533 |
| **Belarus** | 3.177 | 3.228 | 3.310 | 3.310 |
| **Belgium** | 2.862 | 2.962 | 2.943 | 3.130 |
| **Bosnia and Herzegovina** | 3.847 | 3.890 | 3.895 | 3.995 |
| **Bulgaria** | 3.780 | 3.859 | 3.896 | 4.108 |
| **Croatia** | 4.168 | 4.202 | 4.111 | 4.277 |
| **Czechia** | 2.899 | 2.921 | 2.919 | 2.966 |
| **Denmark** | 2.376 | 2.440 | 2.432 | 2.544 |
| **Estonia** | 3.125 | 3.188 | 3.170 | 3.308 |
| **Finland** | 2.545 | 2.624 | 2.611 | 2.712 |
| **France** | 2.936 | 3.019 | 3.067 | 3.219 |
| **Germany** | 2.786 | 2.917 | 2.881 | 3.025 |
| **Greece** | 3.037 | 3.102 | 3.065 | 3.130 |
| **Hungary** | 3.302 | 3.383 | 3.368 | 3.488 |
| **Iceland** | 2.213 | 2.247 | 2.234 | 2.414 |
| **Ireland** | 2.397 | 2.341 | 2.269 | 2.225 |
| **Israel** | 2.436 | 2.500 | 2.454 | 2.492 |
| **Italy** | 2.885 | 2.979 | 3.012 | 3.144 |
| **Kazakhstan** | 2.391 | 2.426 | 2.537 | 2.657 |

**TABLE A1.14** (Continued)

| | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|
| **Kyrgyzstan** | 2.970 | 2.931 | 2.991 | 3.180 |
| **Latvia** | 3.124 | 3.130 | 3.132 | 3.240 |
| **Lithuania** | 3.003 | 3.042 | 3.039 | 3.099 |
| **Luxembourg** | 2.492 | 2.627 | 2.600 | 2.661 |
| **Malta** | 3.494 | 3.629 | 3.698 | 3.769 |
| **Montenegro** | 3.397 | 3.414 | 3.509 | 3.494 |
| **Netherlands** | 2.743 | 2.821 | 2.844 | 2.991 |
| **North Macedonia** | 3.318 | 3.310 | 3.336 | 3.427 |
| **Norway** | 3.325 | 3.432 | 3.356 | 3.471 |
| **Poland** | 2.909 | 2.986 | 3.038 | 3.170 |
| **Portugal** | 2.513 | 2.596 | 2.579 | 2.656 |
| **Republic of Moldova** | 2.460 | 2.571 | 2.687 | 2.814 |
| **Romania** | 2.921 | 2.957 | 3.010 | 3.191 |
| **Russian Federation** | 3.149 | 3.197 | 3.264 | 3.420 |
| **Serbia** | 4.070 | 4.149 | 4.174 | 4.246 |
| **Slovakia** | 3.013 | 3.102 | 3.105 | 3.150 |
| **Slovenia** | 2.798 | 2.902 | 2.916 | 3.070 |
| **Spain** | 2.699 | 2.741 | 2.744 | 2.838 |
| **Sweden** | 3.086 | 3.164 | 3.154 | 3.339 |
| **Switzerland** | 2.523 | 2.591 | 2.563 | 2.659 |
| **Tajikistan** | 3.027 | 3.119 | 3.433 | 3.480 |
| **Türkiye** | 2.873 | 2.997 | 3.064 | 3.029 |
| **Turkmenistan** | n.a. | n.a. | n.a. | n.a. |
| **United Kingdom** | 1.822 | 1.873 | 1.881 | 1.912 |

SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable*. Rome, FAO. https://doi.org/10.4060/cc0639en

# ANNEX 2
# DEFINITIONS

## Adult obesity

The body mass index (BMI) is the ratio of weight-to-height commonly used to classify the nutritional status of adults. It is calculated as the body weight in kilograms divided by the square of the body height in metres (kg/m$^2$). Obesity includes individuals with BMI equal to or higher than 30 kg/m$^2$.

**Data source:** WHO. 2020. Global Health Observatory (GHO) data repository. In: *WHO.* Geneva, Switzerland. Cited 28 April 2020. https://apps.who.int/gho/data/node.main.A900A?lang=en

## Anaemia in women aged 15 to 49 years

**Definition:** percentage of women aged 15–49 years with a haemoglobin concentration less than 120 g/L for non-pregnant women and lactating women, and less than 110 g/L for pregnant women, adjusted for altitude and smoking.

**Prevalence cut-off values for public health significance are as follows:** no public health problem <5 percent; mild 5–19.9 percent; moderate 20–39.9 percent; severe ≥40 percent.

**Data source:** WHO. 2021. Vitamin and Mineral Nutrition Information System (VMNIS). In: *WHO.* Geneva, Switzerland. Cited 25 May 2021. www.who.int/teams/nutrition-food-safety/databases/vitamin-and-mineral-nutrition-information-system. WHO. 2021. Global anaemia estimates, Edition 2021. In: *WHO | Global Health Observatory (GHO) data repository.* Geneva, Switzerland. Cited 25 May 2021. http://www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-anaemia-in-women-of-reproductive-age-(-)"www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-anaemia-in-women-of-reproductive-age-(-)

## Classification of agricultural policies, main indicators and data sources

**Trade and market intervention:** Agricultural policies create transfers to and from agricultural producers through trade and market interventions, including border measures, administrated prices, market interventions and minimum producer price policies. The indicator reflecting the monetary value of transfers arising from this type of support presented in this report is called **market price support (MPS)**. The relative indicator reflecting the incentives and disincentives for agriculture as a result of trade and market intervention on producers is reflected in the **nominal protection coefficient (NPC).** This type of support is mostly financed by consumers. The effect of trade and market intervention on consumers is measured by the **consumer nominal protection coefficient (CNPC)**. The NPC/CNPC coefficients quantify the extent to which trade and market policies raise or lower the price received by the producer/paid by the consumer of a commodity above or below the reference price. The **nominal rate of protection (NRP)** is analogous to the NPC, but while the NPC is a ratio between producer and reference (non-policy) price, the NRP is a ratio between the price difference (producer price minus reference price) and the reference price.

**Budget transfers to individual producers (BT)** are transfers based on the output of a specific agricultural commodity, variable or fixed input use, or non-commodity criteria (e.g. subsidies tied to environmental outcomes or lump-sum payments to all farmers for which production is not required). The combined effect of trade and market interventions and budget transfers to individual producers is represented by the **nominal rate of assistance** indicator. The **producer single commodity transfer (PSCT)** is a coefficient that measures both price support (an observed end effect of the policies on the market prices of agricultural commodities) and commodity-specific transfers to producers from the budget. It also can be expressed as a percent share of **gross farm receipts from the commodity (PSCTP)**.

**Budget transfers to the whole sector** refers to budget transfers that are not directed to individual producers, processors, traders or consumers but to the sector as a whole and that therefore

may benefit the production, processing, trade and consumption of agricultural commodities in the longer term. It includes support to education, research, innovations and infrastructure, inspection services, promotion, and other payments that benefit the whole sector. The indicator that measures this type of transfers is called **general services support estimate (GSSE).**

**Budget transfers to consumers** are budgetary transfers from taxpayers to intermediary (e.g. processors, traders, etc.) or final consumers of food. The indicator measuring this type of **transfers is called transfers to consumers from taxpayers (TCT).**

**Overall support to agriculture:** A common indicator to measure the overall effect of transfers arising from agricultural policies in the economy is the total support estimate (TSE), which is calculated as the sum of MPS, BT, GSSE and TCT. The budgetary component of the TSE (not taking into account the effect of trade and market interventions on producer and consumer prices) is called **total budgetary support estimate (TBSE)** and is a sum of BT, GSSE and TCT (TABLE 1).

## Cost and affordability of a healthy diet

The cost of a healthy diet is defined as the cost needed to buy the least expensive locally available foods to meet energy requirements of 2 330 kcal/capita/day, and nutritional standards determined by national food-based dietary guidelines (FBDG) around the world, with sufficient diversity and quantity between and within food groups. The final cost is the sum of the least expensive food items across six identified food groups of a healthy diet: fruits; vegetables; starchy staples; animal-source foods; legumes, nuts, and seeds; and oils and fats. For each country, the cost of a healthy diet is compared with country-specific income distributions available in the Poverty and Inequality Platform (PIP) of the World Bank https://pip.worldbank.org/home. It allows estimating the two affordability indicators that measure, respectively, the percentage and the number of people in a country who are unable to afford a healthy diet since their food budget is below the estimated cost.

**Data source:** FAO, IFAD, UNICEF, WFP & WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable*. Rome, FAO. https://doi.org/10.4060/cc0639en

## Exclusive breastfeeding

Exclusive breastfeeding for infants under 6 months of age is defined as receiving only breastmilk and no additional food or drink, not even water. Exclusive breastfeeding is a cornerstone of child survival and is the best food for newborns, as breastmilk shapes the baby's microbiome, strengthens the immune system and reduces the risk of developing chronic diseases. Breastfeeding also benefits mothers by preventing postpartum haemorrhage and promoting uterine involution, decreasing risk of iron-deficiency anaemia, reducing the risk of various types of cancer and providing psychological benefits.

**Data source:** UNICEF. 2021. Infant and young child feeding. In: *UNICEF*. New York, USA. Cited 6 April 2022. https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding

## Food insecurity as measured by the Food Insecurity Experience Scale

Food insecurity as measured by the FIES indicator refers to limited access to food, at the level of individuals or households, due to lack of money or other resources. The severity of food insecurity is measured using data collected with the FIES survey module (FIES-SM), a set of eight questions asking respondents to self-report conditions and experiences typically associated with limited access to food. For purposes of annual SDG monitoring, the questions are asked with reference to the 12 months preceding the survey.

FAO provides estimates of food insecurity at two different levels of severity: moderate or severe food insecurity and severe food insecurity. People affected by moderate food insecurity face uncertainties about their ability to obtain food and have been forced to reduce, at times during the year, the quality and/or quantity of food they consume due to lack of money or other resources. Severe food insecurity refers to situations when individuals have likely run out of food, experienced

hunger and, at the most extreme, gone for days without eating. The prevalence of moderate or severe food insecurity is the combined prevalence of food insecurity at both severity levels.

Data source: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS

## Low birthweight

Low birthweight is defined as a weight at birth of less than 2 500 g (less than 5.51 lbs), regardless of gestational age. A newborn's weight at birth is an important marker of maternal and foetal health and nutrition.

Data source: UNICEF & WHO. 2019. UNICEF-WHO joint low birthweight estimates. In: *UNICEF*. New York, USA and Geneva, Switzerland. Cited 28 April 2020. www.unicef.org/reports/UNICEF-WHO-low-birthweight-estimates-2019

## Stunting, wasting and overweight in children under 5 years of age

Stunting (children under 5 years of age): Height/length (cm) for age (months) < -2 SD of the WHO Child Growth Standards median. Low height-for-age is an indicator that reflects the cumulative effects of undernutrition and infections since and even before birth. It may be the result of long-term nutritional deprivation, recurrent infections and lack of water and sanitation infrastructures. Stunted children are at greater risk for illness and death. Stunting often adversely affects the cognitive and physical growth of children, making for poor performance in school and reduced intellectual capacity.

Prevalence cut-off values for public health significance are as follows: very low <2.5 percent; low 2.5–<10 percent; medium 10–<20 percent; high 20–<30 percent; very high >=30 percent.

Wasting: Weight (kg) for height/length (cm) < -2 SD of the WHO Child Growth Standards median. Low weight-for-height is an indicator of acute weight loss or a failure to gain weight and can be the result of insufficient food intake and/or an incidence of infectious diseases, especially diarrhoea. Wasting indicates acute malnutrition and increases the risk of death in childhood from infectious diseases such as diarrhoea, pneumonia and measles.

Prevalence cut-off values for public health significance for wasting are as follows: very low <2.5 percent; low 2.5–<5 percent; medium 5–<10 percent; high 10–<15 percent; very high >=15 percent.

Overweight: Weight (kg) for height/ length (cm) > +2 SD of the WHO Child Growth Standards median. This indicator reflects excessive weight gain for height generally due to energy intakes exceeding children's energy requirements. Childhood overweight and obesity is associated with a higher probability of overweight and obesity in adulthood, which can lead to various non-communicable diseases, such as diabetes and cardiovascular diseases.

Prevalence cut-off values for public health significance for child overweight are as follows: very low <2.5 percent; low 2.5–<5 percent; medium 5–<10 percent; high 10–<15 percent; very high >=15 percent.

Data source: UNICEF, WHO & World Bank. 2021. U*NICEF-WHO-World Bank: Joint child malnutrition estimates - Levels and trends (2021 edition).* Cited 6 April 2022. https://data.unicef.org/resources/jme-report-2021, www.who.int/data/gho/data/themes/topics/joint-child-malnutrition-estimates-unicef-who-wb, https://datatopics.worldbank.org/child-malnutrition

## Undernourishment

Undernourishment is defined as the condition of an individual whose habitual food consumption is insufficient to provide, on average, the amount of dietary energy required to maintain a normal, active and healthy life. The indicator is reported as a prevalence and is denominated as "prevalence of undernourishment," which is an estimate of the percentage of individuals in the total population who are in a condition of undernourishment.

Data source: FAO. 2022. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. Rome. Cited November 2022. https://www.fao.org/faostat/en/#data/FS ■

# ANNEX 3
# NOTES FOR PART 1

For specific country notes, please refer to Tables A.1.1 and A.1.2 in *The State of Food Security and Nutrition in the World 2022.* (FAO *et al.*, 2022).

## Adult obesity

Some aggregates are calculated by FAO.

## Anaemia in women aged 15 to 49 years

Some aggregates are calculated by FAO.

## Child stunting, wasting and overweight

The collection of household survey data on child height and weight were limited in 2020 due to the physical distancing measures required to prevent the spread of COVID-19. Only four national surveys included in the database were carried out (at least partially) in 2020. The estimates on child stunting, wasting and overweight are therefore based almost entirely on data collected before 2020 and do not take into account the impact of the COVID-19 pandemic.

For child wasting regional estimates, values correspond to the model predicted estimates for the year 2020 only. Wasting is an acute condition that can change often and rapidly over the course of a calendar year. This makes it difficult to generate reliable trends over time with the input data available – as such, this report provides only the most recent global and regional estimates. Some aggregates are calculated by FAO.

## Cost and affordability of a healthy diet

The cost of a healthy diet is estimated in 2017 (benchmark year) using the latest retail price data available from the International Comparison Programme (ICP) led by the World Bank. To update the series in years 2018–2020, where ICP data are not available, the 2017 cost indicator was inflated using FAOSTAT data for each country's consumer price index (CPI), and World Development Indicators (WDI) data for purchasing power parity (PPP) exchange rates. Regarding affordability indicators, income distributions in the Poverty and Inequality (PIP) platform are currently available for years 2017, 2018 and 2019, but not available for year 2020. Thus, the percentage of people who cannot afford a healthy diet in 2020 was computed using the 2020 CPI-inflated cost of the diet and the corresponding 2019 income distributions available in PIP. Therefore, while affordability estimates in 2020 reflect food price shocks induced by COVID-19 pandemic, the income shocks are not yet captured. Regional and country aggregates indicating the share of people unable to afford a healthy diet are expressed as weighted percentages using population weights.

## Exclusive breastfeeding

Regional estimates are included when more than 50 percent of the population is covered. Some aggregates are calculated by FAO.

## Food insecurity

Regional estimates were included when more than 50 percent of the population was covered. To reduce the margin of error, national estimates are presented as three-year averages.

FAO estimates refer to the number of people living in households where at least one adult has been found to be food insecure.

Country-level results are presented only for those countries for which estimates are based on official national data or as provisional estimates, based on FAO data collected through the Gallup© World Poll, for countries whose national relevant authorities expressed no objection to their publication. Note that consent to publication does not necessarily imply validation of the estimate by the national authorities involved and that the estimate is subject to revision as soon as suitable data from official national sources are available. Global, regional and subregional aggregates are based on data collected in approximately 150 countries.

## Low birthweight

Some aggregates are calculated by FAO.

## Prevalence of undernourishment

Regional estimates were included when more than 50 percent of the population was covered. National estimates are reported as three-year moving averages to control for the low reliability of some of the underlying parameters such as the year-to-year variation in food commodity stocks, one of the components of the annual FAO Food Balance Sheets, for which complete and reliable information is scarce. Regional and global aggregates are reported as annual estimates on account of the fact that possible estimation errors are expected not to be correlated across countries. ■

# ANNEX 4
# COUNTRY GROUPINGS FOR PART 1

The groupings are:

- **Caucasus:** Armenia, Azerbaijan, Georgia;
- **Central Asia:** Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan;
- **CIS Europe and Ukraine:** Belarus, the Republic of Moldova, the Russian Federation, Ukraine;
- **Eastern Europe:** Belarus, Bulgaria, Czechia, Hungary, Poland, the Republic of Moldova, Romania, the Russian Federation, Slovakia, Ukraine;
- **EFTA countries:** Iceland, Norway, Switzerland;
- **EU27 and the United Kingdom:** Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom of Great Britain and Northern Ireland;
- **Northern Europe:** Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania, Norway, Sweden, the United Kingdom of Great Britain and Northern Ireland;
- **Other:** Andorra, Israel, Türkiye;
- **Southern Europe:** Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, Malta, Montenegro, North Macedonia, Portugal, Serbia, Slovenia, Spain;
- **Western Asia:** Armenia, Azerbaijan, Cyprus, Georgia, Israel, Türkiye;
- **Western Balkans:** Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia; and
- **Western Europe:** Austria, Belgium, France, Germany, Luxembourg, the Netherlands, Switzerland. ■

# ANNEX 5
# NOTES FOR SECTION 2.3.1

## Reorienting agricultural production for a healthier planet: agriculture's impact on the environment in Europe and Central Asia

This report analyses three types of environmental impacts from agricultural production: GHG emissions, impacts on biodiversity, and water footprint. These impacts are assessed for 17 countries making up the Eastern Europe subregion and the Central Asia subregion: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Montenegro, North Macedonia, Serbia, Tajikistan, Türkiye, Turkmenistan, Ukraine and Uzbekistan.[51]

These 17 countries encompass 591.1 million ha of land, of which 395.8 million (67.0 percent) is classified as agricultural land. Of this, 111.6 million ha is classified as crop land (18.9 percent). Therefore, for all agricultural land, 28.2 percent is crop land, and 71.8 percent is agricultural meadows and pastures. Kazakhstan, Türkiye and Ukraine together encompass 77.8 percent of cropland, while Kazakhstan encompasses a large majority of the pastureland and meadows for the entire region, with 64.7 percent of the total. In terms of harvested cropland, the top four crops – wheat, barley, sunflower seeds and maize – account for 72.5 percent of the total. Many countries in the region have significant endowments of natural pasture (e.g. Kazakhstan), and much of the livestock across the region are raised on natural pasture. This is significant in terms of environmental impacts, as livestock raised on natural pasture may be more sustainable than livestock produced in industrial systems, as long as stocking levels do not exceed the carrying capacity of the land (leading to land degradation, among other environmental impacts).

The 17 countries in this study have all made international commitments – and have national priorities and strategies – to reduce their GHG emissions and strengthen the conservation of biodiversity within their borders. The case of water management is less specific, as there is no global water conservation or water management agreement, but there are multiple regional-level agreements. In addition, a majority of the Eastern European and Central Asian countries face some level of water stress (particularly those in Central Asia), and therefore they have strong incentives to reduce their national water footprint.

## I BIODIVERSITY IMPACTS OF FOOD PRODUCTION IN EASTERN EUROPE AND CENTRAL ASIA

There are multiple types of impacts on biodiversity from agriculture. A key impact is habitat loss from land conversion, but there are others, such as effects from agricultural chemicals, impacts on water quality that affect biodiversity, and various other effects on insects (including pollinators), birds and small mammals. Quantifying such impacts is extremely difficult given the heterogeneity of biodiversity and agriculture across landscapes over time and given limited data availability. There has been recent progress in trying to further analyse and quantify aggregate impacts from agriculture on biodiversity.

The 17 countries in this review were further analysed to understand relative biodiversity impacts by country and by crops and pasture. The Beyer and Manica (2021) data set provides data on three measures of biodiversity, as indicated above: species richness, threatened species richness, and range rarity. The Beyer and Manica data is summarized across three angles:

biodiversity footprint distributions, per yield biodiversity footprint distributions and spatially aggregated biodiversity footprint distributions. As described in the Beyer and Manica analysis, "for any given country and crop, the median value (fiftieth percentile) of these distributions provides an estimate of the average number of species, average number of threatened species, and the average range rarity, that has been lost, compared to the scenario of natural habitat, on the growing areas of the crop of interest in the country of interest" (Beyer and Manica, 2021).

**(1) Spatially aggregated biodiversity footprint distributions by country**

While the Beyer and Manica data provide three angles of analysis (biodiversity footprint, per yield biodiversity footprint and spatially aggregated biodiversity footprint), spatially aggregated biodiversity footprint is the most useful for analysing and comparing impacts on a country-by-country basis.

Among the 17 countries, food crops in Ukraine, Türkiye and Kazakhstan have the greatest impact on species richness (totalling 72.4 percent of total impact), as seen in TABLE A5.2. The picture is slightly different when looking at impacts of pasture on species richness, as a majority of the impact is found in Kazakhstan (61.1 percent), with the next greatest impact found in Turkmenistan (12.1 percent) and Uzbekistan (9.1 percent). Based on this significant share of impact from pastures, related to the large area of pasture in Kazakhstan, Kazakhstan has the largest overall impact in terms of food agriculture impact on species richness. In total, the top three countries account for 72.2 percent of the total impact, and the top five countries account for 87.9 percent.

A small number of countries also account for a large majority of impact in relation to impact on threatened species richness (TABLE A5.3), with the same three countries (Türkiye, Ukraine and Kazakhstan) having the greatest impact in terms of both food crops (totalling 76.7 percent of total impact) and pasture (totalling 87.3 percent of total impact).

The impact on range rarity (TABLE A5.4) has similar results, but again with some slight differences compared to the previous two measures of impact. Türkiye has the most significant impact in terms of food crops (38.1 percent), and Kazakhstan has the most significant impact in terms of pasture (48.6 percent), but at a slightly lower relative share than the impact on species richness and threatened species richness. Ukraine (19.2 percent) and Kazakhstan (10.8 percent) also have significant impacts and remain in the top three countries, but also at lower relative impact shares than the previous measures. In terms of food crop impact, Azerbaijan (4.4 percent), Georgia (4.3 percent), Uzbekistan (3.8 percent) and Serbia (3.4 percent) also have notable impacts. Pasture impacts on range rarity are also notable for Turkmenistan (14.1 percent), Türkiye (9.6 percent) and Uzbekistan (8.6 percent). On the whole, the impact on range rarity is slightly more evenly distributed among the countries compared to the previous two measures; the impact on range rarity has a median value of 2.1 percent, compared to 1.8 percent and 1.1 percent for the previous two measures. The top three countries in terms of food crop impact account for 68.2 percent of the total impact, and the top three countries in terms of pasture impact account for 72.3 percent of the total impact.

On a per country basis, it is clear that a large majority of the biodiversity impact can be found in three to five of the total 17 countries. These are naturally the largest countries, which also have the greatest amount of agricultural production, both in terms of area under cultivation and production volume: Ukraine, Kazakhstan and Türkiye. Turkmenistan and Uzbekistan also have significant impacts in terms of pasture. At the same time, most of the remaining countries may have relatively smaller impacts, but their biodiversity impacts are also very important to consider and attempt to remediate, as biodiversity resources are local and are not fungible

across landscapes, as GHG emissions are. Therefore, even an impact share of approximately 1–2 percent for some of the smaller countries should be urgently addressed.

**(2) Spatially aggregated biodiversity footprint distributions by crop**

As might be expected, the crops with the largest spatially aggregated impact on biodiversity species richness are the major commodity crops, which are the crops produced across the largest areas and in the largest quantities. TABLE A5.5 summarizes the spatially aggregated impact on biodiversity species richness, threatened species richness and range rarity by crop. The 15 crops with the largest impacts are the same for the three measures of biodiversity impact, although the rank order varies slightly. Wheat has by far the greatest impact, followed by barley. The top 15 crops account for 85.5–87.5 percent of the total biodiversity impact (see TABLE A5.6).

Pasture has a more significant impact on biodiversity than any individual food crop (TABLE A5.5), with a total impact of almost four times the impact of food crops on species richness, almost nine times the impact of food crops on threatened species richness, and almost three and a half times the impact of food crops on range rarity. This is roughly to be expected, as pastureland accounts for 72.8 percent of agricultural land vs 28.2 percent for cropland (a ratio of almost 3:1), as highlighted in the introduction; much of this disparity is due to Kazakhstan, which accounts for 64.7 percent of pastureland among the 17 countries. ANNEX FIGURE 5.1 summarizes the relative share of food crops vs pasture in terms of the three types of biodiversity impacts.

**(3) Per yield biodiversity footprint distributions by crop**

The data from Beyer and Manica (2021) on per yield crop impacts does not present a clear picture in terms of which crops have the most significant biodiversity impacts on a per unit basis. The data provide an impact value that is less than 100 for most crops, but nine crops have a standard deviation of over 100, indicating that for those nine crops, there are widely varying footprint impacts across countries. The most extreme example is soybeans, which has an average impact of 35.32 across 15 of the 17 countries, but for Tajikistan and Uzbekistan, the impact value is given as 3 100 and 2 900, respectively; it is not clear if these outliers are due to actual specific conditions on the ground related to growing soybeans in Tajikistan and Uzbekistan or some other factors related to the way the source data were generated.

On a per yield basis, the impact of pasture cannot be calculated, as the "yield" from pasture is further downstream in the trophic chain, as it is converted to meat and milk.

Looking across all food crops, the average per yield impact on species richness is 31.62. Keeping in mind the above caveat, the crops with significant outlier values that have the largest average per yield impact are soybeans, hempseeds, sorghum, almonds, buckwheat, cashew nuts, hops, millet and rapeseeds. The crops without significant outlier values that have the largest average per yield impact on species richness are mustard seeds, tea, lentils, sesame seeds, safflower seeds, pepper, chickpeas, poppy seeds, pulses, spices, sunflower seeds and anise.

## II WATER IMPACT OF AGRICULTURAL FOOD PRODUCTION IN EASTERN EUROPE AND CENTRAL ASIA

This section of this report examines the water footprint of agricultural food products. The analysis is considered on a per yield basis, as the total agricultural water footprint for a particular type of crop or a particular country is mainly relevant in the context of the availability of water resources and the potential transboundary distribution of water resources, which is beyond the scope of this analysis. The level of water stress varies significantly across the 17 countries in the scope of this analysis, as shown in ANNEX FIGURE 5.2 (Hofste, Reig and Schleifer, 2019), with countries in the

Eastern Europe subregion generally experiencing lower water stress than those in Central Asia. In general, it is assumed that even for countries with lower levels of water stress, less water usage for agriculture relates to lower environmental impact.

The significance of the water footprint of a specific crop or livestock product is directly correlated with the availability of water in the specific location where it is produced; however, as indicated in this analysis, few of the countries in Eastern Europe and Central Asia have adequate water available for agriculture throughout their territories, and multiple countries face high levels of water stress. There are significant data limitations in analysing water footprints, because (as with GHG emissions) water requirements for agriculture can vary significantly over time, especially depending on hydrometeorological factors. In irrigated areas, the irrigation technology used also can play a major role.

As with GHG emissions, livestock food products generally require more water than crop food products, and therefore prioritizing the production of crop food products over livestock food products is likely to reduce the overall water footprint from agriculture. However, some food crops, such as nuts and legumes, also have water footprints comparable to some livestock products. The crops with the smallest water footprint on a per yield basis are root vegetables and a variety of other fresh fruits and vegetables. The most water-efficient crops have water footprints approximately 20 to 40 times smaller than the crops with the largest water footprints. However, given the relatively low level of deployment of water-efficient technologies across Eastern Europe and Central Asia, pursuing policies and initiatives that increase the use of water-efficient irrigation technologies may be a more effective policy, at least in the short and medium term, than trying to shift the production of specific crops to specific geographic areas based on their water footprint. At the same time, it is logical that countries under high levels of water stress should seek to minimize the production of crops with large water footprints (and, conversely, promote crops with low water footprints). Again, increasing the efficiency of agricultural production can also play a key role. This will be particularly relevant as the impacts of climate change are increasingly felt in agriculture, as climate change is, on average, expected to reduce agricultural yields, including through reduced water availability.

## III POLICY IMPLICATIONS AND OPPORTUNITIES FOR REDUCING THE ENVIRONMENTAL IMPACT OF FOOD PRODUCTION

Given the above findings, one broad (and previously well-known) conclusion is that livestock products have greater environmental impacts than crops. There are numerous specific actions that can be pursued to reduce the environmental impact of livestock products, both in terms of policies and technocratic means. Perhaps the most critical large-scale action is to ensure that livestock are produced through land management systems that respect the carrying capacities of ecosystems. The implementation of sustainable pasture management systems across Eastern Europe and Central Asia is paramount.

### Mainstream Just Transition in the context of agricultural rural transformation to the policy in Europe and Central Asia

The Just Transition framework has the objective of ensuring that those who depend on high-emissions jobs for their livelihoods are not abandoned in the transition towards a greener economy. A Just Transition therefore implies that justice and equity should form an integral part of greening the economy, thus creating job opportunities and leaving no one behind. National governments and international agencies have thus focused on identifying the sectors subject to the largest impact, along with the skills and needed support for this transition. Given the growing pressure and need to support more sustainable industries and processes, there is mounting

momentum for Just Transition strategies. Despite remarkable efforts from a variety of actors (e.g. International Labour Organization, European Union, etc.), supporting the Just Transition in rural areas through the generation of green jobs in agrifood systems and value chains has been so far overlooked. Solid technical expertise is necessary to better understand the entry points and linkages between decarbonization processes and their impacts on rural areas and to support agricultural rural transformation in the process. Such support can contribute to an inclusive phasing-out process that leaves no one behind – while reinforcing agricultural production and sustainable food value chain development. In these areas, green jobs in agrifood value chains can contribute to providing decent and sustainable employment opportunities to rural and periurban workers and their communities. Social protection systems also can be leveraged to support the transition to green jobs while protecting vulnerable households and workers' livelihoods from climate-related impacts.

The emissions intensity for the top 20 emission-producing food crop and animal food products are shown in TABLE A5.1. Beef meat has a GHG emission intensity 20 times higher than tomatoes and grapes, 28 times higher than maize, and almost 70 times higher than potatoes.

The emissions intensity figures indicate that there are greater potential reductions in GHG emissions by shifting production from livestock to crops as compared to increasing the efficiency of livestock production. Beef generates between 20 and 70 times as much emissions as most crops, while among the 17 countries in this analysis, GHG emissions per kg of livestock food may only be reduced by two to four times (excluding Tajikistan).

This current analysis highlights some of the general trends in agricultural water footprints at the global level based on the findings of Mekonnen and Hoekstra (2010) and other related research. Then, analysis is summarized for the 17 Eastern European and Central Asian countries in the scope of this analysis, based on the crop-country-specific data provided by Mekonnen and Hoekstra (2010).

For short-season vegetable crops, there are a wide variety of variables that can influence water footprints, and generating consistently accurate estimates is extremely difficult, as described in Le Roux *et al.* (2016).

While accurate accounting for individual crops in a specific geographic context can be challenging, broad findings can be drawn from large data sets covering a large number of crops at the global level, such as the data provided by Mekonnen and Hoekstra (2010), who summarized their general findings at the global level as such:

"Considering the water footprints of primary crops, we see that the global average water footprint per ton of crop increases from sugar crops (roughly 200 $m^3$/tonne), vegetables (300 $m^3$/tonne), roots and tubers (400 $m^3$/tonne), fruits (1000 $m^3$/tonne), cereals (1600 $m^3$/tonne), oil crops (2400 $m^3$/tonne) to pulses (4000 $m^3$/tonne). The water footprint varies, however, across different crops per crop category and per production region as well. Besides, if one considers the water footprint per kcal, the picture changes as well" (Mekonnen and Hoekstra, 2010).

As previously mentioned, livestock and poultry products have larger water footprints than do crops.

All of the Eastern European and Central Asian countries have a water footprint per tonne of crops that is lower than the global average – except for Tajikistan, which has an average per yield water footprint more than three times the global average. (Similar inefficiencies are found in Tajikistan in relation to the production of animal food products, with animal product footprints averaging more than double any other country in the region.) However, only two of the 17 countries have an average water footprint per ton of crops lower than Canada (as a reference point). Uzbekistan has a significantly higher than average blue water footprint – namely, surface and groundwater

consumed. On the contrary, Ukraine has a significantly higher green water footprint – namely, rainwater consumed – and a lower blue water footprint. Multiple additional countries have blue water footprints that are notably below average, including Belarus, Bosnia and Herzegovina, Georgia, North Macedonia, Republic of Moldova, Montenegro and Serbia.

As a group, the Eastern European and Central Asian countries have an average total water footprint per unit of livestock that is 25 percent higher than the world average (138 821 m³/tonne vs 111 043 m³/tonne); however, five Eastern European countries have a total water footprint per unit of livestock products that is lower than the world average: Belarus, Bosnia and Herzegovina, North Macedonia, Republic of Moldova and Ukraine.

When comparing crops vs animal products, some of the crops with the largest water footprint, such as pulses, are comparable to some of the animal products with high water footprints. For example, lentils, with a water footprint of 12 874 m³/tonne, is comparable with beef meat, with a water footprint of 12 977 m³/tonne (excluding Tajikistan). However, on the whole, the average water footprint per tonne of animal product is much higher than the average water footprint per tonne of crop food product: 10 679 vs 3 920. ■

**TABLE A5.1**
Agriculture emissions by food product in Europe and Central Asia (emissions intensity average across the region)

| Product | Emissions intensity (kg $CO_2e$/kg product)* | Total emissions ($tCO_2e$)** | Share of total emissions, % | Cumulative share, % |
|---|---|---|---|---|
| **Wheat** | 0.8 | 61 405 506 | 14.7 | 14.7 |
| **Meat, cattle** | 13.88 | 56 789 258 | 13.6 | 28.3 |
| **Milk, whole fresh cow** | 0.81 | 53 563 475 | 12.8 | 41.1 |
| **Sunflower seed** | 2.1 | 41 680 592 | 10.0 | 51.0 |
| **Maize** | 0.5 | 28 510 315 | 6.8 | 57.8 |
| **Sugar beet** | 0.5 | 18 960 339 | 4.5 | 62.4 |
| **Meat, sheep** | 13.57 | 15 823 448 | 3.8 | 66.1 |
| **Tomatoes** | 0.7 | 14 652 756 | 3.5 | 69.6 |
| **Rapeseed** | 2.3 | 10 237 282 | 2.4 | 72.1 |
| **Potatoes** | 0.2 | 8 876 099 | 2.1 | 74.2 |
| **Offals, edible, cattle** | 13.88 | 8 853 949 | 2.1 | 76.3 |
| **Rice, paddy** | 3.6 | 8 063 662 | 1.9 | 78.3 |
| **Soybeans** | 1.5 | 7 403 987 | 1.8 | 80.0 |
| **Olives** | 4.3 | 7 042 398 | 1.7 | 81.7 |
| **Grapes** | 0.7 | 6 108 169 | 1.5 | 83.2 |
| **Rice, paddy (rice milled equivalent)** | 3.6 | 5 378 465 | 1.3 | 84.5 |
| **Milk, whole fresh sheep** | 2.65 | 4 942 065 | 1.2 | 85.6 |
| **Barley** | 0.2 | 4 818 652 | 1.2 | 86.8 |
| **Watermelons** | 0.4 | 3 699 035 | 0.9 | 87.7 |
| **Eggs, hen, in shell** | 0.84 | 3 044 573 | 0.7 | 88.4 |

* SOURCES:

i. Crops (global average): Poore, J. & Nemecek, T. 2018. Reducing food's environmental impacts through producers and consumers. *Science*, 360(6392): 987–992. https://doi.org/10.1126/science.aaq0216

ii. Weighted average for animal products based on FAOSTAT emissions intensity data for 2017 for 17 countries: FAO. 2020. FAOSTAT: Emissions Intensities. In: *FAO*. Rome. https://www.fao.org/faostat/en/#data/EI

** Based on 2019 production totals from FAOSTAT for 17 countries.

## TABLE A5.2
Share of impact on species richness (crops without pasture), by country, pasture and total

| Country | Share of food crop impact on species richness without pasture, % | Share of pasture impact on species richness, % | Total share of species richness impact, % |
|---|---|---|---|
| **Ukraine** | 28.5 | 2.3 | 7.6 |
| **Türkiye** | 26.5 | 5.8 | 10.0 |
| **Kazakhstan** | 17.4 | 61.1 | 52.2 |
| **Belarus** | 5.7 | 1.2 | 2.1 |
| **Uzbekistan** | 4.0 | 9.1 | 8.1 |
| **Serbia** | 3.5 | 0.5 | 1.1 |
| **Republic of Moldova** | 2.4 | 0.1 | 0.6 |
| **Azerbaijan** | 2.4 | 1.1 | 1.3 |
| **Turkmenistan** | 1.8 | 12.1 | 10.0 |
| **Georgia** | 1.6 | 0.6 | 0.8 |
| **Kyrgyzstan** | 1.4 | 3.4 | 3.0 |
| **Bosnia and Herzegovina** | 1.3 | 0.4 | 0.6 |
| **Tajikistan** | 1.1 | 1.6 | 1.5 |
| **North Macedonia** | 0.8 | 0.3 | 0.4 |
| **Albania** | 0.7 | 0.2 | 0.3 |
| **Armenia** | 0.5 | 0.3 | 0.4 |
| **Montenegro** | 0.5 | 0.1 | 0.2 |

SOURCE: UNDP analysis of 2019 FAOSTAT data.

## TABLE A5.3
Share of impact on threatened species richness (crops without pasture, pasture and total) by country

| Country | Share of total food crop impact on threatened species richness without pasture, % | Share of pasture impact on threatened species richness, % | Total share of threatened species richness impact, % |
|---|---|---|---|
| **Türkiye** | 35.8 | 5.4 | 8.5 |
| **Ukraine** | 23.3 | 1.3 | 3.6 |
| **Kazakhstan** | 17.6 | 64.0 | 59.2 |
| **Uzbekistan** | 5.1 | 10.1 | 9.6 |
| **Belarus** | 4.9 | 0.6 | 1.1 |
| **Azerbaijan** | 3.4 | 0.9 | 1.2 |
| **Turkmenistan** | 2.8 | 13.2 | 12.1 |
| **Georgia** | 2.0 | 0.5 | 0.6 |
| **Kyrgyzstan** | 1.1 | 2.2 | 2.1 |
| **Tajikistan** | 1.1 | 1.2 | 1.2 |
| **Serbia** | 1.0 | 0.1 | 0.2 |
| **Republic of Moldova** | 0.8 | 0.0 | 0.1 |
| **Armenia** | 0.7 | 0.3 | 0.3 |
| **Albania** | 0.3 | 0.1 | 0.1 |
| **Bosnia and Herzegovina** | 0.0 | 0.1 | 0.1 |
| **Montenegro** | 0.0 | 0.0 | 0.0 |
| **North Macedonia** | 0.0 | 0.1 | 0.0 |

SOURCE: UNDP analysis of 2019 FAOSTAT data

**TABLE A5.4**
Share of impact on biodiversity range rarity (crops without pasture, pasture and total) by country

| Country | Share of total food crop impact on biodiversity range rarity, % | Share of pasture impact on biodiversity range rarity, % | Share of total impact on biodiversity range rarity, % |
|---|---|---|---|
| **Türkiye** | 38.1 | 9.6 | 16.1 |
| **Ukraine** | 19.2 | 1.6 | 5.6 |
| **Kazakhstan** | 10.8 | 48.6 | 40.1 |
| **Azerbaijan** | 4.4 | 2.3 | 2.7 |
| **Georgia** | 4.3 | 3.9 | 4.0 |
| **Uzbekistan** | 3.8 | 8.6 | 7.5 |
| **Serbia** | 3.4 | 0.5 | 1.1 |
| **Belarus** | 2.1 | 0.4 | 0.8 |
| **Albania** | 2.1 | 0.3 | 0.7 |
| **Kyrgyzstan** | 2.0 | 5.3 | 4.6 |
| **Armenia** | 1.9 | 1.4 | 1.5 |
| **Bosnia and Herzegovina** | 1.7 | 0.3 | 0.6 |
| **Republic of Moldova** | 1.5 | 0.1 | 0.4 |
| **Turkmenistan** | 1.5 | 14.1 | 11.2 |
| **Tajikistan** | 1.4 | 2.5 | 2.2 |
| **North Macedonia** | 1.0 | 0.5 | 0.6 |
| **Montenegro** | 0.8 | 0.1 | 0.2 |

SOURCE: UNDP analysis of 2019 FAOSTAT data

**TABLE A5.5**
Share of impact on biodiversity range rarity (crops without pasture, pasture and total) by crop

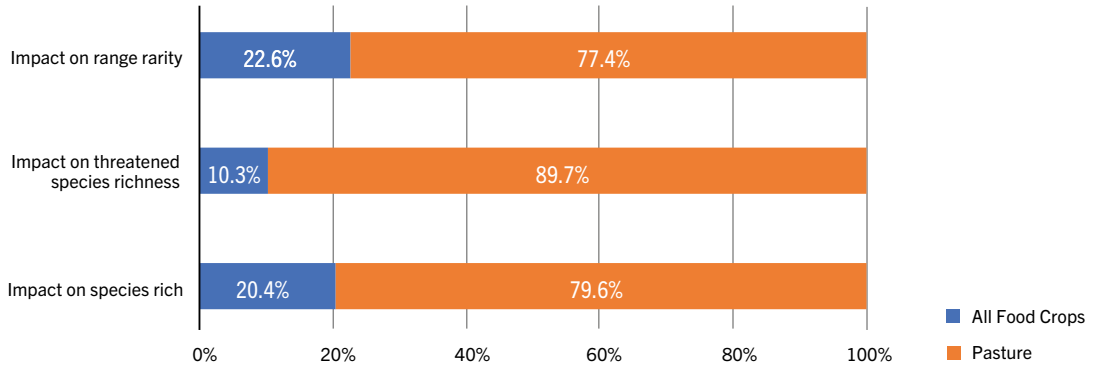
| Food crop | Share of impact on species richness (rank), % | Share of impact on threatened species richness (rank), % | Share of impact on range rarity (rank), % |
|---|---|---|---|
| **Wheat** | 39.2 (1) | 40.8 (1) | 37.9 (1) |
| **Barley** | 15.3 (2) | 16.6 (2) | 15.1 (2) |
| **Maize** | 6.4 (3) | 4.4 (4) | 8.0 (3) |
| **Sunflower seeds** | 5.3 (4) | 4.8 (3) | 4.9 (4) |
| **Potatoes** | 4.6 (5) | 4.0 (5) | 3.7 (5) |
| **Maize** | 4.0 (6) | 3.5 (6) | 2.9 (6) |
| **Rye** | 2.3 (7) | 2.0 (7) | 1.5 (10) |
| **Sugar beets** | 2.1 (8) | 1.8 (9) | 1.6 (9) |
| **Oats** | 1.9 (9) | 1.6 (10) | 1.3 (12) |
| **Grapes** | 1.8 (10) | 2.0 (8) | 2.6 (7) |
| **Olives** | 1.0 (11) | 1.3 (11) | 1.7 (8) |
| **Apples** | 1.3 (12) | 1.3 (12) | 1.5 (11) |
| **Tomatoes** | 0.8 (13) | 0.9 (15) | 1.1 (14) |
| **Chickpeas** | 0.8 (14) | 1.1 (13) | 1.3 (13) |
| **Lentils*** | 0.5 (22) | 1.0 (14) | 0.4 (28) |
| **Top 15 share of total impact** | 87.5 | 87.1 | 85.5 |

*Not in the Top 15 for species richness and range rarity.
SOURCE: UNDP analysis of 2019 FAOSTAT data

## TABLE A5.6
Share of impact on biodiversity, by food crop and pasture (spatially aggregated index values)

| | Impact on species richness | Impact on threatened species richness | Impact on range rarity |
|---|---|---|---|
| **All food crops** | 3 163 538 349.15 | 147 069 688.75 | 11.53 |
| **Pasture** | 12 338 892 456.52 | 1 281 657 082.57 | 39.42 |

## ANNEX FIGURE 5.1
Share of impact on biodiversity, by food crop and pasture




## ANNEX FIGURE 5.2
Level of water stress in selected countries of Europe and Central Asia

| Country | Level of water stress | Global water stress rank |
|---|---|---|
| **Albania** | **High** | 33 |
| **Armenia** | **High** | 34 |
| **Azerbaijan** | **Medium-High** | 46 |
| **Belarus** | **Low** | 115 |
| **Bosnia and Herzegovina** | **Low-Medium** | 97 |
| **Georgia** | **Low-Medium** | 91 |
| **Kazakhstan** | **Medium-High** | 60 |
| **Kyrgyzstan** | **High** | 38 |
| **Republic of Moldova** | **Low-Medium** | 99 |
| **Montenegro** | **Low** | 121 |
| **North Macedonia** | **Medium-High** | 52 |
| **Serbia** | **Low** | 109 |
| **Tajikistan** | **Medium-High** | 51 |
| **Türkiye** | **High** | 32 |
| **Turkmenistan** | **Extremely-High** | 16 |
| **Ukraine** | **Low-Medium** | 85 |
| **Uzbekistan** | **High** | 25 |

# ANNEX 6
# TABLES FOR SECTION 2.2.3

**TABLE A6.1**
Policy measures on food security and nutrition for the promotion of healthy diets in Europe and Central Asia

| Country | Legislation and regulative measures | Health programmes/ plans with nutrition component | Codes or measures relevant to nutrition | Food security/ agri-strategies | Nutrition-sensitive rural development and agri-programmes | National nutrition strategy/ action plan | Dietary guidelines | Others or specific documents on nutrition |
|---|---|---|---|---|---|---|---|---|
| **Albania** | X | X | - | X | - | X | - | Iodization |
| **Andorra** | - | - | - | - | - | - | - | - |
| **Armenia** | X | X | X | - | X | - | X | EAEU regulation |
| **Austria** | X | X | X | X | X | X | X | Less salt |
| **Azerbaijan** | - | X | - | X | X | - | - | - |
| **Belarus** | X | X | - | X | X | - | X | EAEU regulation |
| **Belgium** | - | X | - | X | X | X | X | European Union regulation |
| **Bosnia and Herzegovina** | X | X | X | - | - | X | - | |
| **Bulgaria** | X | X | X | - | - | X | - | European Union regulation |
| **Croatia** | X | X | X | X | - | X | X | European Union regulation |
| **Cyprus** | - | - | - | X | - | X | - | European Union regulation |
| **Czechia** | X | X | - | X | - | X | - | European Union regulation |
| **Denmark** | X | X | - | X | - | X | X | European Union regulation |
| **Estonia** | X | X | - | X | - | X | - | European Union regulation |
| **Finland** | X | X | - | - | - | X | X | Breastfeeding<br>European Union regulation |
| **France** | X | X | X | - | - | X | X | European Union regulation |
| **Georgia** | X | X | - | X | X | - | - | Breastfeeding |
| **Germany** | X | X | X | - | - | X- | X | European Union regulation |
| **Greece** | X | X | X | - | - | X | - | European Union regulation |
| **Hungary** | X | X | X | - | - | X | - | European Union regulation |
| **Iceland** | X | X | - | X | - | X | X | European Union regulation |
| **Ireland** | X | X | X | - | - | X | X | European Union regulation |
| **Israel** | X | X | X | - | - | X | - | Salt reduction |
| **Italy** | X | X | X | - | - | X | X | European Union regulation |

**TABLE A6.1** (Continued)

| Country | Legislation and regulative measures | Health programmes/ plans with nutrition component | Codes or measures relevant to nutrition | Food security/ agri-strategies | Nutrition-sensitive rural development and agri-programmes | National nutrition strategy/ action plan | Dietary guidelines | Others or specific documents on nutrition |
|---|---|---|---|---|---|---|---|---|
| **Kazakhstan** | X | X | X | - | - | X | - | Iodization |
| **Kyrgyzstan** | X | X | X | X | - | - | - | - |
| **Latvia** | X | X | X | X | X | - | X | EAEU regulation |
| **Lithuania** | X | X | - | X | - | X | X | Less salt |
| **Luxembourg** | X | X | X | - | - | - | - | - |
| **Malta** | X | X | - | X | - | - | X | EAEU regulation |
| **Montenegro** | X | X | X | - | - | X | X | European Union regulation |
| **Netherlands** | X | X | X | - | - | X | - | |
| **North Macedonia** | X | - | X | X | - | X | - | European Union regulation |
| **Norway** | X | X | - | - | - | X | X | European Union regulation |
| **Poland** | X | X | X | X | X | X | - | European Union regulation |
| **Portugal** | X | X | X | - | - | X | - | European Union regulation |
| **Republic of Moldova** | X | X | X | - | - | X | X | European Union regulation |
| **Romania** | X | X | - | X | - | X | - | European Union regulation |
| **Russian Federation** | X | X | X | X | - | X | X | Breastfeeding |
| **San Marino** | X | X | X | - | - | | | |
| **Serbia** | X | X | X | - | - | X | X | European Union regulation |
| **Slovakia** | X | X | - | - | | - | - | Breastfeeding |
| **Slovenia** | X | X | X | X | - | X- | X | European Union regulation |
| **Spain** | X | X | - | X | - | X | - | European Union regulation |
| **Sweden** | X | X | - | X | - | X | - | European Union regulation |
| **Switzerland** | X | X | X | - | - | X | X | European Union regulation |
| **Tajikistan** | X | X | - | X | X | X | X | European Union regulation |
| **Türkiye** | X | X | X | - | - | X | - | Salt reduction |
| **Turkmenistan** | X | X | - | - | - | X | X | European Union regulation |
| **Ukraine** | X | X | X | - | - | | | |
| **United Kingdom** | X | X | X | - | - | | | |
| **Uzbekistan** | X | X | X | X | - | | | |
| **Number of countries** | 48 | 49 | 31 | 25 | 9 | | | |
| **Share of countries, %** | 90 | 90 | 59 | 47 | 14 | | | |

SOURCE: WHO. 2022. Global database on the Implementation of Nutrition Action (GINA). In: *WHO.* https://extranet.who.int/nutrition/gina/en

**TABLE A6.2**
Suggested double-duty action road map to overcome the double burden of malnutrition in Europe and Central Asia

| Action areas | Entry points for double-duty actions in Europe and Central Asia | Comments |
|---|---|---|
| **Regulation: updating and adopting regulative framework** | | |
| Laws and relevant regulation | Exist in 90 percent of the countries | Review and update required |
| Food safety standards | The slow adaptation of food safety standards | In the countries of Western Balkans and Central Asia |
| School feeding | Only 37 countries | Only 80 percent reported |
| Requirements on capacity and skills for nutrition education | Consideration for development | Help is required from donors |
| Dietary guidelines for different groups of the population | Guidelines exist in about 90 percent of the countries, with limited coverage | The guidelines are mainly on young childhood and mothers |
| Programmes to protect, promote and support breastfeeding and young child feeding | The ECA region is behind the average world level and dropping | Indicators on breastfeeding have decreased |
| **Capacity building** | | |
| Training of food producers, catering, small food vendors in all territories and sectors | Does not exist or exists in a limited form, not considering fat, sugar, salt and sodium limits | This action has to be combined with advocacy and specialized courses for different population groups |
| Training of frontline health workers in health and physical centres, including schools | 54 percent of the countries conduct training on healthy nutrition | Social media involved |
| Training of officials on healthy diets | – | Including regional, local and districts |
| Inclusion of nutritional issues in education programmes at all levels | 49 percent of the countries have national health nutrition education in schools | Special training programmes have to include national and local traditions |
| Arranging online and digital communication facilities for all trainings | Very limited and fragmented by using television and social media | Unified approach and harmonization needed |
| Conducting roving seminars for farmers to sensitize them about weather and climate information and its applications in operational farm management | The roving seminars have already been organized in several countries of Central and Eastern Europe | These seminars increase the interaction between the local farming communities and the local staff of the national meteorological and hydrological services |
| **Food safety certification, codes and measures** | | |
| Develop, update and adopt food standards codes | It is estimated that in the WHO European region every year, more than 23 million people fall ill and almost 5 000 people die from eating contaminated food (WHO, 2017c) | Cluster of street food vendors trained and then certified – street food hubs, Eat Right Stations |

**TABLE A6.2** (Continued)

| Action areas | Entry points for double-duty actions in Europe and Central Asia | Comments |
|---|---|---|
| Disseminate food safety guidelines among the population | Food safety awareness, knowledge and education also need to be enhanced at various levels, including through university curricula, school education, food safety training for food business operators, and consumer awareness labelling. Food safety governance requires systems to respond to food safety incidents and emergencies. Addressing all aspects of health in the agrifood system – including animal health, zoonotic diseases and plant pests and diseases, to minimize hazards entering the food chains – also needs to be prioritized. Multiple stakeholders across agriculture, veterinary, public health and the environment, from both public and private sectors, need to work together. | • Hygiene rating of restaurants with training followed by certification and auditing<br>• Campus certifications for food safety and nutrition options for children |
| Certification on professional skills and licensing for business entities (all vendors) | | Eat Right Campus to encourage breastfeeding and offering safe and healthy food options |
| Strengthening risk-based food inspection systems for hygiene rating of individuals and/or outlets | | |
| Certification for professionals and licensing for business entities and campuses | | |
| **Motivation of agrifood sector to nutritionally healthy production** | | |
| Awareness raising among business and farming community | The existing platforms and networks, as well as capacities on advocacy- and awareness-raising at a certain level in all countries, to different extents, requires more attention and funding | Wide advocacy campaign required by specialized institutions and attraction of trained volunteers |
| Initiations on reducing fat, salt and sugar by official authorities in cooperation with business entities and NGOs on developing and implementing programmes and projects | Voluntary pledges by food businesses to reduce fat, salt, and sugar:<br>• Strengthen food fortification programme (voluntary and mandatory)<br>• Regulations on packaging and food labelling<br>• Active food distribution agencies<br>• Food donation helpline | Investments and costs of action have to be predicted |
| Introduction of standards | | Regulation required |
| Setting up and/or developing adequately trained and prepared professional entities on healthy nutrition for educating, information disseminating and controlling functions | | Investments based on PPP |
| **Behaviour orientation to healthy diets** | | |
| Advocacy and awareness raising on healthy diets<br>• Mass media campaigns<br>• Eat right and healthy<br>• Physical exercises | Exist but require increased efforts and more information sharing | Regular consultations and discussions with professionals at all levels |
| Social media and nutritional platforms | The existing relevant platforms, in particular Food System Summit 2021 | Regional, national and local platforms are needed |
| **Sustain nutrition leadership and governance in normal and emergency contexts** | | |
| Strengthening relative regulation | Almost all countries (90 percent) of the ECA region have legislative documents, but review is needed for more inclusion of healthy nutrition and diets | Exist partly, with updating required |
| Setting up specialized professional structures for leading, monitoring and evaluating | | Relative funding and use of information and communications technologies |
| Setting up mechanism for actions in emergencies | Monitoring and evaluation exist in 79 percent and 68 percent, respectively | The COVID-19 pandemic has demonstrated the urgent need for such a mechanism |
| Strengthening emission controls may lead to similar improvements in the ECA region, in particular in the problematic countries, based on the previous experience during the 1980s and 1990s in Europe | Human-made hydrocarbon and nitrogen oxide emissions may lead to reductions in ozone formation, which may in turn lead to decreases in ozone deposition and reductions in crop yield loss and overall environment degradation | The establishment of a WMO Regional Agrometeorological Centre for Regional Association VI, commonly agreed upon by Europe, the Near East and the Caucasus, could enhance the national, subregional and regional social-economic benefits from h ydrometeorological services and products |

**TABLE A6.2** (Continued)

| Action areas | Entry points for double-duty actions in Europe and Central Asia | Comments |
|---|---|---|
| **Social behaviour and protection, with scaling up the targeting of the delivery of quality and coverage programmes to the most at-risk areas and population groups** | | |
| Develop targeted advocacy and awareness-raising policy for addressing all forms of malnutrition | Advocacy arranged in limited way by social media | Methodological guidance based on traditions and culture prepared |
| • Incentivize and use cash transfers to purchase nutritious foods | It is in use in many countries of the ECA region but requires more nutrition orientation | Create network at the level of urban and rural communities to eliminate food waste and food sharing |
| • Ensure focus on quality (vs quantity) for foods delivered | | Training local communities on food quality control |
| Widely disseminate positive study results to policymakers on the effectiveness of using policy measures addressing all forms of malnutrition | Depends on controlling by relevant authorized bodies | Public and private funds allocation |
| Disseminate best frameworks on food procurement in the public sector | Does not exist or exists in a very limited way | Inspection groups have to be prepared. WHO procurement framework in line with national legislation |
| Conduct database and research studies for social protection in line with enhancing food security and nutrition | National legislation exists in the countries | More funding for these actions is desperately required |
| Converge to nutrition-specific and nutrition-sensitive food interventions at the community and household level | It exists in a limited form and does not cover all issues related to multiple malnutrition and does not consider double-duty actions | |
| Develop nutrition-sensitive programmes and projects through social protection systems | | Special consideration and actions must be developed based on circumstances, with the allocation of special funds |
| Incorporate nutrition-sensitive components into school feeding programmes | | |
| **Monitoring and evaluation the implementation of strategies, programmes and plans related to health, nutrition, nutritionally sensitive agrifood production, nutrition education programmes, etc.** | | |
| Regular evaluation of the programmes being implemented | Monitoring and evaluation mechanisms do not exist in all countries of the ECA region | |
| Reporting on main indicators on nutrition and healthy diets | Reporting exists, with limited indicators, but not in all countries | |
| Analysis on the achievements and gaps on food security and nutrition | Done with limited nutrition data | |
| Building database on main food security and nutrition indicators by covering all levels | Database on food security and nutrition in part of healthy diets and nutrition is limited | |

SOURCE: Adapted from WHO, GFF (Global Financing Facility), IFPRI (International Food Policy Research Institute), City University of London, Kennedy-Wood, K. & Holschneider, S. 2020. *Double Burden to Double Duty: Policy Implications of Double-Duty Actions to Address the Full Spectrum of Malnutrition | World Food Programme*. https://www.wfp.org/publications/double-burden-double-duty-policy-implications-double-duty-actions-address-full

# NOTES

## COUNTRY GROUPINGS

According to the United Nations Statistics Division classification, Eastern Europe contains Belarus, Bulgaria, Czechia, Hungary, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia and Ukraine; Northern Europe contains Åland Islands, Channel Islands, Denmark, Estonia, Faroe Islands, Finland, Iceland, Ireland, Isle of Man, Latvia, Lithuania, Norway, Svalbard and Jan Mayen Islands, Sweden and United Kingdom of Great Britain and Northern Ireland; Southern Europe contains Albania, Andorra, Bosnia and Herzegovina, Croatia, Gibraltar, Greece, Holy See, Italy, Malta, Montenegro, North Macedonia, Portugal, San Marino, Serbia, Slovenia and Spain; and Western Europe contains Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Monaco, Netherlands and Switzerland. Based on the same classification, Cyprus and Türkiye are included in the Western Asia geographic grouping.[52]

## FOOD CATEGORIZATION

Food products are classified as being of low, medium and high priority for the purpose of increasing their availability and consumption to meet recommended dietary levels.

In the three repurposing scenarios analysed in this report (and in the global report), agricultural products are classified based on the level of current per capita consumption (adjusting for food loss) in each country/region, relative to the recommended levels for that country/region, as defined by the food-based dietary guidelines used for the computation of the cost of a healthy diet.

- A food product is classified as high priority if its current consumption level in the country/region is, on average, less than 80 percent of the recommended level to adhere to a least-cost healthy diet.
- A food product is classified as medium priority if its current consumption level in the country/region falls between 80 and 120 percent of the recommended level.
- A food product is classified as low priority if its current consumption level in the country/region exceeds 120 percent of the recommended level.

# COVERAGE OF THE EASTERN EUROPE, CAUCASUS AND CENTRAL ASIA COUNTRIES AND AREAS IN THIS REPORT

**TABLE 17**
Europe and Central Asia countries and areas covered in this report by subregion and income group

| Country | Region | Subregion | Income group |
|---|---|---|---|
| **Armenia** | EECCA | Caucasus | Upper-middle income |
| **Azerbaijan** | EECCA | Caucasus | Upper-middle income |
| **Georgia** | EECCA | Caucasus | Upper-middle income |
| **Kazakhstan** | EECCA | Central Asia | Upper-middle income |
| **Kyrgyzstan** | EECCA | Central Asia | Lower-middle income |
| **Tajikistan** | EECCA | Central Asia | Lower-middle income |
| **Turkmenistan** | EECCA | Central Asia | Upper-middle income |
| **Uzbekistan** | EECCA | Central Asia | Lower-middle income |
| **Belarus** | EECCA | EECCA Europe | Upper-middle income |
| **Republic of Moldova** | EECCA | EECCA Europe | Upper-middle income |
| **Russian Federation** | EECCA | EECCA Europe | Upper-middle income |
| **Ukraine** | EECCA | EECCA Europe | Lower-middle income |
| **Albania** | Western Balkans and Türkiye | Western Balkans and Türkiye | Upper-middle income |
| **Bosnia and Herzegovina** | Western Balkans and Türkiye | Western Balkans and Türkiye | Upper-middle income |
| **Kosovo**[53] | Western Balkans and Türkiye | Western Balkans and Türkiye | Upper-middle income |
| **Montenegro** | Western Balkans and Türkiye | Western Balkans and Türkiye | Upper-middle income |
| **North Macedonia** | Western Balkans and Türkiye | Western Balkans and Türkiye | Upper-middle income |
| **Serbia** | Western Balkans and Türkiye | Western Balkans and Türkiye | Upper-middle income |
| **Türkiye** | Western Balkans and Türkiye | Western Balkans and Türkiye | Upper-middle income |
| **European Union** | European Union (EU27 and the United Kingdom) | European Union | * |
| **United Kingdom of Great Britain and Northern Ireland** | European Union (EU27 and the United Kingdom) | United Kingdom of Great Britain and Northern Ireland | High income |
| **Iceland** | EFTA | EFTA | High income |
| **Liechtenstein** | EFTA | EFTA | High income |
| **Norway** | EFTA | EFTA | High income |
| **Switzerland** | EFTA | EFTA | High income |
| **Israel** | Other FAO Member Countries in the region | Other FAO Member Countries in the region | High income |

* Vary by country, but when taken as a whole, considered in the high-income group. In some tables, European Union new Member States are presented as a separate category. This includes 13 countries that have joined the European Union since 2004: Bulgaria, Croatia, Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia.

# NOTES

**1** SDG 2, often referred to as the "Zero Hunger" goal, aims to end hunger, achieve food security and improved nutrition and promote sustainable agriculture.

**2** FAO does not consider national-level PoU estimates lower than 2.5 percent to be sufficiently reliable for reporting due to statistical margins of error around the parameters used to calculate the PoU.

**3** The assessment for the wasting target is based on the most recent point estimate, even though confidence intervals are available that in many cases surpass the cutoff. Wasting is an acute condition that can change frequently and rapidly, even as rapidly as over the course of a calendar year. Therefore, countries considered as having met the target may not when future surveys are available.

**4** Sustainable Development Goal 2 is to "end hunger, achieve food security and improved nutrition and promote sustainable agriculture." Public policy efforts to reach this goal are specifically included as Target 2.a to "increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries."

**5** FAO's simulation suggest that the global number of undernourished people would increase by 7.6 to 13.1 million people in 2022 because of this war (FAO *et al.*, 2022).

**6** Gardner (2005) discovered a positive relationship between budget support and value added per worker in agriculture. López and Galinato (2007), using panel data for Latin American and Caribbean countries, also confirmed the positive effects of public expenditures on agricultural output per unit of land. Investments in public goods, such as research, knowledge transfer and infrastructure, have longer-term positive effects on agricultural productivity and sustainability (Ignaciuk *et al.*, 2021).

**7** Policies that support producers' prices, i.e. import tariffs, raise the prices of foods for consumers, thus creating implicit transfers from consumers to producers.

**8** See *The State of Food Security and Nutrition in the World* (FAO *et al.,* 2022) for a more detailed definition.

**9** Detailed individual food consumption data are not available that can be considered geographically and temporally consistent and comparable for all countries. Hence, as a proxy for consumption, the FAOSTAT data from each country's food balance sheet on the availability for consumption is used. These sheets refer to "average food available for consumption" (or apparent consumption), which, for a number of reasons (such as waste and loss), is likely to be higher than average food intake or average actual food consumption. Apparent consumption is calculated as production minus non-food uses, minus exports, plus imports, plus or minus stocks. For more information, see (FAO *et al.*, 2021b).

**10** Data sources for the calculation of this report: Budget transfers to individual producers and general services for all ECA countries are available in the FAOSTAT database. For the Western Balkans countries, the source of data was the JRC agricultural policy database, which includes budget transfers and general services support estimates but does not cover trade and market interventions indicators. Another source of the indicators of support to agriculture was the OECD PSE database. The nominal rate of protection indicators are sourced from the Ag-Incentives Database. The country coverage of the OECD and Ag-Incentives databases for ECA countries is limited. They include the European Union, the United Kingdom of Great Britain and Northern Ireland, Israel, Türkiye, EFTA countries, Russian Federation, Ukraine and Kazakhstan. CNPC indicators for Republic of Moldova are available in Shik *et al.*, 2016. The analysis of agricultural support indicators (other than budget transfers to producers and general services) is based on a limited sample of countries and this must be taken into consideration in the analysis of the results.

**11** See the listed sources for more detailed formulas and methodologies.

**12** Market distortions means that prices or production are higher or lower than would exist in a competitive market (WTO, 2022a).

**13** Average for 2017–2019 (FAO, 2019; OECD, 2020a).

**14** Countries in Eastern Europe, Caucasus and Central Asia (12 post-Soviet countries).

**15** Israel and EFTA countries have much higher rates of budgetary support to both land area and number of rural inhabitants.

**16** Subsidies to producers affect their production decision, and therefore, potentially distort trade volumes and prices compared to non-policy situation defined by WTO's Doha round negotiation in 2001 (WTO, 2022b).

**17** Ignaciuk, *et al.* (2021) showed that investments in public goods – such as research, knowledge transfer and infrastructure – have longer-term positive effects on agricultural productivity and sustainability. Another study demonstrated that a shift of 10 percentage points of the agricultural budget from individual producer support to general services, maintaining total spending constant, leads to an increase of approximately 5 percent in agricultural value added per capita (Anríquez *et al.*, 2016). Among general services support programmes, research and development brings the highest rates of return, much higher than common rates of return in private investment projects (Alston *et al.,* 2000). Also, the development of information and communications technology substantially improves the effectiveness of agricultural extension, advisory services and learning (FAO, 2021b).

**18** Budget transfers to consumers in Kazakhstan were mostly subsidies to processors (OECD, 2021a).

**19** All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)All references to Kosovo should be understood to be in the context of United Nations Security Council resolution 1244 (1999).

**20** Author's calculations based on data from the Ministry of Finance of the Russian Federation (2022).

**21** Payments are conditioned on the maintenance of a certain level of output of specific commodities from the land on which the payments are based.

**22** The nominal rate of protection (NRP) measures the extent to which a set of agricultural policies affects the market price of a commodity. It is computed as the price difference, expressed as a percentage, between the farm gate price received by producers and an undistorted reference price at the farm gate level. See The State of Food Security and Nutrition in the World (FAO *et al*., 2022) and OECD's producer support estimate and related indicators of agricultural support (OECD, 2016) for the formulas.

**23** It should be noted that while the share of support to general services in budget transfers is the highest in Albania, the value of support to general services is low compared to other countries in the region.

**24** "Without fertilizers," said António Guterres, the Secretary-General of the United Nations, "shortages will spread from corn and wheat to all staple crops, including rice, with a devastating impact on billions of people in Asia and South America, too" (Rappeport, 2022).

**25** In production-distorting forms. The majority of COVID-19-related support in the European Union was provided as direct payments and general services support.

**26** All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

**27** For a definition of these three priorities, please see the notes section of this report.

**28** This applies only to farmers in crop and livestock farming; producers in fisheries and aquaculture were not included due to data limitations.

**29** For more information on the definition of high-priority foods, please see Box 13 in *The State of Food Security and Nutrition in the World 2022*, which states: "Agricultural products are classified based on the level of per capita consumption (adjusting for food loss) in each country/region, relative to the recommended diet for that country/region, as defined by the food-based dietary guidelines used for the computation of the cost of healthy diets. A product is characterized as a 'high priority' food if the actual consumption level of it was on average less than 80 percent of the recommended level to adhere to the least costly healthy diet" (FAO *et al.,* 2022).

**30** References to the ECA-15 in this report include the following countries: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Montenegro, North Macedonia, Republic of Moldova, Serbia, Tajikistan, Turkmenistan and Uzbekistan.

**31** References to the ECA-18 in this document refer to the ECA-15 countries plus three others — Russian Federation, Türkiye and Ukraine — that together account for 70 percent of the total ECA-18 population.

**32** It should be noted that the indicators used in this report measure transfers to and from primary or first stage consumers of agricultural commodities, and lower prices for them do not necessarily mean lower prices for end consumers.

**33** A CNPC higher than 1 means that the producers of the commodity are protected at the expense of consumers. As a result of agricultural policies, primary consumers must pay higher prices for the commodity if the CNPC is above 1, and they benefit from lower than "non-policy" prices for commodities when the CNPC is lower than 1.

**34** Here we consider the following commodities in the Ag-Incentives database as nutritious foods that contribute to healthy diets: Fruits and vegetables are sources of sources of vitamins, minerals and dietary fibre. The World Health Organization suggests consuming at least 400 g of fruits and vegetables per day (*WHO, 2022b*). Vegetable oil is an important source of unsaturated fat. Dairy is an important component of a healthy diet for children. Pulses are a healthier alternative protein source compared to livestock products. Poultry meat is a preferable source of animal protein over red meat (WHO, 2018a).

**35** Commodities not included in the "nutritious food" category for which the CNPC is monitored by the OECD: cereals, potatoes, red meats, sugar.

**36** The average MFN tariff on agricultural products was 11.7 percent in the European Union and 10 percent in the United Kingdom of Great Britain and Northern Ireland in 2021, with an ECA average of 14.7 percent, according to the WTO tariffs database.

**37** The Precision Agriculture for Development programme increased company profits per farmer by USD 43 and increased farmer income by USD 54, on average, while the cost of sending messages amounted to only USD 0.30 per farmer (J-PAL, 2022).

**38** Adopted by the Committee on World Food Security in 2014. For more information, see https://www.fao.org/cfs/policy-products/rai/en/

**39** The IoT (internet of things) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction (Gillis, 2022).

**40** The mission of AgFunder, founded in Silicon Valley in the United States of America in 2013, is to invest in agrifood innovative technologies. For more information, see https://agfunder.com/

**41** The consensus forecast was done by the HSE University Institute for Agrarian Studies and based on the average forecast data of a number of analytical companies specializing in the study of target markets.

**42** The study of various aspects of innovation activity in the agrarian sector was conducted in February to March 2020 by the HSE University Institute for Agrarian Studies. The expert survey was conducted by in-depth interviews on four key topics.

**43** For more analysis on this topic, see *Food policy, rural development and gender equality in Eastern Europe, Caucasus and Central Asia* (FAO, 2022c).

**44** The Sustainable Development Goals in particular focus are SDG2 ("end hunger, achieve food security and improved nutrition and promote sustainable agriculture"), SDG3 ("ensure healthy lives and promote well-being for all at all ages") and SDG12 ("ensure sustainable consumption and production patterns"). Research, technology, digitalization and innovation are seen as central to the success of the 2030 Agenda for Sustainable Development. All data improvements and access to scientific-based information contribute directly to monitoring the progress of the SDGs – for example, the Food Loss Index (SDG 12.3.1a) and the Food Waste Index (SDG 12.3.1b). For more information on Agenda 2030, see https://www.coe.int/en/web/programmes/un-2030-agenda

**45** Note: Country coverage in ASPIRE data cover nationally representative household surveys in 126 countries, mostly in the developing world (low- and middle-income countries), from 1998 to 2019. High-income countries are not covered in the analysis.

**46** ILO, World Social Protection Database, based on SSI; ISSA/SSA, social security programmes throughout the world; ILOSTAT, ECLAC, IMF, WHO, WB, UNDP, UNICEF, completed with national data sources. https://www.social-protection.org/gimi/gess/WSPDB.action?id=13

**47** The pilots were implemented under the FAO project "Developing Capacity for Strengthening Food Security and Nutrition in Selected Countries of the Caucasus and Central Asia," funded by the Russian Federation.

**48** This study includes 17 countries in the ECA region, namely: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Montenegro, North Macedonia, Republic of Moldova, Serbia, Türkiye, Ukraine, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. The analysis excludes the Russian Federation, as UNDP does not currently have a presence in this country. In addition, the Russian Federation's size and agricultural production would significantly skew the analysis, making it difficult to understand key conclusions in relation to the rest of the countries.

**49** Percentage producer single commodity transfer (PSCTP) is an indicator measuring gross transfers to agricultural producers of specific commodities, arising from agricultural policies as a share of gross farm receipts.

**50** According to the World Bank (2022b), carbon pricing "is an instrument that captures the external costs of GHG emissions and ties them to their sources through a price, usually in the form of a price on the carbon dioxide ($CO_2$) emitted. Types of carbon pricing include emissions trading systems (ETS), namely systems where emitters can trade emission units to meet their emission targets. By creating supply and demand for emissions units, an ETS establishes a market price for GHG emissions."

**51** Note: This analysis was completed prior to the start of the war in Ukraine, which is likely to reshape and disrupt the agriculture sector in Ukraine and associated environmental impacts for years to come. The findings remain relevant in terms of potential future policy and investment decisions relating to rebuilding the Ukraine agriculture sector in the most sustainable way possible.

**52** These groupings are available at https://unstats.un.org/unsd/methodology/m49/

**53** All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

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Working for #ZeroHunger

# REGIONAL OVERVIEW OF FOOD SECURITY AND NUTRITION IN EUROPE AND CENTRAL ASIA 2022

## REPURPOSING POLICIES AND INCENTIVES TO MAKE HEALTHY DIETS MORE AFFORDABLE AND AGRIFOOD SYSTEMS MORE ENVIRONMENTALLY SUSTAINABLE

The *Regional Overview of Food Security and Nutrition in Europe and Central Asia 2022* consists of two main sections. The first presents the latest updates related to food security and nutrition in Europe and Central Asia, including estimates on the cost and affordability of healthy diets in the region. The second section dives into how governments are supporting the food and agriculture sector and how to repurpose policies and incentives to make healthy diets more affordable and more environmentally sustainable in Europe and Central Asia.

The new estimates confirm that the prevalence of hunger at chronic or severe levels is relatively low in the ECA region compared with the world average. However, the prevalence of food insecurity at moderate or severe levels can be quite high. The COVID-19 pandemic has added 25.5 million people in the region to the ranks of the moderately or severely food insecure, leaving them without access to safe, nutritious and adequate food. The war in Ukraine, which began in early 2022, has further undermined efforts to end hunger and improve food security and nutrition. Progress has been made in reducing various forms of malnutrition in most countries of the ECA region, but the region is seeing alarmingly high – and rising – rates of overweight and obesity. Almost all ECA subregions are experiencing increased costs and reduced affordability of healthy diets because of higher food prices and lower incomes.

Using the data available in the ECA region, this report analyses in depth the repurposing of food and agricultural policies to ensure the food systems transformation is better suited to addressing the "triple challenge" of achieving food security and good nutrition for better health, providing livelihoods to farmers and others connected to the sector, and reducing the nature and climate footprint of the sector. This report reviews complementing policies within agrifood systems and analyses whether repurposing efforts are impactful in the region. It also reviews complementing policies in health, education for nutrition, and trade facilitation to examine whether they can support shifts in food supply chains and consumer behaviour towards healthy diets and ease or mitigate trade-offs.

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