



Food and Agriculture  
Organization of the  
United Nations

United Nations  
Economic  
Commission  
for Europe

unicef 



World Food  
Programme



World Health  
Organization  
REGIONAL OFFICE FOR  
Europe



WORLD  
METEOROLOGICAL  
ORGANIZATION

2020



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

**AFFORDABLE HEALTHY DIETS TO  
ADDRESS ALL FORMS OF MALNUTRITION  
FOR BETTER HEALTH**

This flagship publication is part of **THE STATE OF THE WORLD** series of the Food and Agriculture Organization of the United Nations.

Required citation:

FAO, WFP, UNECE, UNICEF, WHO, WMO. 2021. *Regional Overview of Food Security and Nutrition in Europe and Central Asia 2020: Affordable healthy diets to address all forms of malnutrition for better health*. Budapest. FAO, WFP, UN, UNICEF, WHO and WMO. <https://doi.org/10.4060/cb3849en>

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO), the United Nations World Food Programme (WFP), the United Nations (UN), the United Nations Children's Fund (UNICEF), the World Health Organization (WHO) or the World Meteorological Organization (WMO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO, WFP, UN, UNICEF, WHO or WMO or in preference to others of a similar nature that are not mentioned.

The designations employed and the presentation of material in the maps do not imply the expression of any opinion whatsoever on the part of FAO, WFP, UN, UNICEF, WHO or WMO concerning the legal or constitutional status of any country, territory or sea area, or concerning the delimitation of frontiers.

All reasonable precautions have been taken by FAO, WFP, UN, UNICEF, WHO and WMO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall FAO, WFP, UN, UNICEF, WHO and WMO be liable for damages arising from its use.

**ISBN 978-92-5-134139-1**

©FAO, 2021



Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that FAO endorses any specific organization, products or services. The use of the FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons license. If a translation of this work is created, it must include the following disclaimer along with the required citation: "This translation was not created by the Food and Agriculture Organization of the United Nations (FAO). FAO is not responsible for the content or accuracy of this translation. The original English edition shall be the authoritative edition."

Any mediation relating to disputes arising under the licence shall be conducted in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL) as at present in force.

**Third-party materials.** Users wishing to reuse material from this work that is attributed to a third party, such as tables, figures or images, are responsible for determining whether permission is needed for that reuse and for obtaining permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

**Sales, rights and licensing.** FAO information products are available on the FAO website ([www.fao.org/publications](http://www.fao.org/publications)) and can be purchased through [publications-sales@fao.org](mailto:publications-sales@fao.org). Requests for commercial use should be submitted via: [www.fao.org/contact-us/licence-request](http://www.fao.org/contact-us/licence-request). Queries regarding rights and licensing should be submitted to: [copyright@fao.org](mailto:copyright@fao.org).

**COVER PHOTOGRAPH** ©FAO/Vlad Ushakov

**ISSYK-KUL, KYRGYZSTAN.** A young fisherman supporting the FAO and National Academy of Science teams to conduct a fish research in the Issyk-Kul area.



**2020**

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

**AFFORDABLE HEALTHY DIETS TO  
ADDRESS ALL FORMS OF MALNUTRITION  
FOR BETTER HEALTH**

Food and Agriculture Organization of the United Nations  
United Nations World Food Programme  
United Nations  
United Nations Children's Fund  
World Health Organization  
World Meteorological Organization  
**Budapest, 2021**

# CONTENTS

TABLES, FIGURES AND BOXES	iii		
FOREWORD	v		
ACKNOWLEDGEMENTS	viii		
ACRONYMS AND ABBREVIATIONS	ix		
KEY MESSAGES	xi		
INTRODUCTION	xv		
<b>PART 1</b>		<b>PART 2</b>	
<b>FOOD SECURITY AND NUTRITION IN EUROPE AND CENTRAL ASIA</b>	<b>1</b>	<b>COST AND AFFORDABILITY OF HEALTHY DIETS IN EUROPE AND CENTRAL ASIA</b>	<b>55</b>
1.1 Prevalence of undernourishment and food insecurity	3	2.1 Costs and affordability of three diets	56
1.2 Malnutrition: Baseline and progress to SDG targets (SDG Target 2.1.2)	21	2.2 Hidden costs of current consumption compared with healthier alternatives	67
1.3 Healthy diets: Current consumption patterns and gaps compared to countries' dietary guidelines and diets of children	35	2.3 Food cost drivers and policies to ensure the affordability of healthy diets	76
		2.4 Social protection and safety nets in Armenia, Kyrgyzstan and Tajikistan	89
		2.5 Impact of COVID-19 on food security and nutrition	97
		<b>ANNEX</b>	<b>108</b>
		<b>NOTES</b>	<b>110</b>
		<b>REFERENCES</b>	<b>113</b>



# TABLES, FIGURES AND BOXES

## TABLES

<b>1</b> Prevalence of undernourishment in ECA countries, 2004–2019	<b>6</b>
<b>2</b> Prevalence of severe food insecurity and of moderate or severe food insecurity, measured with the Food Insecurity Experience Scale, in the ECA region, 2014–2019	<b>9</b>
<b>3</b> Prevalence of severe food insecurity and of moderate or severe food insecurity, measured with the Food Insecurity Experience Scale, in selected countries of the ECA region, 2014–2019 (three-year average)	<b>10</b>
<b>4</b> Comparison of global gender gap, global inequality, Food Insecurity Experience Scale, and moderate or severe food insecurity indices in Armenia, Kyrgyzstan and Tajikistan	<b>18</b>
<b>5</b> Global nutrition targets for 2030, revised from the 2025 targets	<b>23</b>
<b>6</b> Required average annual rates of reduction to meet the wasting target in 2025 and in 2030 by country	<b>26</b>
<b>7</b> Evolution of the availability for consumption (g/capita/day) of prominent food subgroups in selected countries of the ECA region, 2003–2017	<b>40</b>
<b>8</b> Cost of three diets in the ECA region, 2017 (PPP, constant 2017 USD)	<b>59</b>
<b>9</b> Percentage and number of people who could not afford the three selected diets (with 63 percent of income spent on food) in the ECA region, 2017	<b>61</b>
<b>10</b> Seasonal variations in the costs of staple-adjusted nutritious diets per household, by province, Armenia (annual average =100%)	<b>64</b>
<b>11</b> Number of deaths avoided annually due to all risk factors (four	

food consumption-related diseases) under four selected diet scenarios (thousands) in selected countries of the ECA region

**12** Direct and indirect health costs for selected countries of the ECA region under the diet scenario benchmark, projected for 2030 (PPP, constant 2017 USD billions)

**13** ECA-11 region: Aggregate health costs under different diet scenarios, 2030 projection, (PPP, constant 2017 USD billions)

**14** Hidden costs: Projections of environmental costs for selected countries of the ECA region (PPP, constant 2017 USD billions) and percentage of food costs per year by 2030

**15** Total hidden costs of food: Projections of health and environmental costs in relation to monetary food costs for selected countries of the ECA-11 region in 2030, billions USD

**16** Comparison of FAO estimates of hidden costs and those from relevant independent studies

**17** Indicative food diversity in selected countries of the ECA region

**18** Nominal rate of protection for crop and animal products in agriculture, 2005–2018, Kazakhstan

## FIGURES

**1** Prevalence of undernourishment (PoU) in the Caucasus and Central Asia, 2005–2019

**2** Prevalence of severe food insecurity and of moderate or severe food insecurity, measured with the

Food Insecurity Experience Scale, in the ECA region, 2019

**3** Prevalence of food insecurity at moderate or severe levels, measured with the Food Insecurity Experience Scale, in the ECA region, 2014–2019

**4** Share of people affected by food insecurity, by ECA subregion, 2019

**5** Share of severe or moderate food insecurity in the ECA region, 2019

**6** Prevalence of food insecurity (moderate or severe) among women and men, worldwide and in the ECA region, 2014–2019

**7** Prevalence of food insecurity (moderate or severe) by gender in the ECA region, 2014 and 2019

**8** Prevalence of stunting (%) among children younger than 5 in selected countries of the ECA region, 2012 and 2019

**9** Prevalence of wasting (%) among children younger than 5 in selected countries of the ECA region, 2019

**10** Prevalence of overweight (%) among children younger than 5 in selected countries of the ECA region, 2012 and 2019

**11** Prevalence of overweight (including obesity), %, among boys aged 6–9, COSI round four (2015–2017)

**12** Prevalence of overweight (including obesity), %, among girls aged 6–9, COSI round four (2015–2017)

**13** Prevalence of exclusive breastfeeding among infants 0–5 months of age in selected countries of the ECA region, 2012 and 2019

## TABLES, FIGURES AND BOXES

<b>14</b> Prevalence of low birthweight in the ECA region, 2012 and 2015	<b>30</b>	<b>24</b> Availability of red meat (bovine meat, mutton/goat meat and pig meat) for consumption (g/capita/day) in selected countries of the ECA region, 2003–2017 (five-year averages)	<b>48</b>	<b>35</b> Changes in farmers' total income as a result of COVID-19 (comparing January–July 2020 to January–July 2019), % of respondents, Georgia	<b>102</b>
<b>15</b> Prevalence of Anaemia among women of reproductive age in the ECA region, 2012 and 2016	<b>31</b>	<b>25</b> Affordability of staple-adjusted nutritious diets, by province, Armenia	<b>63</b>	<b>36</b> Business and household payments deferred by farmers due to COVID-19, % of respondents, Georgia	<b>103</b>
<b>16</b> Prevalence of obesity among adults in the ECA region, 2012 and 2016	<b>32</b>	<b>26</b> Cost and Unaffordability of Energy-only and Nutritious Diets by Region in Tajikistan	<b>65</b>	<b>37</b> Farmers' urgent needs for maintaining operations in response to COVID-19 impact, % of responses, Georgia	<b>104</b>
<b>17</b> Prevalence of obesity among adults in selected countries of the ECA region, 2012 and 2016	<b>33</b>	<b>27</b> Total hidden costs: Health and environmental costs in relation to monetary food expenditures in the selected countries of the ECA region, 2030 projection	<b>75</b>	<b>38</b> Breakdown of government assistance received by farmers to mitigate COVID-19 impacts, % of responses, Georgia	<b>104</b>
<b>18</b> Allocation of the population of adult obesity among the European Union, ECA-18 and ECA-15, 2012 and 2016	<b>34</b>	<b>28</b> Cost savings of regional adoption of healthy and sustainable diets compared to benchmark diets in ECA-11 countries in 2030	<b>77</b>		
<b>19</b> Evolution of total plant-based foods (fruits, vegetables, vegetable oils and pulses) in the ECA region, 2003–2017	<b>42</b>	<b>29</b> Productivity (yield) of selected food commodities in selected ECA countries, 2018 (tonnes/ha)	<b>81</b>	<b>BOXES</b>	
<b>20</b> Evolution of the availability for consumption in selected ECA countries of three prominent subgroups of plant-based foods, plus vegetable oils (average food supply quantity in g/capita/day) in the ECA region, 2003–2017	<b>43</b>	<b>30</b> Real food CPI change, 10-year average (2009–2018), ECA-15	<b>82</b>	<b>1</b> Severity of food insecurity according to FIES – the eight questions of the FIES survey	<b>7</b>
<b>21</b> Availability of fruits and vegetables for consumption in ECA, g/capita/day, in selected countries of the ECA region, 2003–2017	<b>44</b>	<b>31</b> GDP per capita (PPP, constant 2011 Int\$) and growth rate, 2009–2018 average, ECA-19	<b>83</b>	<b>2</b> COVID-19 impacts on food security and nutrition in Armenia: Evidence from Household survey	<b>15</b>
<b>22</b> Evolution of total animal-based foods (fish, milk, poultry and red meat) in the ECA region, 2003–2017 (five-year averages)	<b>45</b>	<b>32</b> Gini coefficients of income inequality in ECA-15, 2009–2013 and 2014–2018	<b>84</b>	<b>3</b> The Eatwell Guide, 2016	<b>39</b>
<b>23</b> Evolution of the availability for consumption in selected ECA countries of four prominent subgroups of animal-based foods (average food supply quantity in g/capita/day) in the ECA region, 2003–2017 (five-year averages)	<b>46</b>	<b>33</b> The COVID-19 situation in selected countries of the ECA region – number of cases per 100 people and deaths per 10 000 people	<b>98</b>	<b>4</b> European Green Deal	<b>49</b>
		<b>34</b> Impact of COVID-19 on 2020 real GDP growth at market prices (%), ECA-19	<b>99</b>	<b>5</b> Methods used in <i>The State of Food Security and Nutrition in the World 2020</i> to assess consumption-related health and environmental costs	<b>69</b>
				<b>6</b> Impact evaluation: the nutrition-sensitive aspect of the “Development of Sustainable School Feeding” project in Armenia 2018–2019	<b>95</b>
				<b>7</b> Trade facilitation measures in Georgia	<b>102</b>

# FOREWORD

The Sustainable Development Goals (SDGs), adopted by all United Nations Member States in 2015, renewed and revitalized the commitment to ending hunger and malnutrition and reducing premature mortality caused by non-communicable diseases. The 2020 *Regional Overview of Food Security and Nutrition in Europe and Central Asia* is the sixth regional report monitoring trends and progress made towards reaching SDG 2 (Zero Hunger)<sup>1</sup> food security and nutrition targets in Europe and Central Asia (ECA). The report includes studies on the drivers and regional policy responses necessary to achieve SDG 2 and also contributing to SDG 3.4. In addition, ensuring adequate, nutritious foods supports progress towards achieving SDG 3.4, limiting poor diets high in unhealthy fats, salt, sugar and excess energy and low in fruit and vegetable consumption and thus reducing premature mortality from non-communicable diseases. Furthermore, a change towards healthy diets contributes to the achievement of SDG 13, which focuses on climate change.

Five 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 the objective to ensure access to safe, nutritious and sufficient food for all people all year long and eradicate all forms of malnutrition 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, conflicts and economic slowdowns and downturns undermine efforts to end hunger, food insecurity and malnutrition. The COVID-19 pandemic, which started in 2020 and is ongoing in 2021, is making it worse, undermining efforts to end hunger due to a tightened economy, higher unemployment, greater job instability, reduced incomes, increased poverty, food shortages, rising food prices and higher diet costs. As the pandemic continues, the food security and nutrition situation is degenerating.

The most recent estimates for 2019 of the prevalence of undernourishment and the prevalence of severe food insecurity 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 reduction of the number of people affected by hunger and severe food insecurity in some countries of the region has slowed since 2014. In some cases, the trend has even reversed. Furthermore, the COVID-19 pandemic is adding people to the ranks of the undernourished and the severely food insecure in some countries of the region.

Beyond hunger and severe food insecurity, the new estimates for 2019 – made before the COVID-19 pandemic – show that the prevalence of food insecurity at either the moderate or severe level is quite high, at an average of 10.5 percent. This amounts to a total of about 98.6 million people in the ECA region. While this regional average of the prevalence of moderate or severe food insecurity is well below the 2019 world average of 25.9 percent, some subregions have a higher prevalence, and others have a prevalence close to the world average. Moreover, the prevalence is non-trivial even in many relatively high-income countries of the European Union. The results confirm that more effort is needed to achieve the Zero Hunger target of the SDGs – which, as we know, goes beyond hunger to include moderate levels of food insecurity and all forms of malnutrition. The new estimates also show that the prevalence of food insecurity among women is still higher than among men. On average, women in the region have a roughly 11 percent greater chance than men of experiencing moderate or severe food insecurity. Reducing malnutrition among women is important not only for reaching Zero Hunger, but also for improving gender equality, health and economic outcomes.

The situation is more challenging in reducing various forms of malnutrition in the region. This report carries out a 2012 baseline analysis, looks at the progress made since then and explores the likelihood of meeting the SDG targets in 2025 and 2030 for the nutrition indicators in SDG 2.2.<sup>2</sup> The data show that, relative to the world average, the ECA region is in a worse position regarding the prevalence of **childhood overweight, exclusive breastfeeding** during the first six months of life, and **adult obesity**. In particular, there are alarmingly high results for the prevalence of overweight and obesity in most countries in the region.



## FOREWORD

The good news is that the ECA is making progress overall and is on track to achieve the 2025 and 2030 targets in most countries concerning child **stunting**, child **wasting** and **low birth weight**. However, the ECA region has made no progress or is not on track to meet the 2025 and 2030 targets (without further effort) regarding childhood overweight, **adult obesity** (in all countries in the region), **anaemia** (in all countries of the region) and **exclusive breastfeeding** (in some countries of the region).

Healthy diets that contain balanced, diverse and appropriately selected foods for each context protect against the effects of malnutrition in all its forms and against non-communicable diseases. This report analyses the current patterns of availability for food consumption (based on the latest available data) of key food groups and explores the differences among diets in the region, scientific optimal requirement standards, and world average levels. The results evince a positive development from the points of view of both nutrition and sustainability because of the significant increase in the per capita availability for consumption of plant-based foods in ECA-15<sup>3</sup> countries during the past 15 years. In most countries, the national average availability of vegetables that is well above the standard. However, a large gap in the availability for consumption of fruits alone is found in half of the countries. Also, there has been a significant gap in the availability of pulses in the ECA region. The data in this report showing availability for food consumption are derived from FAO Food Balance Sheets. For a number of reasons, the average food available for consumption is likely to be higher than average actual food consumption. Thus, the gap of actual food consumption for these groups is likely higher than those estimated in this report.

Overall, the ECA region has a much higher level of consumption of animal-based foods, on average, than does the world at large. In particular, the consumption of animal-based foods in the European Union is more than double the world average and the aggregate average consumption of red meat and milk is above the standards of optimal intake. Overconsumption of animal-based foods not only have negative impacts on health (in particular on overweight and obesity and the risk of non-communicable diseases), but also less efficient in terms of resource use, and they contribute to greenhouse gas emissions that exacerbate climate

change (World Resources Institute, 2020). The average availability of fish for consumption in the ECA-15 in recent years has fallen short of the recommended level. The analysis suggests a need to reorient production and trade systems for prominent food items to shift consumption to within the optimal range of healthy diets and to help adopt sustainable and healthy nutrition strategies in ECA countries.

The special theme of this 2020 edition is the affordability of sustainable healthy diets and their usefulness in ending hunger and malnutrition in the ECA region, with synergies for SDG 3.4 and SDG 13. The sustainability prospects of healthy diets are recognized and analysed throughout this report, but the main focus of this report is a quantitative analysis of the cost and affordability of healthy diets at national and subnational levels. Diet quality is a critical link between food security and nutrition outcomes, and effort to improve diets is needed to achieve in the ECA region the targets of SDG 2 and SDG 3 – in particular, to reduce overweight and obesity and the incidence of non-communicable diseases and related mortality. As a supplement to *The State of Food Security and Nutrition in the World 2020* report, this regional report uses the data available in the ECA region for in-depth, country-level cost/affordability analyses in 14 countries, with additional cost/affordability analyses provided at the subnational level in three countries. The results show that healthy diets cost, on average, five times more (in line with the world average) than diets that meet only dietary energy needs through a starchy staple and 1.5 times more than nutrient adequate diets. The high cost of healthy diets makes them unaffordable for the poor. The most conservative estimate (using a threshold at which 63 percent of per capita average national income can be spent on food) indicates that about 19 million people (roughly 6.3 percent of the population) cannot afford a healthy diet in these 14 ECA countries.

The results of this report also show that hidden costs due to negative externalities are much lower with healthy diets than with the current consumption patterns. By shifting to healthy diets in the selected 11 ECA countries,<sup>4</sup> direct and indirect health costs could be reduced by up to 94–97 percent and the social cost of greenhouse gases could be reduced by 40–70 percent, depending on the type of dietary pattern

chosen. The **potential cost savings** from adopting healthy diet alternatives is estimated at **39–43 percent**, compared to the total cost (monetary plus hidden) of the continued current dietary patterns.

As reported in *The State of Food Security and Nutrition in the World 2020* report, the cost and affordability of diets vary around the world, across regions and in different development contexts. They also may vary within countries, due to temporal and geographic factors and to variations in the nutritional needs of individuals across the life cycle. Therefore, selected country case studies focusing on subnational reviews are presented for Armenia, Kyrgyzstan and Tajikistan, using country-level data.

To increase the affordability of healthy diets, the costs of nutritious foods must be lowered. The **cost drivers** of these diets include supply, demand and other domestic and international factors. Supply-side factors include the production costs, technology, seasonality, weather shocks, domestic and international trade policies, transportation costs, short/long supply chains, and the degree of competition. On the demand side, factors include purchasing power, demographics, and tastes

and preferences. Keeping these in mind, countries will need to reorient their food and agricultural policies towards more nutrition-sensitive investments and social protection to adapt and transition to healthy dietary production and trade systems.

The COVID-19 pandemic poses serious threats to food security and nutrition around the globe, causing increases in food costs and prices and decreases in incomes. This has resulted in more challenges in access to healthy diets, especially for low-income and vulnerable people. This report provides a summary of the impacts of the COVID-19 pandemic on national economies, the market food prices of major food commodities, agrifood supply chains, and food security and nutrition. It also offers a look, based on regional monitoring reports, at how ECA countries have responded.

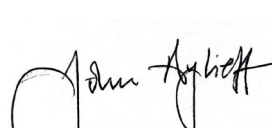
As in previous editions of the *Regional Overview of Food Security and Nutrition in Europe and Central Asia*, we hope that this report provides valuable knowledge and evidence and contributes to identifying options for informed dialogue and concerted action by all partners as we work together to accelerate progress towards the goal of a hunger-free and healthy Europe and Central Asia.



Vladimir Rakhmanin  
Assistant Director-General and  
Regional Representative for  
Europe and Central Asia  
FAO



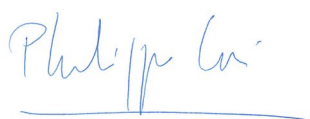
Olga Algayerova  
Under-Secretary-General  
of the United Nations and  
ECE Executive Secretary  
UNECE



John Aylieff  
Regional Director for  
Asia and the Pacific  
WFP



Corinne Fleischer  
Regional Director for the Middle  
East and Northern Africa  
WFP



Philippe Cori  
Deputy Regional Director  
for Europe and Central Asia  
UNICEF



Hans Henri P. Kluge  
Regional Director for Europe  
WHO



Milan Dacic  
Representative for Europe  
WMO

# ACKNOWLEDGEMENTS

The Regional Overview of Food Security and Nutrition in Europe and Central Asia 2020 was jointly prepared by the six members of the Issue-based Coalition on Sustainable Food Systems for Europe and Central Asia: the Food and Agriculture Organization of the United Nations Regional Office for Europe and Central Asia (FAO REU); the World Food Programme Regional Bureau Cairo (WFP RBC) for Middle East, North Africa, Central Asia and Eastern Europe; the United Nations Economic Commission for Europe (UNECE); the United Nations Children’s Fund Regional Office for Europe and Central Asia (UNICEF ECARO); the World Health Organization (WHO) Regional Office for Europe; and the World Meteorological Organization (WMO), in close cooperation with the FAO Subregional Office for Central Asia (SEC) and the Agrifood Economics Division (ESA) in FAO headquarters.

Cheng Fang (FAO REU) coordinated the preparation of the document and led its production under the overall supervision and guidance of Vladimir Rakhmanin, Assistant Director-General and Regional Representative for Europe and Central Asia, with the assistance of Raimund Jehle, Regional Programme Leader. The collaboration of FAO, WFP, UNECE, UNICEF, WHO Regional Office for Europe and WMO was supported and facilitated by Valeria Rocca (FAO), Siemon Hollema (WFP), Liliana Annovazzi-Jakab (UNECE), Amirhossein Yarpardar (UNICEF), Peter Sousa Hoejskov (WHO Regional Office for Europe), and colleagues from WMO.

The report was made possible by the contributions of an interdisciplinary team of experts, in particular Kisan Gunjal (FAO senior food policy consultant) and Cheng Fang (FAO REU). Technical contributions were provided by Sumiter Singh Broca, Keigo Obara, Giorgi Kvinikadze and Dono Abdurazakova from FAO REU and Valentina Conti (ESA). At WFP, the report was prepared by Siemon Hollema, Syuzanna Siradeghyan, Muriel Calo, Jelena Milosevic, David Mirzoyan, Ani Karapetyan, Nitesh Patel, Oscar Ekdahl, Intisar Birkia, Emilia Casella, Nanna Skau, Mariko Kawabata and Keiko Izushi. At the UNECE, input was provided by Hana Daoudi and Liliana Annovazzi-Jakab. At UNICEF, the report was prepared by Amirhossein Yarpardar, Pamela Dale, Tetyana Nikitina, Gulsana Turusbekova and Armenuhi Hovakimyan. At the WHO Regional Office for Europe, input was provided by Peter Sousa Hoejskov, Clare Farrand, Kremlin Wickramasinghe, Julianne Williams, Holly Rippin, Ivo Rakovac, Dorit Nitzan, Nino Berdzuli and Joao Joaquim Rodrigues da Silva Breda. WMO colleagues also contributed to the report.

Under the overall supervision of Máximo Torero Cullen, Chief Economist and leader of the Economic and Social Development Stream, the ESA Division provided coordination, technical review and support, led by Marco V. Sánchez Cantillo, ESA Deputy-Director, and Cindy Holleman and Giovanni Carrasco Azzini. Valuable review, comments and contributions were received from the following FAO headquarters colleagues: David Conte and Guenter Hemrich of the Office of Strategy, Planning and Resources Management (OSP); Maria del Mar Polo of the Food Systems and Food Safety Division (ESF); Erdgin Mane of the Inclusive Rural Transformation and Gender Equality Division (ESP); Elena Conte of the Markets and Trade Division (EST); Maria Xipsiti of the Food and Nutrition Division (ESN); Giovanni Carrasco Azzini, Valentina Conti, Cindy Holleman and Marco V. Sánchez Cantillo (ESA); and Marinella Cirillo, Juan Feng and Sara Viviani of the Statistics Division (ESS). Valuable review comments and contributions also were provided by staff from REU and SEC: Raimund Jehle, Nabil Gangi, Viorel Gutu, Mary Kenny, Morten Hartvigsen, Tania Santivanez, Goran Stavrik, Dmitry Zvyagintsev, Elmira Nessipbayeva, Maxim Gorgan, Valeria Rocca, Laurence Pit and Iana Melnik. In addition, this edition also benefited from comments and feedback made by various colleagues from FAO country offices.

Many thanks are also due to Victoria Kalinin and Irina Tarakanova, who coordinated the layout, translation and production of the document. Special thanks goes to Matthew Anderson for his editorial and proofreading support. The Neotech company provided the Russian translation of the publication.



# ACRONYMS AND ABBREVIATIONS

<b>AARI</b>	average annual rate of increase	<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>AARR</b>	average annual rate of reduction	<b>FBDGs</b>	food-based dietary guidelines
<b>ADB</b>	Asian Development Bank	<b>FBS</b>	food balance sheet
<b>AECM</b>	Agri-environment-climate measures (of the European Union)	<b>FIES</b>	Food Insecurity Experience Scale
<b>AGDP</b>	agricultural gross domestic product	<b>FI<sub>mod+sev</sub></b>	food insecurity at the moderate or severe level
<b>BMI</b>	body mass index	<b>FI<sub>sev</sub></b>	food insecurity at the severe level
<b>BMK</b>	benchmark diet (scenario)	<b>FLX</b>	flexitarian diet
<b>CA</b>	Central Asia	<b>FNG</b>	Fill the Nutrient Gap
<b>CAP</b>	common agricultural policy	<b>FSN</b>	food security and nutrition
<b>CFSVNA</b>	Comprehensive Food Security, Vulnerability and Nutrition Analysis	<b>g</b>	gram
<b>CIS</b>	Commonwealth of Independent States	<b>GBAO</b>	Gorno-Badahšanskaja avtonomnaja oblastj
<b>COSI</b>	Childhood Obesity Surveillance Initiative	<b>GDP</b>	gross domestic product
<b>CoD</b>	cost of the diet	<b>GEA</b>	government expenditures on agriculture
<b>CPI</b>	consumer price index	<b>GHG</b>	greenhouse gas
<b>DES</b>	dietary energy supply	<b>HEI</b>	Healthy Eating Index
<b>DHS</b>	Demographic and Health Survey	<b>HLPE</b>	High Level Panel of Experts on Food Security and Nutrition
<b>DICE</b>	Dynamic Integrated Climate-Economy model	<b>ICN2</b>	Second International Conference on Nutrition
<b>DITAP</b>	Digital Agriculture Marketplace Platform	<b>IFAD</b>	International Fund for Agricultural Development
<b>EBRD</b>	European Bank for Reconstruction and Development	<b>IMPACT</b>	International Model for Policy Analysis of Agricultural Commodities and Trade
<b>EBF</b>	exclusive breastfeeding	<b>IMF</b>	International Monetary Fund
<b>ECA</b>	Europe and Central Asia	<b>IYCF</b>	infant and young child feeding
<b>EDB</b>	Eurasian Development Bank		
<b>EFTA</b>	European Free Trade Association		
<b>EU</b>	European Union		

## ACRONYMS AND ABBREVIATIONS

<b>MDG</b>	Millennium Development Goals	<b>UNECE</b>	United Nations Economic Commission for Europe
<b>NCD</b>	non-communicable disease	<b>UNICEF</b>	United Nations Children's Fund
<b>NRP</b>	nominal rate of protection	<b>USD</b>	United States dollar(s)
<b>OECD</b>	Organisation for Economic Co-operation and Development	<b>VEG</b>	vegetarian diet
<b>PoU</b>	prevalence of undernourishment	<b>VGN</b>	vegan diet
<b>PPP</b>	purchasing power parity	<b>WASH</b>	Water, sanitation and hygiene
<b>RDP</b>	Rural Development Programme (of the European Union)	<b>WB</b>	World Bank
<b>SABER</b>	Systems Approach for Better Education Results	<b>WEF</b>	World Economic Forum
<b>SDG</b>	Sustainable Development Goal	<b>WFP</b>	World Food Programme
<b>UNDP</b>	United Nations Development Programme	<b>WHA</b>	World Health Assembly
		<b>WHO</b>	World Health Organization
		<b>WMO</b>	World Meteorological Organization
		<b>WTO</b>	World Trade Organization

# KEY MESSAGES

## PART 1: OVERVIEW OF FOOD SECURITY AND NUTRITION IN EUROPE AND CENTRAL ASIA

### Section 1.1

→ Food security in the Europe and Central Asia (ECA) region has improved substantially during the past two decades. As measured by the prevalence of undernourishment, or PoU, progress has been made in reducing hunger in Central Asia (where the PoU has dropped from 11 percent in 2005 to 2.7 percent in 2019) and the Caucasus (where the PoU has dropped from 5.5 percent in 2005 to 3.3 percent in 2019). Though the PoU is lower in the ECA region than in the world at large, the rates of reduction of the number of people affected by hunger in some countries in the ECA region have been slowing or even reversing since 2014.

→ The new estimates for 2019 for the prevalence of severe food insecurity, another measure that approximates hunger, show that 1.7 percent of the total population of the ECA region (about 16 million of the total 924 million people) are exposed to severe food insecurity. As does the PoU, this indicator shows that the prevalence of severe food insecurity is much lower in the ECA region than in the world at large, where the average was 9.7 percent in 2019. An estimated 10.5 percent of the regional population (more than 98.6 million people) experienced either moderate or severe levels of food insecurity (Sustainable Development Goal Indicator 2.1.2) in 2019. The ECA region in 2019 had a larger share of people affected by moderate food insecurity (83.8 percent) than did the world overall (62.7 percent), implying a greater relevance of moderate food insecurity in the region, compared to severe food insecurity. At the moderate level, people do not have regular access to nutritious and sufficient food, even if they do not necessarily suffer from hunger.

→ As was the case in the world as a whole, the prevalence of food insecurity (moderate or severe) in the ECA region from 2014 to 2019 was stagnant at around 10.6 percent (the average of 2014–2019) each year.

However, the prevalence of food insecurity (moderate or severe) is rapidly increasing in three subregions: Central Asia, the European Commonwealth of Independent States, and the Caucasus. The ECA region is not on track to achieve the Zero Hunger target – which goes beyond hunger to include moderate levels of food insecurity – by 2030. If recent trends continue, the number of people affected by food insecurity at moderate or severe levels will increase.

→ In particular, the number of food insecure people in some countries is estimated to have increased significantly, and the situation has worsened as the COVID-19 pandemic has unfolded and continued. Although children have been less affected by the immediate health risks, their education and nutrition have been reported to be severely impacted by school closures and the deteriorated income situation of their families, typical of an economic recession.

→ Among women, the prevalence of food insecurity at moderate or severe levels is higher than among men. The difference has been reduced in the past six years, but as of 2019 women still had about an 11 percent greater chance than men of experiencing moderate or severe food insecurity. In particular, the likelihood in 2019 of women experiencing food insecurity was 22 percent higher than men in the Caucasus.<sup>5</sup>

### Section 1.2

→ In addition to food insecurity, many countries in the region continue to be challenged by the burden of malnutrition in all its forms. This report carries out a 2012 baseline analysis of malnutrition and looks at the progress being made to combat it. It also explores the expectations for meeting the 2025 and 2030 Sustainable Development Goal targets.

→ In the 2012 baseline, the ECA region was in a better position than the world regarding the prevalence of **stunting** among children younger than 5 (in the ECA-15 countries, the numbers were 50 percent lower), the prevalence of **low birth weight** among children (in the ECA region overall, the numbers were more than 50 percent lower), and **anaemia** among women of



## KEY MESSAGES

reproductive age (in the ECA region overall, the numbers were 30 percent lower). However, the ECA region was in a worse position regarding the prevalence of **childhood overweight** (the numbers were much higher in the ECA-15, where the figures were more than double the global average), **exclusive breastfeeding** during the first six months of life (29 percent lower in the ECA-15), and **adult obesity** (82.4 percent higher in the ECA region overall).

→ Overall, the Europe and Central Asia region is making progress and is on track to achieve the 2025 and 2030 targets in most countries in the areas of child **stunting**, child **wasting**<sup>6</sup> and **low birth weight**. In other areas, however, the ECA region is not making progress and is not on track to meet the 2025 and 2030 targets: **adult obesity** (all ECA countries), **anaemia** (all ECA countries) and **exclusive breastfeeding** (some ECA countries). Despite the progress made since 2012, the region is not on track to meet 2030 target for childhood overweight, and more effort is needed.

→ As COVID-19 disruptions to markets, trade and food supply chains have continued, food prices have increased, the incomes of many rural and urban households have decreased, and food diversity has been reduced. The pandemic has negatively impacted food security in the ECA region, and the malnutrition situation is expected to deteriorate as well.

### Section 1.3

→ According to the World Health Organization, a healthy diet containing a balanced, diverse and appropriate selection of foods protects against malnutrition in all its forms and against non-communicable diseases. Unhealthy diets account for a large share of the burden of non-communicable diseases in Europe, accounting for an estimated 86 percent of deaths and 77 percent of the disease burden in the region (WHO, 2020). The 2020 *State of Food Security and Nutrition in the World* report confirms the role of healthy diets in fighting malnutrition and further shows that healthy diets can contribute to environmental sustainability. Among the challenges in the region are those imposed by the overconsumption of

foods high in salt, fat and sugar, the low consumption of fruits and vegetables, tobacco use, alcohol consumption and physical inactivity.

→ There is a glaring lack of national food-based dietary guidelines in the countries of the Europe and Central Asia region. Most national food-based dietary guidelines do not include environmental sustainability considerations in the ECA region. Hence, the first step in the formulation of national food security and nutrition strategies should be the formulation of national food-based dietary guidelines, and those guidelines should account for negative externalities on climate change-related factors. It will also be important to increase education and raise awareness among the main stakeholders and people affected by these facts and to increase capacities for better and more sustainable management of natural resources.

→ There was a marked increase from 2003 to 2017 in the availability for consumption of plant-based foods in ECA-15, a positive development for both nutritional foods and sustainability development – but this can only bear fruit if fully matched by a similar increase in the population's access to these foods. The aggregated per capita availability in 2013–2017 was 25.5 percent higher in the ECA-15 than in the world overall. However, a decreasing trend in availability in the European Union (the EU-27 plus the United Kingdom of Great Britain and Northern Ireland) made the European Union average 11.4 percent lower than the world average in 2013–2017.

→ The largest gap in the availability of plant-based foods in the ECA region is in pulses. The average availability in 2013–2017 was 4 g per person per day for the ECA-15 and 8 g per person per day for the European Union. These numbers are much lower than the 20 g per person per day available worldwide, on average, during the same period. A further expansion of the production of pulses and related market development will be recommended. The availability of vegetables in the European Union also is lower than the world average.

→ Animal-based diets are less efficient in terms of resource use, and they contribute to greenhouse gas emissions that exacerbate climate change impacts. Overall, the ECA

region has a much higher level of animal-based diets than does the world overall. In particular, in the European Union, the availability of animal-based foods in 2013–2017 was more than double (112 percent higher) the world average.

→ The largest gap in the availability of animal-based foods in the ECA region is in fish. The average for the 2013–2017 period was 18 g per person per day for the ECA-15, compared with 76 g per person per day in the world overall, on average, in the same period. The further expansion of fish and the development of the fish value chain should be included in the regional priorities for investment and market development in the ECA-15.

→ The main conclusion from the analysis of the data is that despite significant progress in diversifying and moving food availability in the right direction over time in the ECA region, there is a need to reorient production and trade systems for prominent food items to move consumption within the optimal range of healthy diets. This may require, for example, the re-allocation of resources to reduce the availability of such over-consumed foods as red meat and milk and to increase the availability and consumption of fruits and fish, among other foods, to achieve sustainable and healthy nutrition strategies in these countries. Factors that alter consumer demand – such as relative food prices, per capita incomes and its distribution – also are important, as they affect the costs and affordability of healthy diets (as discussed in Part 2 of this report).

→ Optimal complementary feeding practices, as part of infant and young child feeding, are critical to child growth and development and to the prevention of micro-nutrient deficiencies and all forms of child malnutrition. Evidence shows that caregivers' time and social norms also are key drivers of optimal diets of young children in countries in Central Asia and the Balkans. Gaps exist in the policy framework for the prevention of obesity and iron deficiency anaemia in all countries in the region.

## **PART 2: COST AND AFFORDABILITY OF HEALTHY DIETS IN EUROPE AND CENTRAL ASIA**

→ Estimates show that healthy diets, on average, are five times more expensive in the Europe and Central Asia (ECA) region than diets that meet only dietary energy

needs through a starchy staple. This is similar to the world average. Furthermore, healthy diets are 1.6 times more expensive than nutrient-sufficient diets in the ECA region.

→ In this document, focus is placed on food security and nutrition analysis in countries that are not Member States of the European Union and that have data available for study. There are 14 such countries in all, referred to in this report as the ECA-14. The European Union also is included as one subgroup for overall analysis of costs and affordability at country and regional levels.

→ The high costs of healthy diets make them unaffordable for poor households, since the cost of a healthy diet exceeds the international poverty line in each of these 14 countries; overall, on average, it is 80 percent higher.<sup>7</sup> With the assumption that 63 percent of an individual's income can be spent on food, approximately 18 percent of the population – almost 19 million people – in these 14 countries cannot afford a healthy diet. The cost of a healthy diet also exceeds average food expenditures in most households in ECA countries. Using food expenditure thresholds equal to current spending, many more people (some 99 million, or one-third of the population) in the ECA-14 cannot afford a healthy diet.

→ Evidence from Armenia, Tajikistan and Kyrgyzstan has shown that cost and affordability vary within countries, by region, by population segment and by seasonality. Addressing malnutrition in a sustainable manner must take a life-cycle approach, with special attention to vulnerable populations. Different solutions to filling the nutrient gap require different tools and intervention programmes, including agriculture, education about healthy eating habits, and nutrition-sensitive social protection programmes.

→ All diets have hidden costs. Two of these hidden costs, analysed in this report, are the most critical related to the health-related (SDG 3) and climate-related (SDG 13) consequences of dietary choices and the food systems that support them. Under current food consumption patterns, diet-related health costs linked to mortality and non-communicable diseases are projected to exceed

## KEY MESSAGES

USD 152 billion. The cost of health impacts includes both direct (i.e. medical and health care) and indirect (informal care and lost working days) costs. Meanwhile, extreme weather and climate-related costs associated with current dietary patterns are estimated to be more than USD 52 billion per year by 2030 for the selected 11 countries in the ECA region. In estimating diet costs related to climate change, greenhouse gas emissions associated with food consumption were calculated and the costs of climate damages were estimated.

→ Overall, costs associated with healthy diets – which include the savings accrued by avoiding all hidden costs – are much lower than the costs of current consumption patterns. Were the population to shift to healthy diets, it is projected that direct and indirect health costs would be reduced by up to **97 percent**, the social costs of greenhouse gas emissions would be reduced by **41–74 percent**, and combined hidden costs would be reduced by **78–91 percent** in the 11 selected countries.

→ To increase the affordability of healthy diets, the costs of nutritious foods must come down. The cost drivers of these diets are in the realms of food production, food supply chains, consumer demand, food environments, and the political economy of food. The existing significant gaps in food productivity and diversity among the countries of the region provide an opportunity to drive down costs and improve affordability. Capacity-enabling hard infrastructure (such as food storage, transportation infrastructure and preservation capacity) and soft infrastructure (such as marketing and financial facilities) are necessary for the efficient functioning of food supply chains. Factors that affect consumer demand (such as price and income) and food standards and nutrition education are important in the consumer demand for healthy foods.

→ There is no one-size-fits-all solution to be used to tackle these cost drivers. Countries will need to rebalance agricultural policies and incentives towards more nutrition-sensitive investments and social protection policies, including policy incentives. There is a set of policy instruments, depending on country context and circumstances. The policies can be selected from three

groups: supply-affecting policies (such as smart subsidies or price incentives to improve the availability of healthy foods), demand-affecting policies (such as publicly supported safety net policies) and enabling environment-creation policies (such as improved trade and financing assistance, good governance and regional coordination, etc.).

→ Regional case studies in Armenia, Kyrgyzstan and Tajikistan show that comprehensive and established social protection systems have become part of national strategies to reduce poverty, improve livelihoods, and build resilience among the population. The studies have recommended that comprehensive safety nets must break the cycle of hunger and poverty and achieve the Sustainable Development Goals and the 2030 Agenda for Sustainable Development.

→ The intensity of COVID-19 infections is higher in the ECA-18 region than in the world, and the real gross domestic product of the ECA-18 in 2020 is estimated to have declined by 2.9 percent, less than the estimated 4.3 percent contraction on the global scale. However, the contraction in some ECA-18 countries was much higher (over six percent in seven countries). A survey conducted by the FAO Regional Office for Europe and Central Asia reveals that the COVID-19 pandemic has led to disruptions in transportation, storage, output deliveries, input supplies and operational financing throughout the **food supply chains**. It has continued to pose operational challenges that affect crop farmers, livestock farmers and traders/processors in most countries in the ECA region.

→ A survey of micro, small and medium enterprises in Georgia concluded that the efficiency gains generated by the Government's intensified trade facilitation and relief measures were falling short of pre-empting an income fallout. Transport disruptions translated into supply shortages. To address the financial difficulties, most farmers have reported using their own savings and have said that their survival hinges on continued Government support for covering running expenses.

# 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. The 2020 *Regional Overview of Food Security and Nutrition in Europe and Central Asia* is the sixth regional analysis aligned to SDG 2 (Zero Hunger) food security and nutrition indicators, in line with *The State of Food Security and Nutrition in the World 2020*. Regional overviews for the Europe and Central Asia (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.

Overall, undernourishment, or hunger, is not a major issue in the ECA region. However, in the ECA region as in the world at large, the rate of decline in the prevalence of undernourishment (PoU) has slowed and even reversed 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, 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 1, this report will present an up-to-date picture of food security in the region, using the latest PoU and FIES data.

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 years, 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 2020 version of the report includes the following review and analysis: 1) for the first time, a baseline (2012) analysis for comparing how the ECA region is doing relative to the world at large and with respect to the 2025/2030 targets; 2) an update on the progress made since 2012 and any changes in situations that have occurred since then; and 3) an overview of the region’s position regarding the achievement of the 2025/2030 targets.

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. Policy analyses in recent regional and global overviews of food security and nutrition have discussed some of these factors. This 2020 version of the *Regional Overview of Food Security and Nutrition in Europe and Central Asia* explores the factors that have affected national and household food insecurity in the region – with particular attention to Armenia, Kyrgyzstan and Tajikistan, where data and information are available from WFP studies.

According to the World Health Organization, a healthy diet containing a balanced, diverse and appropriate selection of foods protects against malnutrition in all its forms and against non-communicable diseases. Not only do FAO, IFAD, UNICEF, WFP and WHO (2020) support this, but it has further been shown that healthy

## INTRODUCTION

diets can contribute to environmental sustainability. In Part 1 of this report, the gaps between the current levels of consumption (or availability) of key food items (for key food groups) and the scientific optimal requirement standards based on the latest recommendations by the WHO and the EAT-Lancet Commission are examined, along with the region's parities with the world average. This will serve to define the appropriate policy recommendations for the required transition to healthy dietary patterns discussed in Part 2 of this report.

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 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. In 2017, this 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 2020 report explores the transition to healthy diets by examining their costs and affordability in the fight to end hunger and malnutrition in the ECA region, a fight that can also have synergies for SDG 3.4 and SDG 13.

As discussed above and in *The State of Food Security and Nutrition in the World 2020*, diet quality is a critical link between food security and nutrition outcomes. Adopting healthy diets can help achieve the hunger, food security and nutrition targets of SDG 2 – in particular, in reducing overweight and obesity and health problems stemming from diet-related non-communicable diseases. However, among the biggest challenges in this strategy are the affordability of such quality dietary patterns and their monetary and hidden costs. This is the focus of Part 2 of this report.

The analysis of costs presented in this report explores whether the food system approach brings three levels of diet quality within the reach of the poorest. The three types of diets analysed in this report denote increasing levels of diet quality – from a basic energy sufficient diet, to a nutrient adequate diet, to a healthy diet – with the latter following the recommended intake of highly diversified and desirable food groups. As a complement to *The State of Food Security and Nutrition in the World 2020*, this regional report offers an in-depth analysis of the 14 countries in the ECA region for which data are available.<sup>8</sup>

As reported in *The State of Food Security and Nutrition in the World 2020*, the cost and affordability of diets vary around the world, across regions and in various development contexts. They also vary within countries themselves due to geo-temporal, ecological and resource availability factors. Therefore, country case studies for Armenia, Kyrgyzstan, and Tajikistan based on the country survey data are presented.

Healthy diets generally are expensive. There is an inverse relationship between energy density and energy cost, such that energy-dense foods composed of refined grains and added sugars or fats may represent the lowest-cost option to the consumer (Drewnowski and Specter, 2004). To increase their affordability, the costs of nutritious foods must come down. Briefly discussed in this section are some of the major factors considered as cost drivers of healthy diets that are particularly relevant for the countries of the ECA region. However, even when they have enough income at their disposal, there are other reasons why some people may not adopt healthy diets. It is important, therefore, to elaborate on various impediments and on the policies required to make the transition to healthy eating a reality.

The effective tools for improving human welfare and accelerating economic development include social protection systems, education and awareness, updated extension services and investment in public goods. To make healthy diets accessible to poor and vulnerable populations, effective and nutrition-sensitive social



protection and safety nets are needed. This report presents country case studies on social protection and safety nets in Armenia, Kyrgyzstan and Tajikistan. When nutrition objectives are included in social protection schemes, the achievement of nutrition outcomes is more likely (WFP and Maastricht University, 2018b).

Nutrition-sensitive social protection policies and programmes are most appropriate for the provision of better access to nutritious foods to lower-income consumers, thus increasing the affordability of healthy diets. A case study on a nutrition-sensitive social protection programme in Armenia is presented in this report. Cash transfer programmes, school feeding programmes, in-kind transfers and subsidization of nutritious foods can be particularly important in the face of various shocks and crises, including such crises as the high food crisis in 2007–2008 and the ongoing COVID-19 pandemic. The effectiveness of the programme is also dependent on the size of the state fiscal support and the size of the targeted population.

The monetary cost borne by consumers is generally only a part of what healthy diets may cost to society as a whole. This is because there are many hidden costs associated with current food production and consumption due to negative externalities related to different dietary patterns. The two most critical diet-related hidden costs – one related to health (SDG 3) and the other to climate change (SDG 13) – are assessed in this report. The costs of five dietary patterns related to health and climate change are estimated. These include one benchmark diet (representing current food consumption patterns) and four alternative healthy diet patterns involving various vegetarian and non-vegetarian combinations. The results of the cost savings on account of the hidden health and environmental costs that can be avoided by transitioning to one of the four alternative healthy diets have far-reaching policy implications for the governments concerned.

The COVID-19 pandemic has caused serious threats to overall economic activity and to food security and nutrition, especially for low-income and vulnerable populations. The pandemic also is creating more challenges regarding access to healthy diets, especially for those whose incomes have been reduced while food prices and costs have increased. In addition, people with obesity are more vulnerable to non-communicable diseases by COVID-19 shocks. This report provides a summary of the impacts of the COVID-19 pandemic on national economies, on the consumer food prices of major food groups, and on agrifood supply chains. It also explores the response measures undertaken by countries in the ECA region.





**VARDABLUR,  
ARMENIA**

Boy feeding chickens  
in the Lori region  
of Armenia.

©FAO/Karen Minasyan





**PART 1**  
**FOOD SECURITY**  
**AND NUTRITION**  
**IN EUROPE AND**  
**CENTRAL ASIA**



# FOOD SECURITY AND NUTRITION IN EUROPE AND CENTRAL ASIA

Updates of food consumption data for many countries have made it possible to estimate hunger in the world with greater accuracy. Since 2014, there has been a substantial downward shift in the number of undernourished people worldwide and in some countries in Europe and Central Asia (ECA). Nevertheless, the number of people affected by hunger overall has been slowly rising.

In the 2030 Agenda for Sustainable Development, the aim of Sustainable Development Goal (SDG) 2 is to end hunger, achieve food security, improve nutrition and promote sustainable agriculture. It is a comprehensive goal covering nutrition and the four dimensions of food security (availability, access, utilization and stability). To provide valuable and regular evidence to Member States, regional bodies and international organizations, the systematic monitoring of progress made towards the SDG 2 indicators is required. FAO has committed to monitoring trends in food security and nutrition at global, regional and national levels, jointly with partners and within the framework of the 2030 Agenda.

The ECA region<sup>9</sup> is heterogeneous in terms of the composition of countries and their economic structures, climate conditions, rates of economic growth and transition, and other sociodemographic features. The region is composed of Western European countries,<sup>10</sup> the transition economies in Central and Eastern Europe, and countries in the Caucasus and Central Asia. More than half of the region's countries are members of or candidates for membership in the European Union. The Eurasian Economic Union also is expanding its role in the region.

FAO has 18 programme countries and territories in the ECA region, with the majority having farm structures dominated by smallholders and family

farms. In most of these countries, farm structures are the result of land reforms implemented in the 1990s during the transition from planned economy towards market economy (FAO, 2020h).

In addition to limited or unequal food access reflected in the prevalence of severe food insecurity indicator, malnutrition remains a concern for ECA countries. The effects of economic development in the region have contributed to important shifts in diets. Also called the "nutrition transition," this refers to changes in dietary patterns alongside demographic and epidemiological changes. According to the concept, higher level of incomes, the availability of cheaper but lower-quality foods, and changing lifestyles contribute to diets higher in saturated fats, sugars and refined foods and lower in fibre. All of this is driven by technological advances that have made energy-dense, nutrient-poor foods cheaply available. This consumption is often accompanied by an increasingly sedentary life, leading to an increasing prevalence of overweight and obesity and other diet-related non-communicable diseases (FAO, 2017c).

Part 1 of this report presents the current state of food security and nutrition and shares updates on the progress being made based on the latest estimates – up to 2019 – for countries in the ECA region. Regarding food security, two indicators in the 2030 Agenda are the prevalence of undernourishment (PoU) and the prevalence of severe food insecurity (FI<sub>sev</sub>) based on the Food Insecurity Experience Scale (FIES). Regarding various forms of malnutrition, three key indicators refer to malnutrition among children younger than 5: stunting (SDG Indicator 2.2.1), wasting (SDG Indicator 2.2.2) and overweight (SDG Indicator 2.2.2). Also reviewed are indicators on low birth weight, anaemia

among women of reproductive age, exclusive breastfeeding during the first six months of life, and adult obesity. Considered together, these indicators allow for the highlighting of the multiple burdens of malnutrition, when one or more of the conditions of malnutrition exist.

Many factors may be involved in the slowdown or reversal of progress on food security and challenges related to the multiple burdens of malnutrition. The 2020 *Regional Overview of Food Security and Nutrition in Europe and Central Asia* carries out analysis on the driving factors that have affected national and household food insecurity in the region, particularly in Armenia, Kyrgyzstan and Tajikistan.

A healthy diet containing a balanced, diverse and appropriate selection of foods protects against malnutrition in all its forms and against non-communicable diseases. In Part 1 of this report, the gaps between the current levels of consumption or availability of key food items and the scientific optimal requirement standards are examined. In addition, the region's differences from the world average are analysed. The aim of these findings is to define the appropriate policy prescriptions for the required transition to healthy dietary patterns discussed in Part 2 of this report.

The evidence in Europe and Central Asia has shown that the ongoing COVID-19 pandemic has disrupted national economies and food supply chains and has impacted micro, small and medium enterprises in agriculture, trade, business operations and income. To address the financial difficulties, most farmers have reported using their own savings – at the expense of their households' living conditions – to pay for operational costs (FAO, 2020). As the COVID-19 pandemic continues to evolve in 2021 and the total devastation remains uncertain, the COVID-19 pandemic will pose serious threats to food security and access to healthy diets, and more efforts will be needed to achieve the SDG targets, as reported based on trend analyses from before the pandemic. ■

## 1.1 PREVALENCE OF UNDERNOURISHMENT AND FOOD INSECURITY

### KEY MESSAGES

- Progress has been made in reducing the percentage of people considered hungry, as measured by the prevalence of undernourishment, or PoU, in Central Asia (from 11 percent in 2005 to 2.7 percent in 2019) and in the Caucasus (from 5.5 percent in 2005 to 3.3 percent in 2019). Nearly 2 million people were hungry in Central Asia and 0.6 million in the Caucasus in 2019.
- The prevalence of undernourishment in the Europe and Central Asia (ECA) region is relatively low compared with the world average of 8.9 percent in 2019. However, similar to the global situation, the reduction of hunger has been slowing in recent years, and the number of undernourished people in 2019 was almost unchanged from 2014.
- The new estimates for 2019 of the prevalence of severe food insecurity, which is another measure that approximates hunger, show that 1.7 percent of the total population in the ECA region – about 16 million people – are exposed to severe food insecurity.
- Considering the prevalence of either moderate or severe food insecurity, which looks beyond hunger, it is estimated that nearly 98.6 million people (roughly 10.6 percent of the total population) in the ECA region did not have regular access to safe, nutritious and sufficient food in 2019. This indicator is more relevant for countries in the ECA region in which severe food deprivation may no longer be of concern but where sizeable pockets of food-insecure populations remain.
- At the regional and country levels, the prevalence of moderate or severe food insecurity is higher among women than among men. The gender gap in access to food decreased from 2014 to 2019 but remains a concern.



- The COVID-19 pandemic has caused serious threats to the overall economic activity and to food security and nutrition around the globe, especially for low-income and vulnerable populations. The pandemic also is creating more challenges regarding access to healthy diets, especially for those whose incomes have been reduced while food prices and costs have increased. This report provides a summary of the impacts of the COVID-19 pandemic on national economies, consumer food prices of major food groups and agrifood supply chains. It also explores the response measures undertaken by countries in the ECA region.
- Although children have been among those least affected by the immediate health risks of COVID-19, they are still vulnerable to related socio-economic impacts of the pandemic. Given the school closures in particular, the pandemic may have severe impacts on the education and nutrition of children who rely on school meals and who may not have access to adequate diets at home.

## Ten years remain to eliminate hunger and ensure access to food for all

This 2020 version of the *Regional Overview of Food Security and Nutrition in Europe and Central Asia* presents the latest available evidence on progress made towards achieving targets for reducing hunger and food insecurity in the ECA region.

The PoU and the Food Insecurity Experience Scale (FIES) are two indicators for monitoring progress in hunger reduction and access to food under the 2030 Agenda for Sustainable Development.<sup>11</sup> PoU estimates are derived from national food balance sheet data and are computed based on three parameters: average national dietary energy supply, minimum dietary energy requirements for an average individual, and a measure of the distribution of food within a country. The FIES establishes a metric for the severity of food insecurity among individuals or households and is derived based on people's direct responses to questions regarding their access to food of adequate quality and quantity and their regularity. Thus, it is an experience-based indicator that captures the access dimension of food security.

This report presents an assessment through 2019 that is based on the data available in March 2020, just before the COVID-19 pandemic began to take hold. The figures and projections reported in this section and in Section 1.2 provide a picture of how food insecurity and malnutrition in ECA likely would have evolved had COVID-19 not appeared. In Part 2, this report provides some analysis on the impacts on the overall economy, agrifood supply chains and household food consumption and coping strategies, though not at the SDG indicator level.

## Prevalence of undernourishment

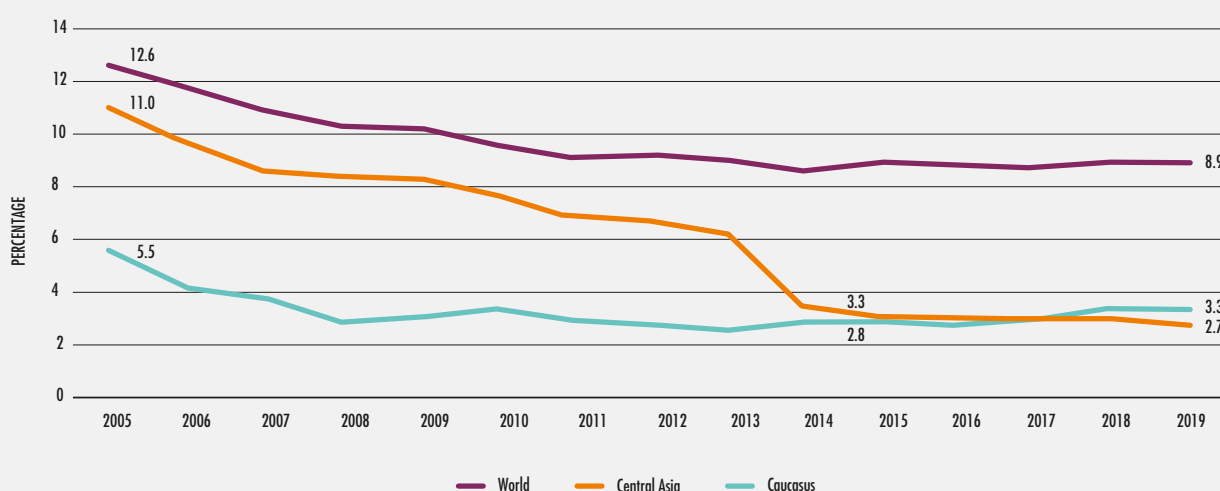
**Progress has been made in reducing the percentage of hungry people, as measured by the prevalence of undernourishment (PoU) in Central Asia and the Caucasus, but the rate of reduction of the PoU since 2014 is slowing and even reversing.**

FAO does not consider national-level PoU estimates lower than 2.5 percent sufficiently reliable to be reported, due to statistical margins of error around the parameters used to calculate the PoU.

This is the case for the countries in the European Union (EU-27 plus the United Kingdom of Great Britain and Northern Ireland), four European Free Trade Association countries, and several from the other subregions (CIS Europe, Western Balkans and Turkey). By subregion, Central Asia and the Caucasus have had a PoU above 2.5 percent in recent years.

**Figure 1** presents PoU estimates from 2005 to 2019 for the two subregions of primary concern regarding food security in the ECA region. Based on the latest estimates, substantial progress has been made in recent years in reducing the percentage of the hungry in both Central Asia and the Caucasus. In Central Asia, the PoU was reduced from 11 percent in 2005 to 2.7 percent in 2019, while in the Caucasus, the PoU was reduced from 5.5 percent in 2005 to 3.3 percent in 2019. In terms of the number of people, the undernourished population in Central Asia was reduced from 6.5 million in 2005 to 2.0 million in 2019, a reduction of 69 percent. Meanwhile, the number of undernourished in the Caucasus went from about 1 million in 2005 to 0.6 million in 2019, a reduction of 33 percent.

**FIGURE 1**  
PREVALENCE OF UNDERNOURISHMENT (POU) IN THE CAUCASUS AND CENTRAL ASIA, 2005–2019



NOTE: 2019 estimates are projections. See *The State of Food Security and Nutrition in the World 2020*.  
SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

The rate of the reduction in the number of undernourished in Central Asia and the Caucasus was much greater than the world average during this period. Globally, the number of undernourished dropped by 16.7 percent, from 825.6 million in 2005 to 687.8 million in 2019. The global PoU decreased from 12.6 percent in 2005 to 8.9 percent in 2019.

The long-term trend can be divided into two parts: a rapid reduction from 2005 to 2014 and a stagnation of the decreasing trend from 2014 to 2019. As shown in [Figure 1](#), most of the progress was made between 2005 and 2014. From 2014 to 2019, the PoU was kept at the same low level of roughly 3 percent in Central Asia (2.7 percent in 2019), while the PoU in the Caucasus rose from 2.8 percent to 3.3 percent. The slowing and reversing of the rate of reduction of the PoU may risk the attainment of the 2030 target of eliminating extreme hunger altogether.

**The level and progress of the PoU varies country by country, with the PoU in some countries trending up in recent years.**

[Table 1](#) presents PoU estimates from 2004 to 2019 for 18 countries in the four subregions that are of primary concern for food security and nutrition in the ECA region. Among these 18 countries, PoU values in 2017–2019 are estimated to be below 2.5 percent in seven (Azerbaijan, Belarus, Bosnia and Herzegovina, Kazakhstan, Montenegro, Russian Federation and Turkey) and above 2.5 percent in nine, with updated estimates for Republic of Moldova and Tajikistan unavailable at the time this report was published. Among the nine countries with higher PoU values, the values were above 5 percent in two countries: Kyrgyzstan, at 6.4 percent, and Georgia, at 8.2 percent.

The short-term changes in the PoU indicate the persistence of undernourishment in recent years; it has been a matter of concern globally and in all regions of the world. In the case of the ECA region,

**TABLE 1**  
**PREVALENCE OF UNDERNOURISHMENT IN ECA COUNTRIES, 2004–2019**

	2004 - 2006	2009 - 2011	2014 - 2016	2015 - 2017	2016 - 2018	2017 - 2019
Albania	8.9	5	4.9	4.5	3.9	3.6
Armenia	12.3	4.4	2.7	2.8	2.7	2.6
Azerbaijan	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
Bosnia and Herzegovina	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Georgia	4.2	4.3	5.9	6.2	7.1	8.2
Kazakhstan	7.4	3.6	<2.5	<2.5	<2.5	<2.5
Kyrgyzstan	9.1	8.4	6.1	6.3	6.4	6.4
Montenegro	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
North Macedonia	5	3.4	3.4	3.1	3.1	3.1
Republic of Moldova	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Russian Federation	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Serbia	<2.5	<2.5	4.1	4.1	4.3	4.6
Tajikistan	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Turkey	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Turkmenistan	4.3	4.6	3.6	3.7	3.8	4
Ukraine	<2.5	<2.5	2.8	<2.5	3.3	3.5
Uzbekistan	14.9	10.3	2.9	2.9	2.8	2.6
<b>WORLD</b>	<b>12.5</b>	<b>9.6</b>	<b>8.8</b>	<b>8.8</b>	<b>8.8</b>	<b>8.8</b>

SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

the data in [Table 1](#) for 2014–2016 to 2017–2019 show the persistence of the PoU in eight of the nine countries for which data are available. In particular, the latest PoU estimates have shown that the rates of increase in Georgia, Kyrgyzstan, Serbia, Turkmenistan and Ukraine risk the attainment of the 2030 target of eliminating extreme hunger altogether. As in previous years, the PoU data for Republic of Moldova and Tajikistan were not available at the time this report was published, but it is expected that undernourishment is still an issue in these countries.

#### Long-term trend of 16 countries with data from 2004–06 to 2017–2019 (see [Table 1](#))

(1) Five countries with PoU always below 2.5 percent: Belarus, Bosnia and Herzegovina, Montenegro, Russian Federation and Turkey

- (2) Two countries with PoU moving below 2.5 percent during the period: Azerbaijan and Kazakhstan
- (3) Six countries with PoU trending down over time: Albania, Armenia, Kyrgyzstan, North Macedonia, Turkmenistan and Uzbekistan
- (4) Two countries with PoU moving above 2.5 percent during the period: Serbia and Ukraine
- (5) One country with PoU trending up over time: Georgia

The rate of reduction of the PoU has slowed or reversed since 2014 in Kyrgyzstan, Serbia, Turkmenistan and Ukraine. The situations in the Republic of Moldova and Tajikistan also are severe regarding food insecurity, but data were not available for this report.

**Based on projections, the PoU in Central Asia and Europe, on average, is expected to be under 2.5 percent and will be on track to achieve the 2030 target, but this excludes the impact of the COVID-19 pandemic.**

In this report, the PoU is projected for the purpose of assessing the prospects for achieving the Zero Hunger target by 2030.<sup>12</sup> If recent pre-pandemic trends persist, undernourishment is expected to worsen globally, and the world's PoU will increase from 8.9 percent in 2019 to 9.8 percent in 2030, bringing the number of hungry people in the world from 687.8 million to 841.4 million. The situation may be even worse, given that the projections for 2030 do not reflect the potential impact of the COVID-19 pandemic.

Based on projections that assume that recent pre-pandemic trends persist, the PoU in Central Asia and Europe, on average, is expected to be under 2.5 percent and will be on track to achieve the 2030 target. However, given the slowing and reversing of PoU trends in some countries, plus the shocks from the unprecedented COVID-19 pandemic and other risks (such as climate and extreme weather events,

economic and financial difficulties, migration, conflicts and health), it is quite uncertain at the moment that Zero Hunger goals will be achieved in some countries in the region.

## Prevalence of food insecurity based on experience

A second indicator adopted to monitor progress on food insecurity for the 2030 Agenda for Sustainable Development is the prevalence of moderate or severe food insecurity in the population (Indicator 2.1.2). It establishes a metric for food insecurity based on people's direct responses to questions regarding their access to food of adequate quality and quantity, based on the Food Insecurity Experience Scale (FIES).

- The FIES survey module is composed of eight questions with simple dichotomous responses ("yes" or "no"). Respondents are asked questions such as whether anytime during a certain reference period they have worried about their ability to obtain enough

### BOX 1

## SEVERITY OF FOOD INSECURITY ACCORDING TO FIES – THE EIGHT QUESTIONS OF THE FIES SURVEY

Experience-based food security measurement scales have been in use for many years in a number of countries. FAO launched the Voices of the Hungry Project in 2012 with the objective of ensuring truly comparable classifications to establish a global reference scale for severe and moderate food insecurity. The eight items (questions) that compose the FIES survey module are chosen to represent a range of experiences, common to many cultures, to gauge the level of food insecurity, from mild to severe. The overall question asked is this:

During the last 12 months, was there a time when, because of lack of money or other resources:

1. You were worried you would not have enough food to eat?
2. You were unable to eat healthy and nutritious food?
3. You ate only a few kinds of foods?
4. You had to skip a meal?
5. You ate less than you thought you should?
6. Your household ran out of food?
7. You were hungry but did not eat?
8. You went without eating for a whole day?

The answers to the above questions are classified in the following categories: worried, healthy, few foods, skipped meals, ate less, ran out of food, and hungry whole day. The set of eight questions compose a scale that covers a range of severity of food insecurity.

SOURCE: FAO, IFAD, UNICEF, WFP and WHO. 2019.

food, whether their household has run out of food, or whether they have been forced to compromise the quality or quantity of the food they have eaten due to the limited availability of money or other resources.

Two indicators are derived using two appropriately selected thresholds: the prevalence of severe food insecurity ( $FI_{sev}$ ) and the prevalence of moderate or severe food insecurity ( $FI_{mod+sev}$ ). The  $FI_{mod+sev}$  indicator refers to combined estimates of both the percentage of the population in a situation of moderate food insecurity and the percentage of people affected by severe food insecurity.

Even though the FIES-based measures and the PoU are based on different data and approaches, the levels and trends in  $FI_{sev}$  should be consistent with those from the PoU. This is not surprising, given that a condition of severe food insecurity and the resulting reduction in the quantity of food consumed might lead to the inability to cover dietary energy needs (in other words, the condition of “undernourishment” as defined in the PoU methodology).

Since being introduced by FAO in 2014, the FIES has rapidly become a global reference for measuring food insecurity based on household and/or individual data. In previous editions of the regional and global overviews of food security and nutrition, the reports only provided estimates of severe food insecurity ( $FI_{sev}$ ) – which has a strong relationship with the PoU – and the  $FI_{mod+sev}$  indicator.

Given the nature of the concerns regarding food insecurity in the ECA region – notably, the experience or fear of having to compromise the quality and variety of food –  $FI_{mod+sev}$  is a much more relevant indicator than  $FI_{sev}$  for assessing prevailing food security issues.

### Severe food insecurity in the ECA region

FAO’s latest estimates (Table 2 and Figure 2) suggest that 1.7 percent of the total population in the ECA region was exposed to  $FI_{sev}$  in 2019. This is much lower than the world average of 9.7 percent, and it is lower than in Asia (9.2 percent), Latin America and the Caribbean (9.6 percent), and Africa (19.0 percent). Estimates for the ECA subregions vary from 1.3 percent for European CIS countries to 2.8 percent for the Western Balkans. The overall availability of food is not a severe problem in the ECA region, as is shown by the high dietary energy supply, which exceeds population energy requirements in almost all countries in the region. Household incomes and livelihoods largely affect economic access to food. High market food prices also limit economic access, particularly among lower-income groups who spend large shares of their incomes on purchasing food.

The trend of the prevalence of severe food insecurity in the region shows that the region saw a decrease in prevalence from 2014 (1.9 percent) to 2019 (1.7 percent), driven by the subregions of the European Union and the European CIS. However, the data show that the prevalence stagnated in the Caucasus and Central Asia. Urgent action is needed in order to “leave no one behind,” as stated in the 2030 Agenda.

The 1.7 percent prevalence of  $FI_{sev}$  in the ECA region in 2019 translates to 16 million people exposed to severe food insecurity (2.1 percent of the 746 million total worldwide) – 0.4 million in the Caucasus, 1.6 million in Central Asia, 5.3 million in the Western Balkans and Turkey, 2.7 million in European CIS, and 5.7 million in the EU-27 plus the United Kingdom of Great Britain and Northern Ireland. As a result of the various changes in severe food insecurity, the share of the number of severely food insecure in the ECA region changed from 2014 to 2019 (see Figure 3).

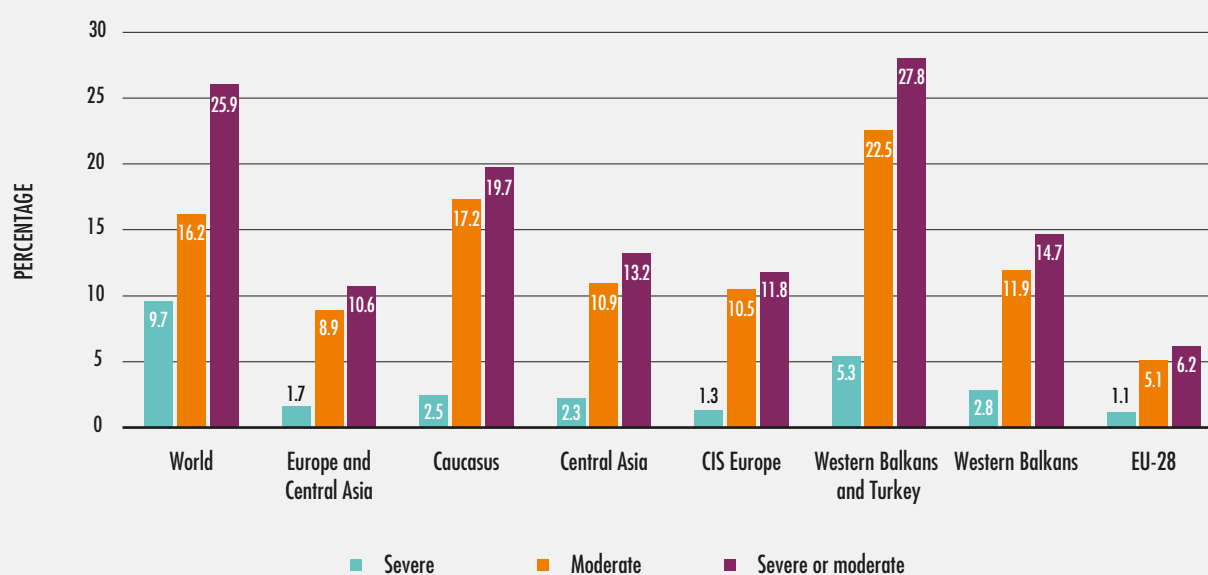


**TABLE 2**  
**PREVALENCE OF SEVERE FOOD INSECURITY AND OF MODERATE OR SEVERE FOOD INSECURITY, MEASURED WITH THE FOOD INSECURITY EXPERIENCE SCALE, IN THE ECA REGION, 2014–2019**

	Prevalence of severe food insecurity						Prevalence of moderate or severe food insecurity					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Europe and Central Asia	1.9	1.9	1.9	2.0	1.6	1.7	10.7	10.8	10.7	10.8	10.1	10.6
Caucasus	1.4	3.0	2.7	2.5	2.8	2.5	15.1	17.0	16.5	21.9	20.9	19.7
Central Asia	1.6	1.4	2.0	2.8	2.2	2.3	8.5	9.1	10.0	13.9	13.6	13.2
CIS Europe	0.7	1.1	1.2	0.9	0.8	1.3	8.5	11.9	12.8	11.6	9.8	11.8
Western Balkans	3.0	3.7	3.0	4.1	3.2	2.8	16.2	16.7	15.1	18.1	15.4	14.7
EU-28	1.9	1.7	1.5	1.6	1.1	1.1	8.8	7.6	7.0	6.9	6.4	6.2
EFTA countries	1.6	1.7	0.9	1.2	0.8	0.7	5.1	5.4	4.0	4.3	3.4	3.2
<b>WORLD</b>	<b>8.3</b>	<b>7.9</b>	<b>8.1</b>	<b>8.6</b>	<b>9.4</b>	<b>9.7</b>	<b>22.4</b>	<b>22.4</b>	<b>23.2</b>	<b>24.8</b>	<b>25.8</b>	<b>25.9</b>

SOURCE: FAO. 2020.

**FIGURE 2**  
**PREVALENCE OF SEVERE FOOD INSECURITY AND OF MODERATE OR SEVERE FOOD INSECURITY, MEASURED WITH THE FOOD INSECURITY EXPERIENCE SCALE, IN THE ECA REGION, 2019**



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

### Country-level data show countries with high levels of $FI_{sev}$ in 2019.

Country-level prevalence rates of  $FI_{sev}$  are published as three-year averages to reduce errors, and estimates are available for 26 countries from the European Union (EU-27 plus the United Kingdom of Great Britain and Northern Ireland) and EFTA subregions, and for 13 of the 18 countries from the other four ECA subregions. As depicted in Table 3, the results for the latter show relatively high prevalence rates of 4 percent or more for the period 2017–2019 in four countries: Albania (10.0 percent), Georgia (7.3 percent), Armenia (4.1 percent) and Republic of Moldova (4.0 percent). These estimates show that food

insecurity at the severe level is hardly an issue in the European Union and EFTA subregions but is still an issue of concern in several countries in the other four subregions. In particular, Albania has a prevalence above the world average.

The factors that explain the relatively high prevalence of  $FI_{sev}$  in some countries are difficult to pin down and will require detailed data and analysis. Some 5–7 percent of the population do experience chronic food insecurity. Other factors include poverty, social and economic inequalities, and periodic shocks from such things as weather, conflicts, health, remittance incomes and economic crises. Further analysis can be seen in Section 1.3 of this report.

**TABLE 3**  
PREVALENCE OF SEVERE FOOD INSECURITY AND OF MODERATE OR SEVERE FOOD INSECURITY, MEASURED WITH THE FOOD INSECURITY EXPERIENCE SCALE, IN SELECTED COUNTRIES OF THE ECA REGION, 2014–2019 (THREE-YEAR AVERAGE)

	Prevalence of severe food insecurity				Prevalence of moderate or severe food insecurity			
	2014-16	2015-17	2016-18	2017-19	2014-16	2015-17	2016-18	2017-19
Albania	10	10.5	11	10	38.8	39	38.6	37.1
Armenia	3.7	4.3	4.4	4.1	28.7	33.4	35.9	34.9
Azerbaijan	<0.5	<0.5	<0.5	<0.5	5.9	7.7	8.6	9.6
Bosnia and Herzegovina	1.5	1.8	1.3	1.5	9.6	10.3	8.7	9.2
Georgia	7	7.9	7.5	7.3	31.8	33.8	35.5	38.3
Kazakhstan	n.a.	n.a.	n.a.	<0.5	n.a.	n.a.	n.a.	2.1
Kyrgyzstan	n.a.	n.a.	0.8	0.8	n.a.	n.a.	6.3	6.3
Montenegro	2.1	2.2	2.3	2.2	12.6	11.3	12	12.9
North Macedonia	3.6	3.1	3.1	3.2	15.1	13.7	14.3	14.4
Republic of Moldova	1.6	2.2	2.9	4	19.3	21	24.6	27.5
Russian Federation	0.7	0.7	0.6	0.8	8.2	8.9	7.9	8.4
Serbia	1.7	2.3	1.9	2	11.4	12.8	12.5	12.4
Ukraine	2	2.2	2	1.6	19.8	22.3	21.5	18.3
Uzbekistan	1.9	2.1	2.2	2.8	11.2	13.4	14.9	17.2
Europe and Central Asia	1.9	1.9	1.8	1.8	10.7	10.8	10.5	10.5
<b>WORLD</b>	8.1	8.2	8.7	9.2	22.7	23.5	24.6	25.5

SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

### Prevalence of moderate or severe food insecurity in the population in the ECA region

Introduced for the first time in the 2019 *Regional Overview of Food Security and Nutrition in Europe and Central Asia*, the prevalence of moderate or severe food insecurity, derived from the same Food Insecurity Experience Scale database as the prevalence of severe food insecurity, looks beyond hunger to reflect the goal of ensuring regular access to safe, nutritious and sufficient food.

Considering the prevalence of moderate or severe food insecurity ( $FI_{mod+sev}$ ), which looks beyond hunger, it is estimated that nearly 98.6 million people (corresponding to 10.6 percent of the total population) in the ECA region did not have regular access to safe, nutritious and sufficient food in 2019. This indicator is more relevant for countries in the ECA region in which severe food deprivation may no longer be of concern but where sizeable pockets of food-insecure populations remain.

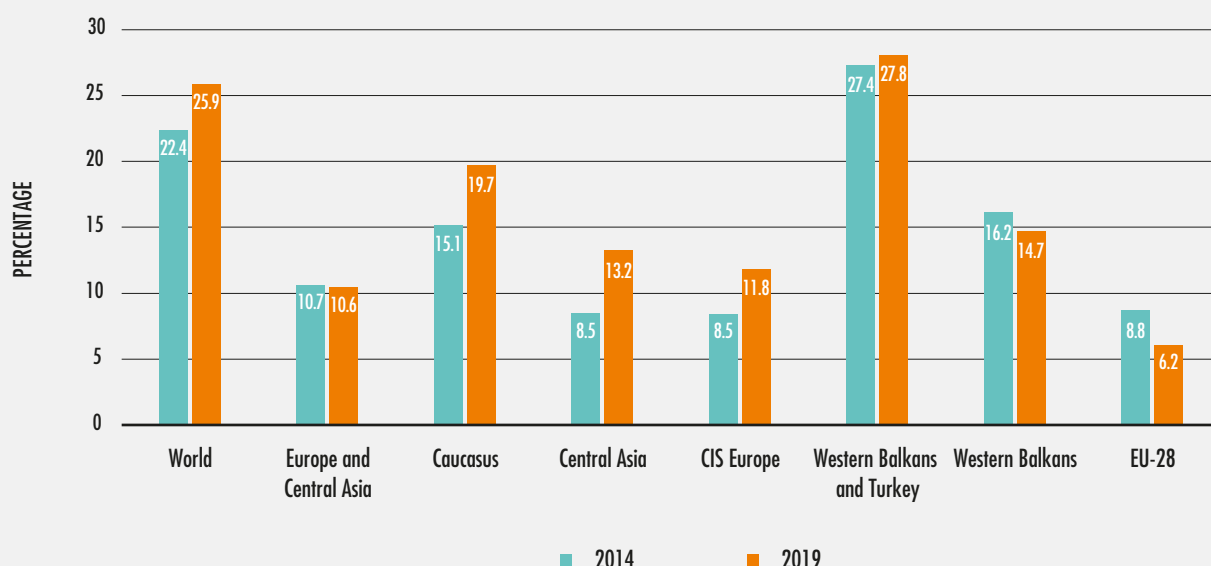
The prevalence of food insecurity (moderate or severe) is almost unchanged from 2014; it was 10.7 percent in 2014 and 10.6 percent in 2019, with a six-year average of 10.6 percent.

In contrast to the very low levels of  $FI_{sev}$  for this region,  $FI_{mod+sev}$  is quite high, at 10.6 percent, on average, for the ECA region (Table 2).

While the 17 million people facing severe food insecurity in 2019 are of utmost concern in the ECA region, an additional 82.6 million people (8.9 percent of the total population in the region) have experienced food insecurity at moderate levels. The combination of moderate and severe levels of food insecurity (SDG Indicator 2.1.2) brings the estimated total to 10.6 percent of the regional population in 2019 (Figure 3), amounting to a total of more than 98.6 million people in the ECA region.

The prevalence in the ECA region is much lower than the world average of 25.4 percent, but it is still challenging to the principles of the 2030 Agenda.

**FIGURE 3**  
PREVALENCE OF FOOD INSECURITY AT MODERATE OR SEVERE LEVELS, MEASURED WITH THE FOOD INSECURITY EXPERIENCE SCALE, IN THE ECA REGION, 2014–2019



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

Figure 3 shows that in 2019, the prevalence ranged from 6.2 percent in the European Union (EU-27 and the United Kingdom of Great Britain and Northern Ireland) to 19.7 percent in the Caucasus. The prevalence in 2019 was 14.7 percent in the Western Balkans, 13.2 percent in Central Asia and 11.8 percent in CIS Europe.

**The prevalence of food insecurity (moderate or severe) from 2014 to 2019 appears to be stagnant. The prevalence in 2019 is estimated at 10.6 percent, which is close to the five-year average from 2014 to 2018.**

Table 2 and Figure 3 present the changes in the prevalence of severe food insecurity and of moderate or severe food insecurity from 2014 to 2019 by subregion in Europe and Central Asia. Note that the prevalence of FI<sub>mod+sev</sub> in the ECA region as a whole has persisted at around 10–11 percent since 2014. The prevalence of food insecurity at moderate or severe levels is still increasing rapidly (from 2014 to 2019) in three subregions: Central Asia (up 55 percent), CIS Europe (up 39 percent), and the Caucasus (up 30 percent). The percentage increases in these subregions are much higher than the world average of 16 percent.

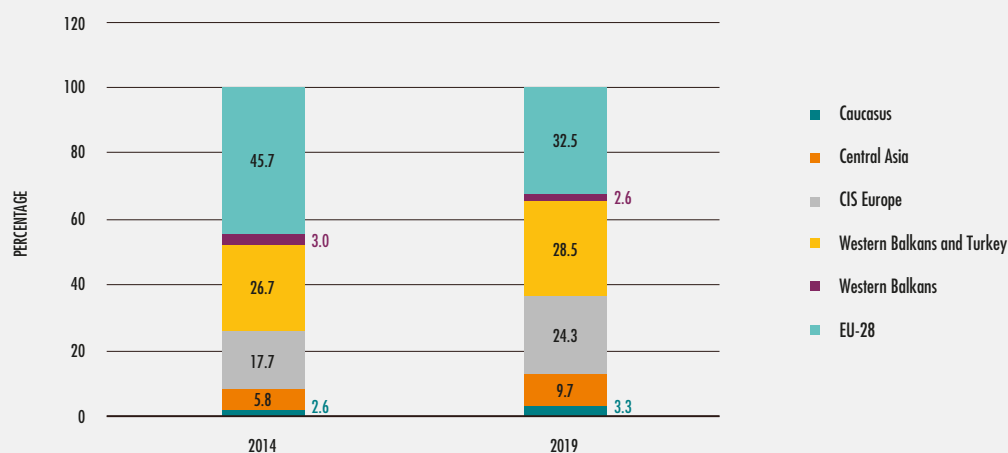
Specifically, the prevalence of food insecurity at moderate or severe levels in Central Asia increased from 8.5 percent (5.7 million) in 2014 to 13.2 percent (9.6 million) in 2019. In CIS Europe, the prevalence increased from 8.5 percent (17.3 million) in 2014 to 11.8 percent (24 million) in 2019. In the Caucasus, the prevalence increased from 15.1 percent (2.5 million) in 2014 to 19.7 percent (3.3 million) in 2019.

Meanwhile, the prevalence in the European Union declined from 8.8 percent (44.7 million) in 2014 to 6.2 percent (32.0 million) in 2019, a reduction of 30 percent. A reduction also was observed in the Western Balkans, from 16.2 percent (2.9 million) in 2014 to 14.7 percent (2.6 million) in 2019.

**As a result of the change in the number of people affected by moderate or severe food insecurity in each subregion, the distribution of people affected also has changed, with fewer people in Europe and more in CIS Asia.**

Figure 4 shows that today, out of the 98.6 million people suffering from food insecurity in the ECA region, the largest share of people is in Europe (some 57 percent),

FIGURE 4  
SHARE OF PEOPLE AFFECTED BY FOOD INSECURITY, BY ECA SUBREGION, 2019



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

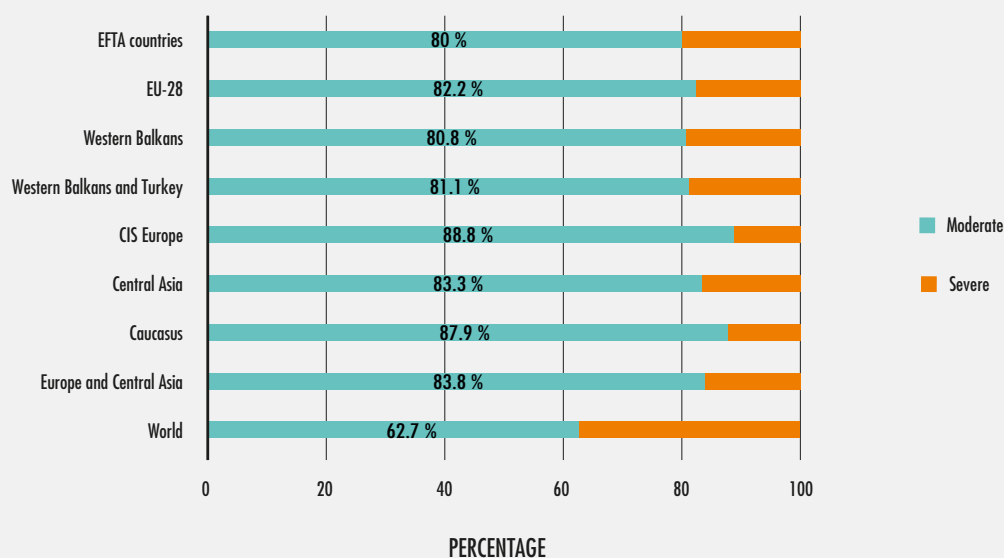
followed by the Western Balkans and Turkey (24 percent) and Central Asia (10 percent). Since 2014, the share has shifted quickly from EU-28 to Central Asia and other subregions.

The share of people affected by food insecurity in the EU-28 dropped from 45.7 percent in 2014 to 32.5 percent in 2019. In the Western Balkans, the share decreased from 3.0 percent to 2.6 percent. In CIS Europe, the share increased from 17.7 percent in 2014 to 24.3 percent in 2019, and in Central Asia from 5.8 percent in 2014 to 9.7 percent in 2019. Finally, in the Caucasus, the share increased from 2.6 percent in 2014 to 3.3 percent in 2019.

**Compared to the world average, a much higher percentage of people affected by food insecurity in the ECA region are affected only at a moderate level.**

Figure 5 shows that a much higher share of food insecurity is at the moderate level in the ECA region than in the world at large. On average, 83.8 percent of the total prevalence (SDG 2.1.2 indicator) is at the moderate level in the ECA region, compared with 62.7 percent worldwide. This indicates that hunger is less an issue in the ECA region than is regular access to healthy food.

**FIGURE 5**  
**SHARE OF SEVERE OR MODERATE FOOD INSECURITY IN THE ECA REGION, 2019**



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

**The prevalence of severe or moderate food insecurity in some countries is above the world average.**

At the country level, the average prevalence of  $FI_{mod+sev}$  in 2019 was over 10 percent in nine of the 14 countries in the ECA region outside the

EU-28 and EFTA (Table 2). Four of them had much higher prevalence rates than the world average of 25.5 percent – Georgia (38.3 percent), Albania (37.1 percent), Armenia (34.9 percent) and Republic of Moldova (27.5 percent). Data from Tajikistan are not available for this report.



The prevalence of  $FI_{mod+sev}$  in 2019 shows that even in high-income countries, sizeable portions of the population in European Union Member States have difficulty regularly accessing nutritious and sufficient food, with 6.2 percent of the population in the European Union belonging to this category of food insecurity in 2019.

### Implications of COVID-19 on the state of food security in Armenia, Kyrgyzstan and Tajikistan

The COVID-19 pandemic is having an unprecedented impact on global health, economies and food systems. In the face of the pandemic, mitigation measures – including the closure of schools, businesses and borders – were established across all sectors. Globally, the number of confirmed cases of COVID-19 has reached over 26.5 million, with more than 740 000 deaths, according to the World Health Organization.<sup>13</sup> The pandemic has compounded existing conflicts, socio-economic challenges and natural and climate risks, leaving increasing numbers of people suffering from hunger and malnutrition. Based on initial estimates in three countries,<sup>14</sup> significant increases in food-insecure populations are expected across the region after the COVID-19 crisis.

Although children have been among the least affected by the immediate health risks of COVID-19, they are still vulnerable to related socio-economic impacts of the crisis, including risks of falling into poverty, lack of access to healthy diets and education, and threats to health and survival. Given the school closures in particular, the pandemic may have severe impacts on the education and nutrition of children who rely on school meals and who may not have access to adequate diets at home (United Nations, 2020) due to reduced employment and household income.

In particular, low-income and middle-income countries are at risk of challenges related to the COVID-19 pandemic. Analysis of the potential implications of COVID-19 on the world's poorest countries identifies food-import dependency, high inflows of remittances and high dependency on primary commodity exports to be among the factors leaving countries at highest risk of economic and social implications of the pandemic (WFP, 2020a). Trade dependency exposes countries that depend on food trade to fill gaps in local food production to price fluctuations

as international markets face instability. Remittances contribute a major source of income to poor and vulnerable people, and shortages are likely to affect livelihood support for millions of people. In the ECA region, Armenia and Tajikistan, which are primary commodity exporters, are two countries identified to be of highest risk due to their high dependency on remittances (WFP, 2020a).<sup>15</sup>

According to World Food Programme and FAO monitoring and analysis of the prices of main food commodities and exchange rates, the COVID-19 pandemic has had a significant impact on market food prices in countries such as Kyrgyzstan and Tajikistan, hindering households' access to food. Increases in general food prices are subject to factors that include currency fluctuations, movement restrictions of labour and products, depleted stocks, imposed restrictions, bans by leading export countries, panic buying behaviour and stockpiling, all driving fluctuations in prices of imported basic food commodities. Currency and exchange rates fluctuations have a significant impact on market food prices in these countries dependent on food imports. The Government of **Kyrgyzstan** has enforced temporary price ceilings on basic food items to stabilize food prices and avoid price hikes, limiting increases and stabilizing average food basket costs between March and April 2020 at KGS 5 255 (up by 1 percent). Compared to April 2019, however, the food basket cost is up by 24 percent. In **Tajikistan**, the food basket recorded a monthly increase of 7 percent in April 2020, reaching an all-time high of TJS 1 829. Despite price ceilings and imposed quantity limitations, higher prices for staples, including locally produced potatoes and partially imported wheat, reflect consumer behaviour on food spikes as the country faces currency fluctuations (WFP, 2020b). As the situation develops, further assessment will be needed to realize the full implications of the COVID-19 crisis on food security and nutrition for vulnerable people in the ECA region.

The ongoing COVID-19 pandemic has impacted national economies, trade, markets and agrifood supply chains in the ECA region. Further analysis of the overall impacts of COVID-19 on food security and nutrition in the ECA region can be found in Section 2.5 of this report.

## BOX 2

## COVID-19 IMPACTS ON FOOD SECURITY AND NUTRITION IN ARMENIA: EVIDENCE FROM HOUSEHOLD SURVEY

The Food Security and Vulnerability Assessment in Armenia was conducted among households in Armenia from June to July 2020. The survey, which included a sample size of 4 219 respondents, interviewed the member of the household who could best answer questions related to household food consumption and expenditures. The survey used a regionally representative random selection, with urban and rural stratification.

The COVID-19 pandemic is affecting food systems directly, through impacts on food supply and demand, and indirectly, through decreases in purchasing power and in the capacity to produce and distribute food. Key findings from the survey related to COVID-19's impact on food security and nutrition are the following:

**The COVID-19 pandemic has significantly affected households' income and access to food and resources by interrupting jobs and daily routines:**

- ▶ The COVID-19 pandemic has disrupted the incomes of about 58 percent of households.
- ▶ Around 45 percent of respondents have faced temporary interruptions in their jobs, and about 20 percent have lost their jobs permanently. For 35 percent, there have been reductions in salaries or revenues.
- ▶ More than 40 percent of households have faced difficulties in accessing groceries or markets due to financial circumstances and situational obstacles related to the COVID-19 pandemic.
- ▶ The main concerns of households during the pandemic have been getting sick and losing their jobs. Around 10 percent of households are concerned about food shortages.

**The COVID-19 pandemic has significantly impacted households' food security and access to sufficient and nutritious foods, with particularly strong impacts on the poor and vulnerable:**

- ▶ The proportion of households applying crisis (41.8 percent) and emergency (16.9 percent) coping strategies is high. About half of the households have spent their savings, borrowed money or purchased food on credit due to a lack of food or a lack of money to buy food.
- ▶ Approximately 40 percent of respondents had to reduce non-food expenses on health (including medicine) and education during the previous month due to a lack of food or financial resources to buy food.
- ▶ About 68 percent of households do not have a stock of staple foods. Among them, the percentage with poor or borderline food consumption scores is greater than among those who have a stock of staple foods to last at least a week. Households with poor or borderline food consumption scores are applying more severe coping strategies.

**The Government of Armenia has provided support to address the economic impacts of COVID-19, but more than half of respondents reported not having received the assistance:**

- ▶ About 58 percent of respondent households reported that they had not received any assistance from the Government during the COVID-19 pandemic.
- ▶ The Government of Armenia has approved 22 programmes to address the economic impacts of the COVID-19 pandemic, with actions varying from the subsidization of consumed natural gas and electricity for vulnerable families to assistance for the most affected businesses. However, according to research by the World Bank (2020), most believe that the Government's support packages for citizens have been either extremely sufficient (19 percent) or somewhat sufficient (34 percent).

SOURCE: Food Security and Vulnerability Assessment in Armenia. WFP. 2020f.

## Gender differences in food insecurity

**At the regional and country levels, the prevalence of food insecurity at moderate or severe levels is higher among women than among men. The gender gap in accessing food decreased from 2014 to 2019 but remains a concern.**

The FIES data collected annually by FAO in more than 140 countries worldwide at the individual (rather than household) level from 2014 to 2019 provide a unique opportunity to analyse the differences in the prevalence of food insecurity among men and women.

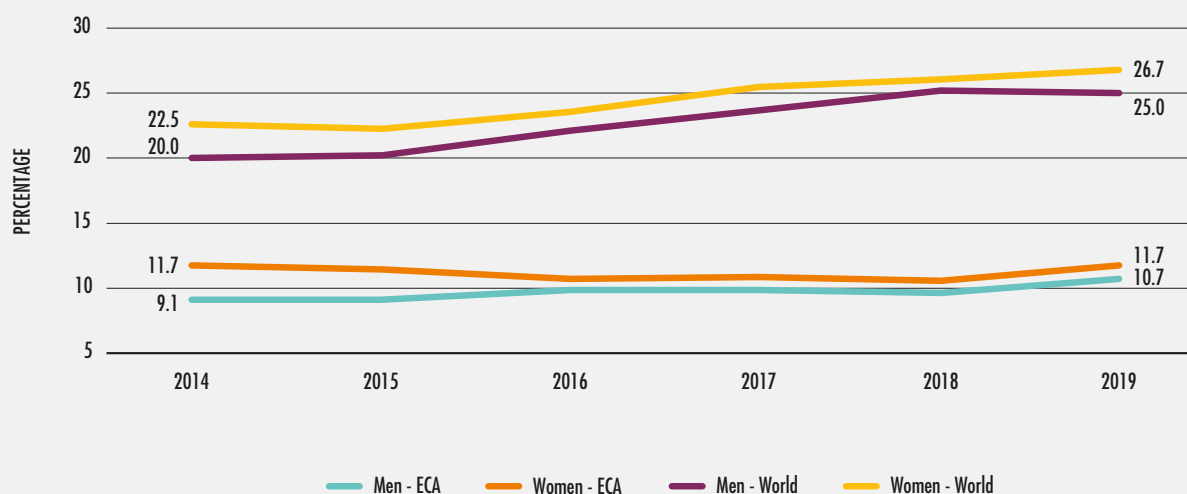
**The prevalence of food insecurity at different levels of severity among women is higher than among men (Figure 6), with the difference reduced from**

**2014 to 2019. Women had about a 11 percent greater chance of experiencing moderate or severe food insecurity than did men in 2019.**

In the ECA region, the prevalence among women, on average, was 9 percent higher than among men in 2019 (11.7 percent versus 10.7 percent). The gender differences in food security were reduced from 2014 (11.7 percent versus 9.1 percent, or 29 percent higher than among men) and the difference was reduced by 9 percent in 2019.

After controlling for socio-economic characteristics, women in the ECA region had about an 11 percent greater chance of experiencing moderate or severe food insecurity than did men in 2019, down from 32 percent in 2014. Worldwide, on average, women had about a 9 percent greater chance than did men in 2019, down from 16 percent in 2014.

**FIGURE 6  
PREVALENCE OF FOOD INSECURITY (MODERATE OR SEVERE) AMONG WOMEN AND MEN, WORLDWIDE AND IN THE ECA REGION, 2014–2019**



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

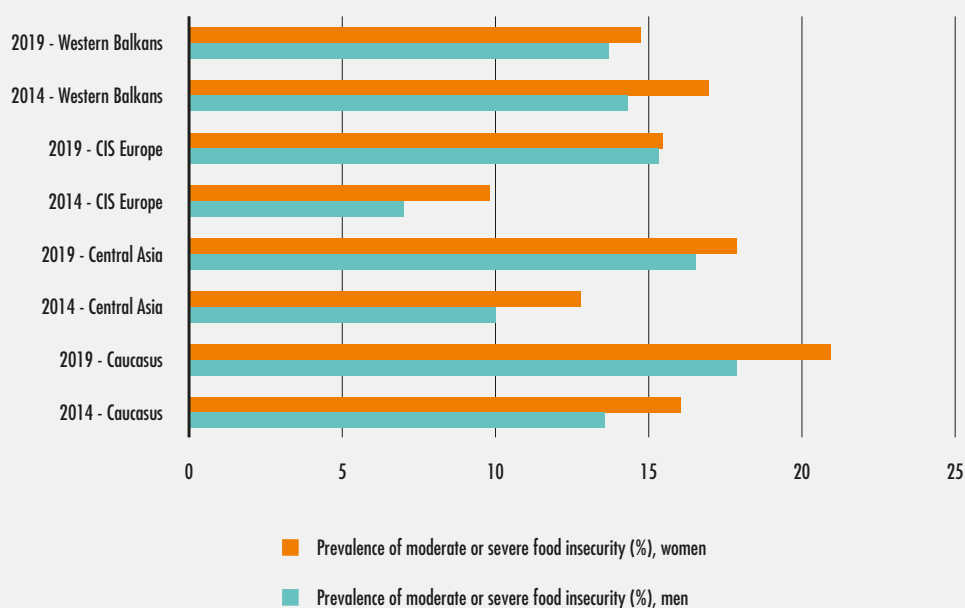
**In 2019, women were at greater risk of experiencing moderate or severe food insecurity than were men in most subregions, in particular in the Caucasus and in the Western Balkans.**

Figure 7 shows that in 2014, women had a much greater chance of experiencing moderate or severe food insecurity than did men in most subregions. In CIS Europe, that chance was 44 percent greater, while in Central Asia it was 31 percent greater and in the Caucasus it was 22 percent greater. The gap was reduced in 2019, but women still had a greater chance of experiencing moderate or severe food insecurity in the Caucasus (22 percent), EU-28 (13 percent) and Central Asia (10 percent). In 2019, the likelihood was almost equal for women and men in CIS Europe and EFTA countries.

By country, in 2014–2016, women in all ECA-14 countries had a stronger chance of experiencing moderate or severe food insecurity than did men. In 2017–2019, women in 11 of the 14 ECA countries still had greater odds of experiencing moderate or severe food insecurity, with strong odds in Ukraine (145.5 percent), Republic of Moldova (137.3 percent), Armenia (135.6 percent) and Albania (134.1 percent).

In addition to finding that food insecurity is more prevalent among women, *The State of Food Security and Nutrition in the World 2020* stated that regardless of the level of severity, people with a higher risk of food insecurity were those in the lowest income quintile, those with lower education, those who were unemployed, those with health problems, those living in rural areas,

**FIGURE 7  
PREVALENCE OF FOOD INSECURITY (MODERATE OR SEVERE) BY GENDER IN THE ECA REGION, 2014 AND 2019**



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

those between 25 and 49 years old, and those who were separated or divorced (FAO, IFAD, UNICEF, WFP and WHO, 2020). These findings indicate the need for a deeper understanding of the forms of discrimination against women that make access to food more difficult for women.

### Gender inequalities in Armenia, Kyrgyzstan and Tajikistan

The following subsections present gender inequalities in relation to food and nutrition security and rural development in Armenia, Kyrgyzstan and Tajikistan. In all three countries, FAO, WFP and UNECE provide policy advice,

technical assistance and capacity-building to improve the availability, access, utilization and stability of food, with a pledge to leave no one behind. Table 4 provides an overview of each country’s rankings on the Global Gender Gap Report, the Global Inequality Index and the Food Insecurity Experience Scale. While Armenia, Kyrgyzstan and Tajikistan rank differently across complex indicators, gender inequalities remain a significant impediment to social and economic development and inclusion, especially among rural women and girls. These inequalities ultimately hinder countries’ socio-economic development and progress towards achieving Zero Hunger.

**TABLE 4**  
**COMPARISON OF GLOBAL GENDER GAP, GLOBAL INEQUALITY, FOOD INSECURITY EXPERIENCE SCALE, AND MODERATE OR SEVERE FOOD INSECURITY INDICES IN ARMENIA, KYRGYZSTAN AND TAJIKISTAN**

Country	Global Gender Gap		Global Inequality Index		Food Insecurity Experience Scale	Moderate or severe food insecurity
	Rank	Index	Rank	Index	Prevalence rate*, %	Prevalence rate**, %
Armenia	98	0.684	57	0.258	15.5	34.3
Kyrgyzstan	93	0.689	87	0.381	20.5	23.9
Tajikistan	137	0.626	84	0.377	14.6	29.6

NOTES: \*Prevalence of individuals aged 15 or more in the national population who are food insecure at moderate or severe levels. \*\*Prevalence of moderate or severe food insecurity in the total population.

SOURCE: *Global Gender Gap Report 2020* (World Economic Forum, 2019), *Human Development Report 2019* (UNDP, 2019), *Voices of the Hungry Report 2016* (FAO, 2016), *The State of Food Security and Nutrition in the World 2020* (FAO, IFAD, UNICEF, WFP and WHO, 2020).

The subsections below briefly outline, for each of these three countries, the differences in women’s status, labour, involvement in agriculture, time poverty and unpaid work, and gendered differences in susceptibility to food and nutrition security.

#### Armenia

The constitution and laws of Armenia guarantee gender equality. Women, however, remain underrepresented in economic, business and political decision-making positions. Persisting gender inequalities further restrict the opportunities for women to access economic resources and decent work.

The percentage of women and girls aged 15 to 64 participating in the labour force was 59.6 percent in 2017, compared with 77.7 percent among men and boys (WEF, 2017). Women experience a significant gender pay gap; women’s wages are around 36 percent lower than men’s (National Strategic Review of Food Security and Nutrition in Armenia, 2018) despite that women in Armenia are generally more educated than men (FAO, 2017a).

Employment opportunities are limited in Armenia. Approximately 34.8 percent of employed people are involved in agriculture, and among them 56 percent are women. However, the share of women engaged in informal agricultural employment is 82.1 percent, compared with 60.8 percent among male informal workers (FAO, 2017a).

Gender inequalities in agriculture significantly limit opportunities for women. Land ownership and inheritance are biased in favour of men (FAO, 2017a). Men are the main owners of land, property and vehicles (including 100 percent of agricultural machinery and 84 percent of land), which reduces income-earning opportunities for women, not to mention the productivity of the agricultural sector and the achievement of food security (WFP, 2017c). Women traditionally have limited access to decision-making regarding the use of land and agricultural assets (including property and vehicles), in addition to limited access to credit, entrepreneurship, and irrigation and extension services (National Strategic Review of Food Security and Nutrition in Armenia, 2018; FAO, 2017a).

Prevalent discriminatory social norms contribute to unpaid care and domestic work primarily being done by women, limiting their participation in the public and economic spheres and making them more vulnerable to poverty and food and nutrition insecurity. A time budget analysis showed that women in Armenia spent five times more on unpaid work (family care and domestic work) than did men (NSSRA, 2009). The situation has largely remained the same over the past decade: In 2017, around 31.5 percent of women aged 15 to 75 reported being either unemployed or occupied with household tasks (NSSRA, 2016). Women are overrepresented in unpaid work in agriculture, especially in family farming (FAO, 2017a).

Rural women working informally on family farms do not receive any compensation (as defined by the Labour Code, such as sick leave and childcare allowances) because they are considered self-employed or economically inactive. In rural communities, two-thirds of employed women do not receive cash earnings when they are self-employed (FAO, 2017a).

Food and dietary diversification and nutrition education are needed. In Armenia, children are more likely to experience stunting and overweight than to be underweight or wasted (National Statistical Service, Ministry of Health and ICF, 2017), which points to, among other reasons, improper dietary knowledge and practices. In both urban and rural areas, around 45 percent of women are overweight or obese. More than 10 percent of women and children are anaemic, while a mother's overall education is

positively associated with her children consuming foods rich in vitamin A and iron (National Statistical Service, Ministry of Health and ICF, 2017).

Food security is monitored regularly, and the indicators include sex-disaggregated data by household heads, number of members, number of children (three or more), age of children (5 and younger), pensioner members, region, and urban or rural setting. Users of data demand more nuanced reporting on gender statistics in the agricultural sector.

### Kyrgyzstan

A significant gender gap remains despite the adoption of national strategies, policies and plans to improve gender equality and enhance the role of women in development. These include the low participation of women in decision-making at local and national levels, structural barriers that prevent women from creating businesses, a lack of access to information and means of production (especially in rural areas), and a lack of social infrastructure and services.

The labour force participation rate of women and girls was 41.9 percent in 2018, compared with 71.7 percent among men (National Statistical Committee of the Kyrgyz Republic, 2020a, 2020b). Between 2015 and 2019, the reported ratio of women's wages to men's wages fluctuated between 71 percent and 77 percent (National Statistical Committee of the Kyrgyz Republic, 2020c). More men (96.8%) attain secondary education than do women (94.5%) (FAO, 2016a).

Overall, around 60 percent of the population are employed, while 40 percent are "economically inactive," including household workers, who are traditionally female (National Statistical Committee of the Kyrgyz Republic, 2019). Addressing gender imbalances in paid and unpaid work and the prevalence of women in vulnerable employment in agriculture remain critical in Kyrgyzstan (FAO, 2016a). In rural areas, women tend to work at the production level of value chains, generating low and unpredictable incomes. Women in unpaid work and women who are unemployed account for 72 percent of the working-age population living below the poverty line. The burden of caregiving, the lack and inadequacy of childcare facilities and related



affordable services, and the lack of decent work opportunities are structural barriers to women's participation in the labour force.

Prevailing social attitudes limit women's ownership of assets. Men are the favoured inheritors and owners of assets such as land and property. Forty-three percent of rural women between the ages of 15 and 49 do not own housing, and fewer than 5 percent have sole ownership. The rest of women (around 38 percent) have joint ownership with men. Women's limited ownership of and control over key assets often results in their inability to receive loans and credits (FAO, 2016a).

Rural women and men spend, on average, one and half times more time on domestic chores than do urban residents. Rural women spend more time on household management tasks than do other groups in urban and rural areas (FAO, 2016a).

The prevalence of overweight adults is almost the same for males and females, but women are more than twice as likely as men to be obese (22 percent of women and 12 percent of men) (FAO, 2016a). Rural children are more likely than urban children to experience nutritional problems (FAO, 2016a). Overall, anaemia rates among children and pregnant women are decreasing, but despite the progress, anaemia among children younger than 5 is 35.8 percent, and for pregnant women it is 29.9 percent.<sup>16</sup> Gender inequalities are prevalent in access to productive resources, knowledge and involvement in decision-making, which limits women's economic status and opportunities for generating income and leads to inadequate food consumption and dietary diversity and, as a result, micronutrient deficiencies (WFP, 2020e).

Food security is monitored regularly, but the indicators and targets are not disaggregated by sex and age. In addition, gender equality and nutrition indicators are limited.

### Tajikistan

The national legislation in Tajikistan upholds the principle of equal rights and opportunities for women and men. The Government of Tajikistan, among other measures, has implemented a significant gender-sensitive reform of the land code (FAO, 2016b). Nevertheless, gender stereotypes and

discriminatory practices are deeply embedded in Tajik society and institutions (WFP, 2019b). Open and hidden discrimination in the labour market, a profound gender pay gap between women and men (due to women's concentration in low-skilled, low-paid jobs), and limited access to social protection are among the development challenges faced by the country. Gender-based inequalities hamper women's and girls' access to economic resources and expose them to poverty and food insecurity (FAO, 2016b). Sex-disaggregated data are scarce and provide only a fragmented picture of some of the issues facing rural and urban women and men (FAO, 2016b).

Just under 30 percent (29.6 percent) of women between the ages of 20 and 54 are in the labour force, according to the recent Tajikistan Demographic and Health Survey (Statistical Agency under the President of the Republic of Tajikistan, Ministry of Health and Social Protection of Population of the Republic of Tajikistan and ICF, 2018). Women also experience income poverty due to the significant gender wage gap: In 2018, women's average wages were equivalent to 59.6 percent of men's wages (Statistical Agency under President of the Republic of Tajikistan, 2020a), and the situation has not improved since 2014 (FAO, 2016b). Three-quarters of the country's rural population are highly dependent on agriculture, both as a form of employment and for subsistence (FAO, 2016b). Three-fourths (75 percent) of women in Tajikistan are registered as employed in the agriculture sector, compared with 42 percent of men (World Bank, 2009). According to a sample from the 2017 Tajikistan Demographic and Health Survey, one in three employed women worked in agriculture (Statistical Agency under the President of the Republic of Tajikistan, Ministry of Health and Social Protection of Population of the Republic of Tajikistan and ICF, 2018). Women's employment in agricultural jobs is predominately seasonal. Female seasonal workers report not having formal contracts and receiving low pay or only in-kind payments (FAO, 2016b). According to an FAO analysis, agriculture is among the sectors with the highest exploitation of women and the most significant gender inequalities in Tajikistan.

Given that 91.9 percent of migrants from Tajikistan are men (Abdulloev, 2020), women are left behind as de facto heads of households, responsible – despite their limited access to resources – for generating income to cover living expenses (UN Women, 2020).

Women and households who have been abandoned by migrant husbands and have stopped receiving remittances are some of the most economically and socially vulnerable groups in the country (FAO, 2016b). “Abandoned” women also face the risk of social stigma and difficulties finding jobs that can be combined with subsistence agricultural work. Poverty is highest among households headed by women, households headed by men or women with no formal education, and households with many children. Overall, around one-third of rural households (36.1 percent) experience poverty, while two out of ten households in urban areas (23.5 percent) are poor (Statistical Agency under the President of Tajikistan, Ministry of Economic Development and Trade of the Republic of Tajikistan and World Bank, 2015).

In Tajikistan, the state owns the land; however, a land plot can be accessed for perpetual use after being registered through an appropriate procedure. Only 16.1 percent of rural women own land alone or jointly (FAO, 2016b). Women employed in the formal agriculture sector are paid substantially less than men: In 2013, women’s average monthly nominal wage was 58 percent that of men (WFP, 2019b). Women farmers have limited access to productive resources and agricultural inputs. In 2017, women headed 19.4 percent of independently held farmland (dehkan farms) in Tajikistan (Statistical Agency under President of the Republic of Tajikistan, 2020b).

Time poverty constrains rural women’s well-being: women spend twice as much time on unpaid domestic work as rural men and have the least amount of free time. Rural women spend one hour more on unpaid work than do urban women, mainly due to responsibilities related to farm work (FAO, 2016b).

Similar to the situations in Armenia and Kyrgyzstan, rural women in Tajikistan working without formal contracts do not receive any annual leave, sick pay, maternity leave or paid leave (FAO, 2016b). Since 2018, the Government of Tajikistan has been in the process of reforming its social protection system (see Section Case Study: Social Protection and Safety Nets for Enhanced Food Security and Nutrition in Tajikistan).

The food security and nutrition indicators in Tajikistan are among the worst in the region (WFP, 2018c). Micronutrient deficiency among women and children remains a particular public health concern (FAO, 2016b). Almost half of women (41 percent) suffer from

anaemia, while at the national level, around 59 percent of women and 53 percent of children younger than 5 show iodine deficiency (Statistical Agency under the President of the Republic of Tajikistan, Ministry of Health and Social Protection of Population of the Republic of Tajikistan and ICF, 2018). The prevalence of underweight among children younger than 5 doubled between 2008 and 2015 (WFP, 2018c). A lack of diverse diets is related to household food insecurity; however, despite higher rates of poverty, rural households in Tajikistan are slightly less likely than urban households to be food insecure (FAO, 2016b).

Food and security monitoring efforts miss capturing critical gender disparities. Information about disadvantaged groups of women and men is limited or absent. Demand for sex-disaggregated food and nutrition statistics is high, while the available data quality is perceived as “very low” (FAO, 2016b, 2020f). ■

## 1.2 MALNUTRITION: BASELINE AND PROGRESS TO SDG TARGETS (SDG TARGET 2.1.2)

### KEY MESSAGES

- Sustainable Development Goal 2 emphasizes not only the need to ensure access to safe, nutritious and sufficient food for all people at all times, but also to eradicate all forms of malnutrition. The ECA region is characterized by the coexistence of undernutrition, overweight and obesity, with some countries having relatively high prevalence of more than one form of malnutrition. Malnutrition – including unhealthy diets high in salt, unhealthy fats, free sugar and excess energy – accounts for a large share of the non-communicable disease burden in Europe, accounting for an estimated 86 percent of deaths and 77 percent of the disease burden in the region.
- The available data regarding six SDG targets for the 2012 baseline review in the ECA region show that the region is in a better position than the world, on average, regarding three targets:

- The prevalence of **stunting** among children younger than 5. The prevalence in the ECA-15 is 50 percent lower than the world average.
- The prevalence of **low birth weight**. The prevalence in the ECA region overall is more than 50 percent lower than the world average.
- **Anaemia** among women of reproductive age. The anaemia rate in the ECA region overall is 30 percent lower than the world average.

→ However, the ECA region is in a worse position than the world with regard to three targets:

- Prevalence of **childhood overweight** among children younger than 5. The ECA-15 has a prevalence more than double the global average.
- The region is strongly affected by the challenges imposed by childhood overweight and obesity. According to WHO COSI data, the prevalence of overweight among children aged 6–9 has been severe in many countries in the WHO Europe region, with the highest levels observed in Mediterranean countries, where nearly every second boy is overweight and every fifth boy is obese.
- **Exclusive breastfeeding** during the first six months of life. The rate for exclusive breastfeeding in the ECA-15 is 29 percent lower than the world at large.
- **Adult obesity**. The obesity rate in the ECA region overall is 82.4 percent higher than the world average.

→ According to the latest estimates for four targets with updates available, in the ECA-15 in 2019, 15.2 percent of children younger than 5 were **stunted** (compared with 21.3 percent worldwide), 3.1 percent were **wasted** (compared with 6.9 percent worldwide), 11.1 percent experienced **childhood overweight** (compared with 5.6 percent worldwide), and there was a 26.3 percent prevalence of **exclusive breastfeeding** (compared with 44.1 percent worldwide).

→ The ECA region is making progress and is on track to achieve the 2025 and 2030 targets in most countries with regard to child **stunting**, child **wasting**<sup>17</sup> and **low birth weight**.

→ The ECA region is not making progress and is not on track to meet the 2025 and 2030 targets in **adult obesity** (in all countries of the region), **anaemia** (in all countries of the region), and **exclusive breastfeeding** (in some countries of the region). Despite the progress made, the ECA is not on track and to meet 2030 targets in childhood overweight, and more effort is needed.

### Introduction and global nutrition targets for 2030 (revised from the 2025 targets)

Section 1.2 of this report provides analysis regarding the key SDG targets. First, it provides a 2012 SDG target baseline review. Second, it looks at the progress made since 2012, with four targets updated to 2019. Third, it covers the situation regarding the meeting of targets in 2025 and 2030.

The Rome Declaration on Nutrition, which was one of the outcomes of the Second International Conference on Nutrition (ICN2) in 2014 (FAO and WHO, 2014), committed countries to increase investments in food systems to prevent all forms of malnutrition – particularly undernutrition in women and children – and to reverse the trend of increasing overweight and obesity.

In 2016, the United Nations General Assembly proclaimed a Decade of Action on Nutrition, aiming to accelerate the implementation of the ICN2 commitments, achieve 2025 targets related to global nutrition and diet-related non-communicable diseases, and contribute to the realization by 2030 of the Sustainable Development Goals (FAO, IFAD, UNICEF, WFP and WHO, 2018).

Malnutrition in general is a major obstacle to socio-economic development in many countries due to its impact on the health of the population (with high social and public costs), learning ability (with a vast loss of human potential), and productivity (with greatly reduced work capacity). These deficiencies contribute to a vicious cycle of

malnutrition, reduced development prospects and poverty, affecting mostly already-disadvantaged groups. Preventing malnutrition would eventually reduce costs incurred for curative health care and social welfare needs while potentially making resources available for needed development activities (FAO and International Life Sciences Institute, 1997; WHO, 2018; Levin, 1986; Strauss, *et al.*, 1986). Thus, understanding and addressing malnutrition remain key factors for progressing on the Sustainable Development Goals.

The ECA region is characterized by the coexistence of undernutrition and overweight and obesity, with countries that have relatively high prevalence of more than one form of malnutrition.<sup>18</sup> ECA countries can be divided into four broad categories with regard to the prevalent types of malnutrition (undernourishment, overweight and obesity, and micronutrient deficiencies): (1) countries primarily affected by

undernourishment and micronutrient deficiencies but with a relatively low prevalence of overweight and obesity; (2) countries with the triple burden of malnutrition, characterized by residual undernourishment, persisting micronutrient deficiencies and rapidly growing rates of obesity and overweight; (3) countries primarily affected by overweight and obesity as well as micronutrient deficiencies; and (4) countries where food security concerns are relatively low (FAO, 2017c; Traill, *et al.*, 2014).

**Table 5** summarizes SDG Target 2.2, the targets endorsed in 2012 by the World Health Assembly (WHA) to be achieved by 2025, and the targets from the 2030 Agenda for Sustainable Development. In 2013, the WHA adopted the Global Monitoring Framework for the prevention and control of non-communicable diseases. Within this framework, a target on adult obesity (to halt the rise in adult obesity) was included.

**TABLE 5**  
**GLOBAL NUTRITION TARGETS FOR 2030, REVISED FROM THE 2025 TARGETS**

	2025 Target	2030 Target
<b>Stunting</b>	40-percent reduction in the number of children younger than 5 who are stunted	50-percent reduction in the number of children younger than 5 who are stunted
<b>Anaemia</b>	50-percent reduction in anaemia in women of reproductive age	50-percent reduction in anaemia in women of reproductive age
<b>Low birth weight</b>	30-percent reduction in low birth weight	30-percent reduction in low birth weight
<b>Childhood overweight</b>	No increase in childhood overweight	Reduction of childhood overweight to less than 3 percent and maintenance at that level
<b>Breastfeeding</b>	Increase to at least 50 percent the rate of exclusive breastfeeding in the first six months	Increase to at least 70 percent the rate of exclusive breastfeeding in the first six months
<b>Wasting</b>	Reduction of childhood wasting to less than 5 percent and maintenance at that level	Reduction of childhood wasting to less than 3 percent and maintenance at that level
<b>Adult obesity</b>	No increase in adult obesity <sup>19</sup>	

SOURCE: *The extension of the 2025 Maternal, Infant and Young Child nutrition targets to 2030*. WHO and UNICEF. 2018.

This section of the report presents the latest estimates of nutrition indicators and provides an assessment of progress made in the ECA region towards global nutrition targets. **The indicators on various forms of malnutrition reviewed in this section** are: three key indicators referring to malnutrition among children

younger than 5 – stunting (SDG Indicator 2.2.1), wasting (SDG Indicator 2.2.2) and overweight (SDG Indicator 2.2.2) – and indicators on low birth weight, anaemia among women of reproductive age, exclusive breastfeeding during the first six months of life, and adult obesity. Considered together, these

indicators allow for the highlighting of the multiple burden of malnutrition, when one or more of the conditions of malnutrition exist.

This section provides analyses for each key indicator, including the regional and country situation in 2012 (the baseline year for monitoring), the progress made since 2012 (with 2019 updates, if information is available), and the progress necessary to ensure that the 2025 and 2030 targets are met.

### Stunting among children younger than 5

**ECA is in a better position regarding the prevalence of stunting, with almost all countries below the world average and eight countries below 50 percent of the world average in the 2012 baseline.**

Globally, the prevalence of stunting in 2019 was estimated to be 21.3 percent, down from 24.8 percent in 2012, while the number of stunted children fell from 164 million in 2012 to 144 million in 2019 (UNICEF, WHO and WB, 2020). While no estimates were made for subregions of Europe, the estimate for Central Asia was 14.9 percent in 2012 and 9.9 percent in 2019.

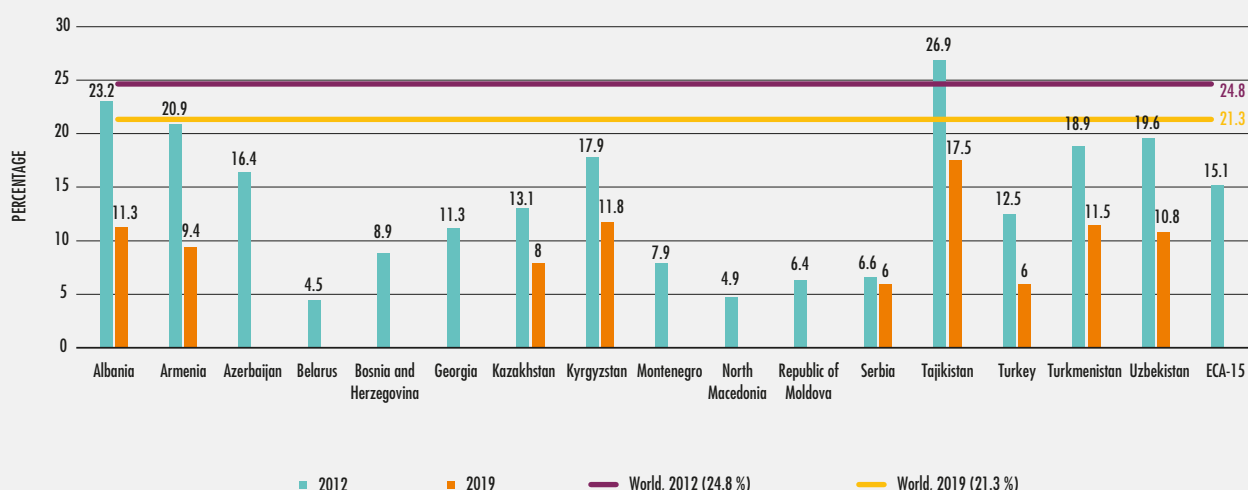
Figure 8 shows the prevalence of stunting in selected ECA countries for in 2012 and 2019, where updated information is available.

In 2012, the ECA region was doing much better than the world with regard to stunting. Out of 16 countries, 15 countries reported stunting rates lower than the world average of 24.8 percent.

Eight countries had a prevalence of stunting that was less than or close to 50 percent of the global average: Belarus (4.5 percent), North Macedonia (4.9 percent), Republic of Moldova (6.4 percent), Serbia (6.6 percent), Montenegro (7.9 percent), Bosnia and Herzegovina (8.9 percent), Turkey (12.5 percent) and Kazakhstan (13.1 percent).

An additional six countries had a prevalence in 2012 that was still below the world average: Azerbaijan (16.4 percent), Kyrgyzstan (17.9 percent), Turkmenistan (18.9 percent), Uzbekistan (19.6 percent), Armenia (20.9 percent) and Albania (23.2 percent). The only country with a higher prevalence of stunting was Tajikistan, at 26.9 percent.

FIGURE 8  
PREVALENCE OF STUNTING (%) AMONG CHILDREN YOUNGER THAN 5 IN SELECTED COUNTRIES OF THE ECA REGION, 2012 AND 2019



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

**Between 2012 and 2019, countries of concern with regard to child stunting in the ECA region made progress and are on track to achieve the 2025 and 2030 targets. However, the ongoing COVID-19 pandemic poses challenges.**

From 2012 to 2019, significant progress was made in reducing the prevalence of stunting for the ECA countries of concern. Globally, the prevalence was reduced by 14.1 percent, on average, while the reduction was much higher in Central Asia, where it was 33.6 percent. The prevalence in Tajikistan, which has the most severe prevalence of stunting in the region, was reduced by 34.9 percent to 17.5 percent, moving the prevalence from above the world average in 2012 to below the 2019 world average of 21.3 percent. The other countries of concern also saw large reductions in the prevalence of stunting; there were reductions of 51.3 percent in Albania, 55.0 percent in Armenia, 38.9 percent in Kazakhstan, 34.1 percent in Kyrgyzstan, 52 percent in Turkey, 39.2 percent in Turkmenistan and 44.9 percent in Uzbekistan.

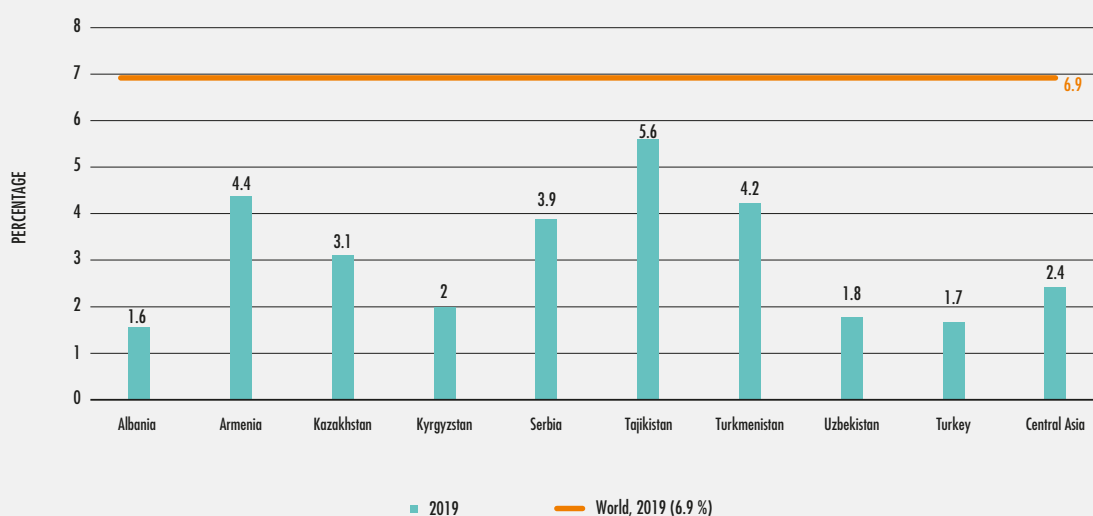
The number of stunted children was reduced from 1.1 million in 2012 to 0.8 million in 2019 in Central Asia and from 0.8 million in 2012 to 0.4 million in Turkey. In the other countries, the numbers in 2012 were less than 0.1 million and were not estimated in 2019. Overall, without considering the effects of COVID-19, the ECA countries are on track to achieve the 2025 and 2030 targets. The situation will need to be monitored and updated for the impacts of the COVID-19 pandemic to ensure targets will be met.

### Wasting among children younger than 5

**Most countries in the ECA region have already met the 2025 child wasting target of 5 percent and the 2030 target of 3 percent. Some countries need to make rapid progress in order to achieve 2030 targets, in particular due to uncertainty caused by the ongoing COVID-19 pandemic.**

Wasting is an acute condition that can change frequently and rapidly during the course of a calendar year. It is difficult to obtain reliable data for a trend analysis over time. In this report, only the 2019

**FIGURE 9  
PREVALENCE OF WASTING (%) AMONG CHILDREN YOUNGER THAN 5 IN SELECTED COUNTRIES OF THE ECA REGION, 2019**



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.



**TABLE 6**  
**REQUIRED AVERAGE ANNUAL RATES OF REDUCTION TO MEET THE WASTING TARGET IN 2025 AND IN 2030 BY COUNTRY**

Countries	To lower childhood wasting to less than 5 percent	To lower childhood wasting to less than 3 percent
Tajikistan	10.8	10.3
Albania	10.3	10.0
Turkmenistan	5.9	7.7
Azerbaijan	4.5	6.9

estimates for nine countries (Figure 9) are reported. The assessment of child wasting is made based on the 2019 estimates through a straight comparison with the target levels of 5 percent and 3 percent for 2025 and 2030, respectively. Globally, 6.9 percent of children younger than 5 (47 million in total) were estimated to be affected by wasting in 2019. This is significantly above both the 2025 and 2030 targets.

Figure 9 presents the situation regarding child wasting in the 9 ECA countries for which data are available. On average in these countries, some 3 percent of children younger than 5 were affected by wasting. This prevalence is far below the 2019 world average.

By country, out of these 9 ECA countries, four countries already have met the 2030 target on child wasting, with a prevalence of less than 3 percent: Albania (1.6 percent), Turkey (1.7 percent), Uzbekistan (1.8 percent) and Kyrgyzstan (2.0 percent). Four countries already have met the 2025 target but have not met the 2030 target: Kazakhstan (3.1 percent), Serbia (3.9 percent), Turkmenistan (4.2 percent) and Armenia (4.4 percent).

Tajikistan has a prevalence of child wasting above 5 percent and needs to make progress to meet the 2025 and 2030 targets.

## Overweight among children younger than 5 and among children aged 6–9

### Overweight among children younger than 5

**The prevalence of overweight among children younger than 5 in the ECA-15 countries was more than double the global level in 2012.**

The global prevalence of overweight among children younger than 5 in the 2012 baseline year was 5.3 percent. This has not improved; instead, it increased slightly to 5.6 percent in 2019.

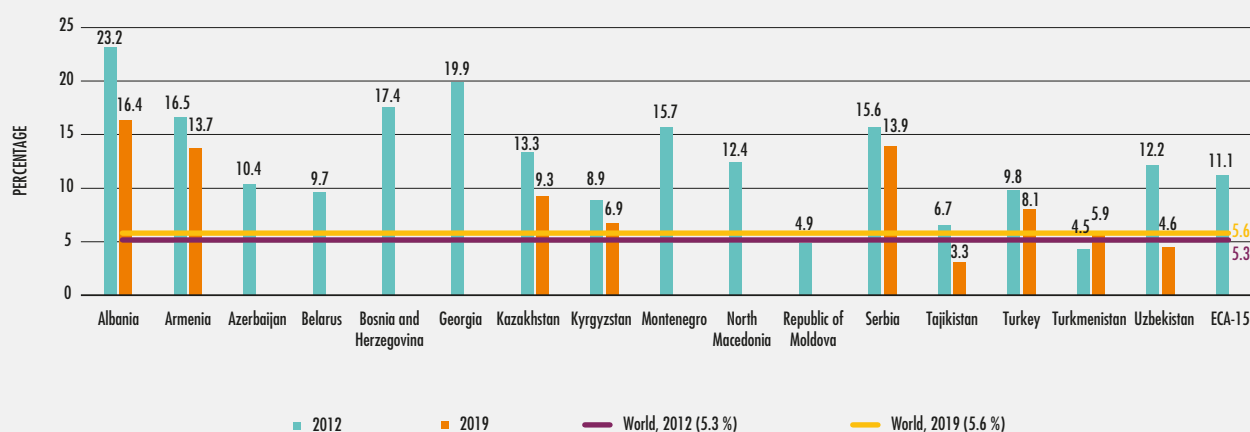
In 2012, the prevalence of overweight among children younger than 5 in the 15 ECA countries where data were available, on average, was estimated at 11.1 percent (Figure 10), more than double the world average that year. By country, the following countries had more severe situations, with a prevalence at three to four times the global level: Albania (23.2 percent), Georgia (19.9 percent), Bosnia and Herzegovina (17.4 percent) and Armenia (16.5 percent).

### Concerted efforts are needed for countries to meet the 2030 targets related to child obesity and overweight.

Nine of the 15 countries have 2019 data available. Different from the global trend of a 5.7-percent increase from 2012 to 2019, the data show that eight of these nine countries had reductions from 2012 to 2019: Uzbekistan (down 62.3 percent), Tajikistan (down 50.7 percent), Kazakhstan (down 30.1 percent), Albania (down 29.3 percent), Kyrgyzstan (down 22.5 percent), Turkey (down 17.3 percent), Armenia (down 17.0 percent) and Serbia (down 10.9 percent). As a result, the difference from the world average has been reduced in these countries.

The reductions of prevalence based on trends from before the COVID-19 pandemic indicate that these countries individually, along with the overall average of the reported countries, are on track to meet the 2025 target of no increase in childhood overweight. However, only Tajikistan and Uzbekistan are on track to meet the 2030 targets, as they show average annual rates of reduction from 2012 to 2019 that are greater than the required average annual rate of reduction from 2012 to 2030. The other countries are not on track and will need greater effort (in particular, when considering the effects and uncertainty of the ongoing COVID-19 pandemic) in the fight against childhood overweight in order to meet the 2030 target of reducing childhood overweight to less than 3 percent and keeping it there.

**FIGURE 10**  
**PREVALENCE OF OVERWEIGHT (%) AMONG CHILDREN YOUNGER THAN 5 IN SELECTED COUNTRIES OF THE ECA REGION, 2012 AND 2019**



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

### The prevalence of overweight among children aged 6 to 9

#### The prevalence of overweight among children aged 6 to 9 has been much higher than among children younger than 5.

Overweight and obesity have increased in the majority of countries in the WHO European Region since 2012. Therefore, a concerted and coherent effort is needed to meet the 2025 target of no increase in childhood overweight.

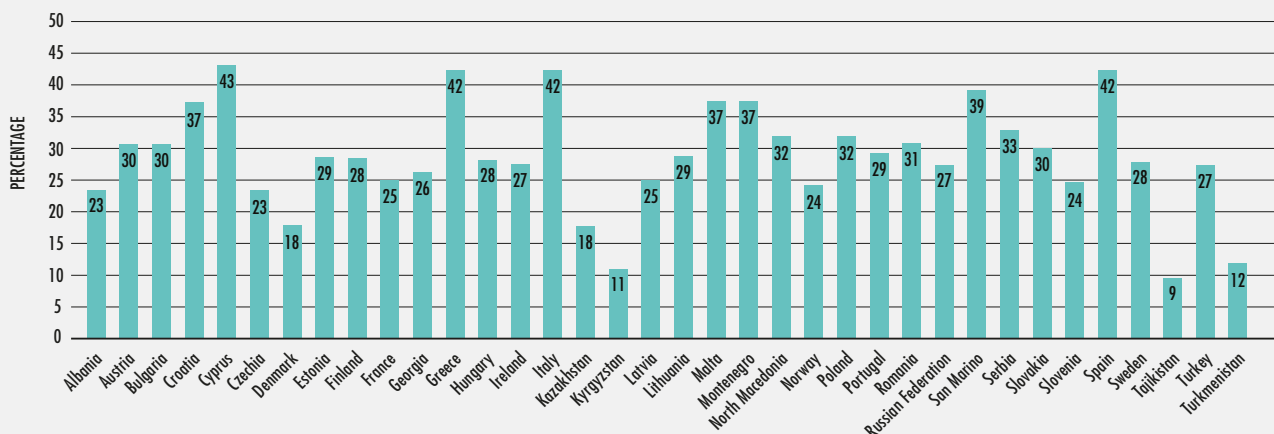
Comprehensive, timely and accurate assessment of the magnitude of childhood obesity is needed to raise awareness and stimulate appropriate policy responses by countries. The WHO Regional Office for Europe and its Office for the Prevention and Control of Non-communicable Diseases in Moscow have supported the implementation of the WHO European Childhood Obesity Surveillance Initiative (COSI), which measures trends in child nutrition, along with data on lifestyle behaviours and environment. The initiative started in 2007

in 12 countries, and by 2017 it had expanded to more than 300 000 children from 40 Member States. The survey is repeated every 2 to 3 years in primary schools (children aged 6–9 years), thus allowing for the efficient assessment of trends. For many countries, COSI provided, for the first time, high-quality nationally representative data on child growth, allowing Member States to take action to tackle childhood overweight and obesity.

For example, Portugal was one of the 12 countries involved in the first round of COSI. Between 2008 and 2016, childhood overweight decreased by 19 percent and obesity by 24 percent, while physical activity levels increased. Although these findings are encouraging, the prevalence of overweight and obesity remain high, and sedentary behaviours have increased, mainly due to increased time spent playing computer games.

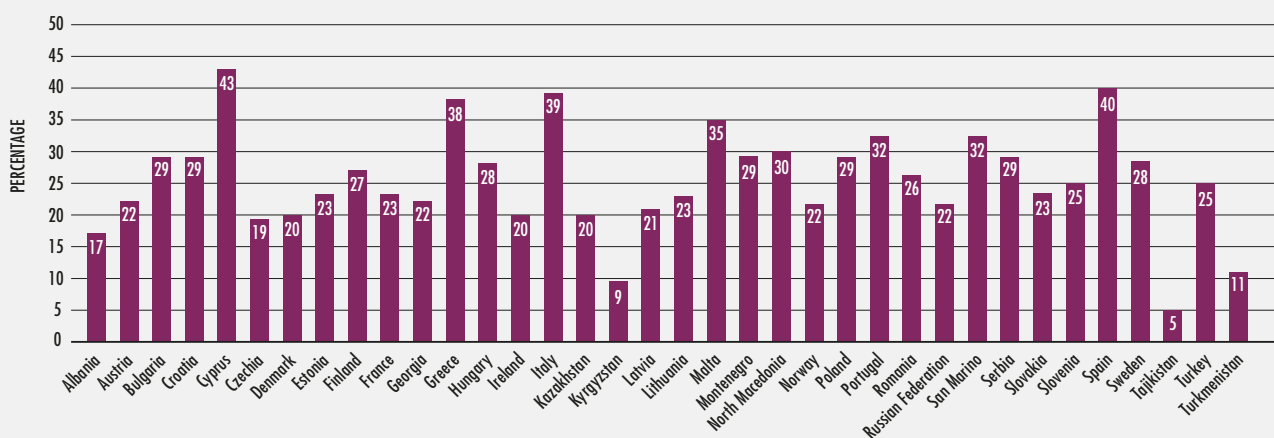
Kazakhstan joined COSI for the fourth round of data collection in 2015–2016. Stakeholders report that COSI results have made it possible to identify risk factors and have empowered health advocates.

**FIGURE 11**  
**PREVALENCE OF OVERWEIGHT (INCLUDING OBESITY), %, AMONG BOYS AGED 6–9, COSI ROUND FOUR (2015–2017)**



NOTE: Figures refer to: i) 7-year-olds in Bulgaria, Czechia, Denmark, Estonia, Finland, Georgia, Greece, Hungary, Kyrgyzstan, Ireland, Latvia, Lithuania, Malta, Montenegro, North Macedonia, Portugal, Russian Federation (only Moscow), Serbia, Spain, Slovakia, Slovenia, Tajikistan, Turkey and Turkmenistan; ii) 8-year-olds in Albania, Austria, Croatia, France, Italy, Norway, Poland, Romania, San Marino and Sweden; and iii) 9-year-olds in Cyprus and Kazakhstan.  
 SOURCE: Based on the WHO European Childhood Obesity Surveillance Initiative (COSI) by the WHO Regional Office for Europe. 2020.

**FIGURE 12**  
**PREVALENCE OF OVERWEIGHT (INCLUDING OBESITY), %, AMONG GIRLS AGED 6–9, COSI ROUND FOUR (2015–2017)**



NOTE: Figures refer to: i) 7-year-olds in Bulgaria, Czechia, Denmark, Estonia, Finland, Georgia, Greece, Hungary, Kyrgyzstan, Ireland, Latvia, Lithuania, Malta, Montenegro, North Macedonia, Portugal, Russian Federation (only Moscow), Serbia, Spain, Slovakia, Slovenia, Tajikistan, Turkey and Turkmenistan; ii) 8-year-olds in Albania, Austria, Croatia, France, Italy, Norway, Poland, Romania, San Marino and Sweden; and iii) 9-year-olds in Cyprus and Kazakhstan.  
 SOURCE: Based on the WHO European Childhood Obesity Surveillance Initiative (COSI) by the WHO Regional Office for Europe. 2020.

The results will enable policymakers and public health professionals to design more targeted and cost-effective strategies and interventions to address childhood overweight and obesity.

The recent COSI data show that the prevalence of overweight among children aged 6–9 has been severe in many countries in the WHO Europe region (Figure 11 and Figure 12),<sup>20</sup> with the highest

prevalence in Mediterranean countries, where nearly every second boy is overweight and every fifth boy is obese. In 29 of 35 countries for which data are available, a higher proportion of boys are overweight than girls, with a higher proportion of girls being overweight in six countries. In 33 of 35 countries, a higher proportion of boys are obese than girls, with a higher proportion of girls being obese in two countries.

## Exclusive breastfeeding during the first six months of life

Regarding exclusive breastfeeding, there was a large gap between the ECA and the world average in 2012.

Exclusive breastfeeding for the first 6 months of life, in which infants receive nothing but breast milk, is part of optimal breastfeeding practices – along with the introduction of nutritionally adequate and safe complementary foods at 6 months, together with continued breastfeeding up to 2 years or beyond (Bagci Bosi *et al.*, 2016). The prevalence of exclusive breastfeeding during the first 6 months of life in Europe and Central Asia was estimated to be around 30 percent (average of 17 countries) in 2012, well below the world average of 37 percent (Figure 13). By country, the following countries are well below the world average in the prevalence of exclusive breastfeeding: Azerbaijan (70.8 percent lower), Turkmenistan (70.6 percent lower), Serbia (63.7 percent lower), Bosnia and Herzegovina (50.9 percent lower), Belarus (48.6 percent lower), Montenegro (47.9 percent lower), Ukraine (46.7 percent lower), North Macedonia (37.8 percent lower) and Uzbekistan (35.8 percent lower). In contrast, the following countries are above the world average: Kyrgyzstan (51.2 percent), Georgia (48.0 percent) and Turkey (12.4 percent).

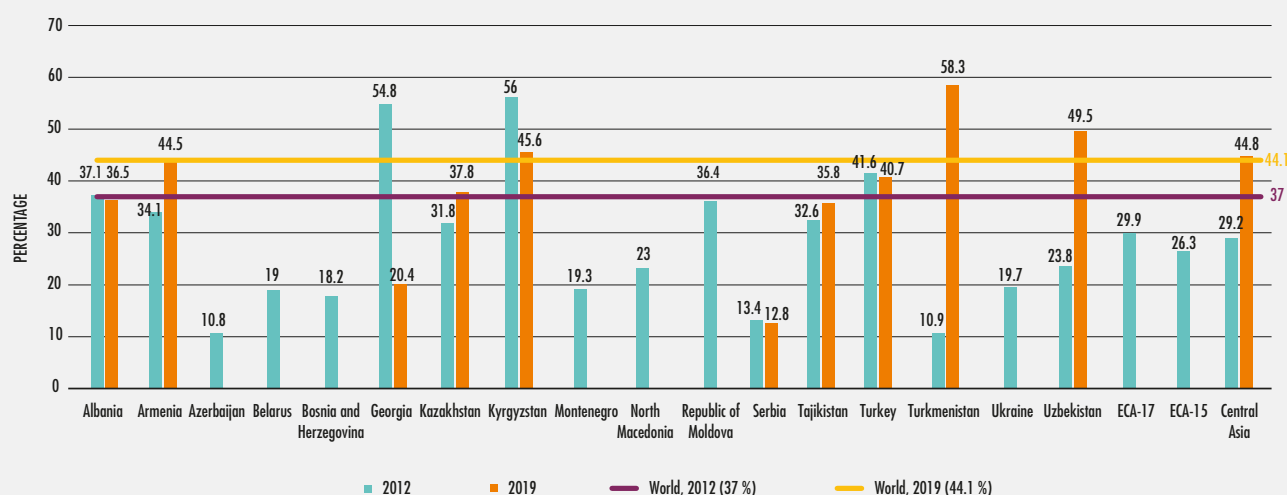
Progress from 2012 to 2019 has varied significantly among the countries in the ECA region. The situation has improved greatly in some countries, but others are worse off. Some countries already have achieved the targets, but others may not reach the

2025 and 2030 targets unless additional efforts are made. The COVID-19 pandemic has posed uncertainty regarding the meeting of the exclusive breastfeeding target.

As of 2019, 44 percent of infants worldwide younger than 6 months were exclusively breastfed, an increase by 19 percent in seven years, from 37 percent in 2012. Twelve of 17 countries in the ECA region had updated data in 2019. The progress made to improve exclusive breastfeeding varies significantly among these 12 countries. Three countries have made improvements that were greater than the world average: Turkmenistan (436 percent higher), Uzbekistan (108 percent) and Armenia (30 percent). However, five were worse off regarding exclusive breastfeeding: Georgia (62.8 percent lower), Kyrgyzstan (18.6 percent lower), Serbia (4.5 percent lower), Turkey (2.2 percent lower) and Albania (1.6 percent lower). On average, Central Asia saw significant improvement in this area, with a 53.3 percent increase overall.

The global targets are at least 50 percent exclusive breastfeeding by 2025 and at least 70 percent by 2030. The world is currently on track to achieve the 2025 target of 50 percent. If additional efforts are not made, however, the global target for 2030 will not be achieved (FAO, IFAD, UNICEF, WFP and WHO, 2020). In the ECA region, two countries (Turkmenistan and Uzbekistan) have reached the 2025 target and are on track for the 2030 target as well. Armenia is on track to achieve the 2025 target but not the 2030 target. Kyrgyzstan, however, has dropped from over 50 percent (above the level of the

FIGURE 13  
PREVALENCE OF EXCLUSIVE BREASTFEEDING AMONG INFANTS 0–5 MONTHS OF AGE IN SELECTED COUNTRIES OF THE ECA REGION, 2012 AND 2019



SOURCE: FAO, IFAD, UNICEF, WFP and WHO. 2020.

2025 target) in 2012 and now sits below the 2025 target. On average, Central Asia is on track to meet both 2025 and 2030 targets. However, if additional efforts are not made, those targets are at risk.

The COVID-19 pandemic may pose uncertainty regarding the meeting of the target of exclusive breastfeeding. The ongoing pandemic situation will need to be closely monitored, and more evidence will need to be collected.

### Prevalence of low birth weight

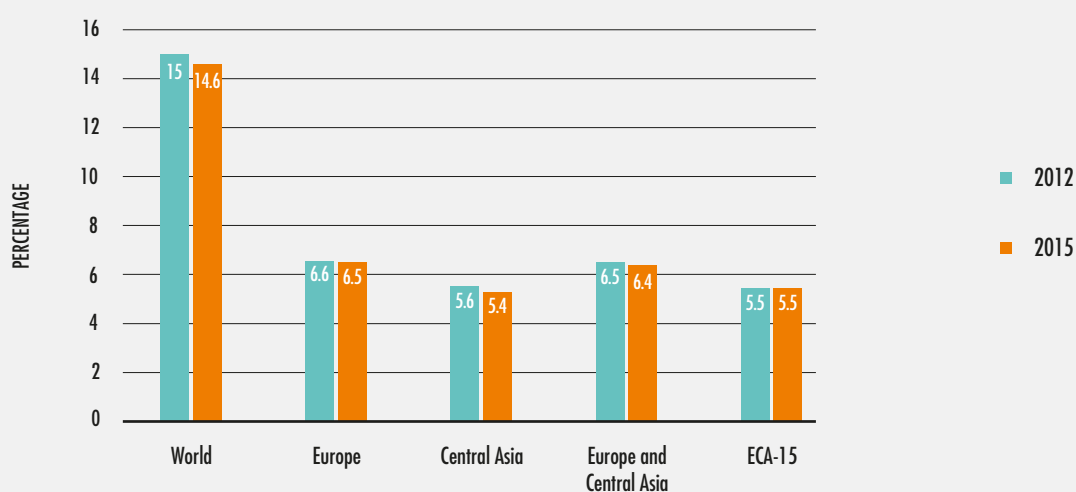
**In the baseline, the incidence of low birth weight in the ECA region was much smaller, and the prevalence of low birth weight is mostly below the global average but exists in both the European Union and the ECA-15.**

Studies show that newborns with low birth weight have a higher risk of dying in the first 28 days of life (Christian *et al.*, 2013). The negative consequences of low birth weight may continue into adulthood, increasing the risk of adult-onset chronic conditions such as obesity and diabetes (Jornayvaz *et al.*, 2016).

Evidence from several middle- and high-income countries suggests that mothers from socially disadvantaged groups have stronger chances of giving birth to babies of low birth weight (Gray *et al.*, 2014; Brotanek *et al.*, 2007). The prevalence of low birth weight was estimated and released for the first time in the *Regional Overview of Food Security and Nutrition in Europe and Central Asia 2019* and *The State of Food Security and Nutrition in the World 2019*, and the data have not updated from the 2019 reports. However, this report does contain additional analysis of the baseline and targets in the ECA region.

For the baseline (Figure 14), 15.0 percent of infants worldwide – one in seven live births – were born with low birth weight in 2012. In the ECA region, the prevalence of low birthweight was 6.5 percent in 2012, 57 percent lower than the global average. The data for 15 ECA countries outside the EU-28 and EFTA subregions show that the prevalence of low birth weight in 2012 was approximately 5.5 percent, on average, and with a prevalence below the world average in all 15 countries. The prevalence in 2012 ranged from 3.4 percent in Bosnia and Herzegovina to 8.8 percent in North Macedonia.

FIGURE 14  
PREVALENCE OF LOW BIRTHWEIGHT IN THE ECA REGION, 2012 AND 2015



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

It is worth noting that in 2012, on average, Europe had a higher incidence of low birth weight than did Central Asia (6.6 percent for Europe and 5.6 percent for Central Asia). Some EU-28 countries also had a higher prevalence, including Hungary (8.8 percent), Greece (8.7 percent), Spain (8.3 percent) and Italy (7.0 percent).

**Most ECA countries already had a low prevalence of low birth weight, with levels below the target global levels in 2025 and 2030. However, monitoring and other efforts will be needed due to new risks and uncertainties resulting from the ongoing COVID-19 pandemic.**

Figure 14 also shows the prevalence of low birth weight in 2015, with Europe and Central Asia having made small reductions. Globally, some progress has been made, but not enough to achieve the target of a 30-percent reduction in low birth weight by 2025 (the 2030 target is the same). If progress continues at the current rate, the target will be achieved only in 2046 (FAO, IFAD, UNICEF, WFP and WHO, 2020). Most ECA countries already had a low prevalence of low birth weight, with levels below the target global levels in 2025 and 2030. The ongoing COVID-19 pandemic may pose risks and uncertainties regarding the reaching of these targets.

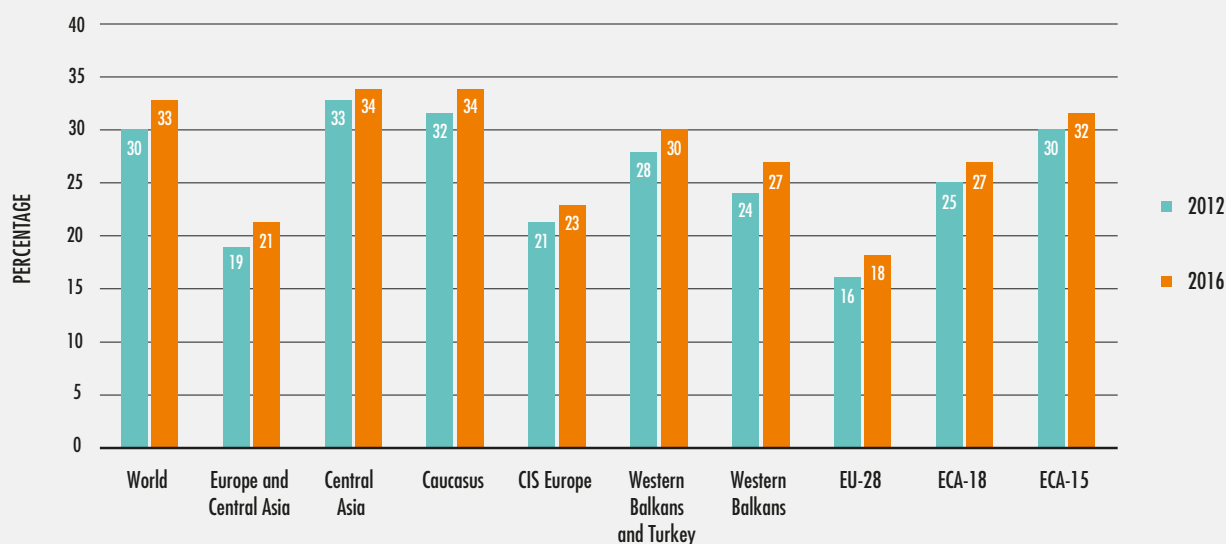
## Anaemia among women of reproductive age

The most common cause of anaemia worldwide is iron deficiency resulting from a prolonged negative iron balance. An estimated 50 percent of anaemia in women worldwide is due to iron deficiency. An update of the global estimates for anaemia is expected in 2021, and progress towards this target after 2016 is not assessed in this report.

**Depending on the level of development, there are large variations in the prevalence of anaemia by subregion and country.**

In the 2012 baseline year, 30 percent of women of reproductive age (15 to 49) worldwide were affected by anaemia, with just 19 percent affected in the ECA region. However, there are significant differences – strongly linked to development level – in the prevalence of anaemia among the subregions and countries in the region. The rates of anaemia were higher in Central Asia (33 percent) and the Caucasus (32 percent), but the rate was much lower in the European Union (EU-27 and the United Kingdom of Great Britain and Northern Ireland) (16 percent). The rates were lower in the European CIS countries

FIGURE 15  
PREVALENCE OF ANAEMIA AMONG WOMEN OF REPRODUCTIVE AGE IN THE ECA REGION, 2012 AND 2016



SOURCE: FAO, IFAD, UNICEF, WFP and WHO. 2020.



(21 percent) and in the Western Balkans and Turkey (24 percent). The rates varied significantly by country, ranging from 36.8 percent in Uzbekistan and 36.8 percent in Azerbaijan to 11.5 percent in the United Kingdom of Great Britain and Northern Ireland.

The prevalence of anaemia in the ECA-15 countries (not including countries in the European Union or EFTA, and not including the Russian Federation, Turkey or Ukraine) was 30 percent, on average, in 2012, which is the same level as the world average.

**All countries in the region, with the exception of Uzbekistan, saw increases since 2012 and are not on track to meet the 2025 and 2030 targets of a 50-percent reduction in anaemia.**

Globally, the prevalence of anaemia among women of reproductive age has risen from 30 percent in 2012 to 33 percent in 2016. Unlike other nutrition targets, no country is on track to meet the World Health Assembly 2030 anaemia target of a 50 percent reduction (FAO, IFAD, UNICEF, WFP and WHO, 2018).

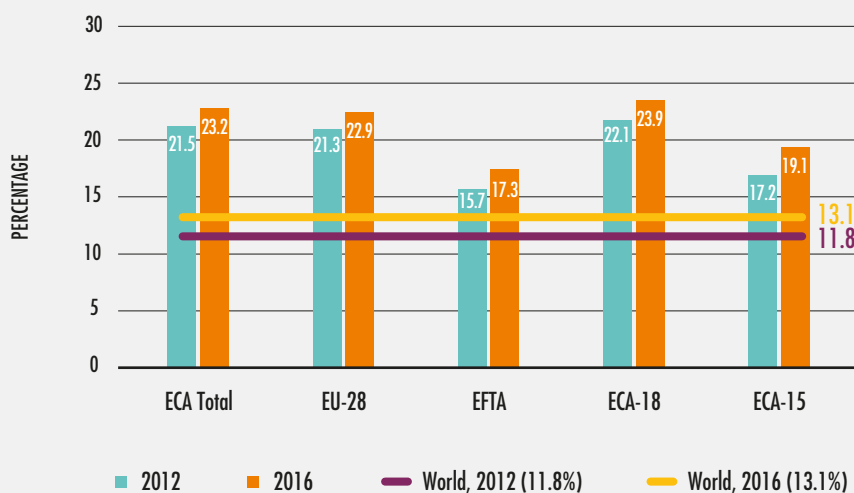
Similar to global changes from 2012 to 2016, the ECA region (as a whole and by subregion) saw increases in the prevalence of anaemia among women of reproductive age (Figure 15). With the exception of Uzbekistan, all countries in the region saw increases and are not on track to meet the 2025 and 2030 targets of a 50-percent reduction in anaemia.

### Adult obesity

**In the 2012 baseline year, the prevalence of adult obesity in Europe and Central Asia was much higher than the world average of 11.8 percent. The prevalence in the region was 82.4 percent higher, on average, and some countries had a prevalence more than twice the world average.**

In the 2012 baseline year, the prevalence of adult obesity in Europe and Central Asia (Figure 16) as a whole, based on the World Health Organization definition, was estimated to be 21.5 percent – a figure that amounts to roughly 152.6 million obese people in the region. This prevalence is 82.4 percent higher than the global average. The prevalence is similar between

FIGURE 16  
PREVALENCE OF OBESITY AMONG ADULTS IN THE ECA REGION, 2012 AND 2016



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

the European Union (EU-27 and the United Kingdom of Great Britain and Northern Ireland) (21.3 percent, on average) and the ECA-18<sup>21</sup> (22.1 percent).

All countries in the European Union had a very high rate of adult obesity, and all were 50 percent above the world average (Figure 17). Five countries had a rate more than double the world average: Malta (133 percent higher), United Kingdom of Great Britain and Northern Ireland (115 percent higher), Lithuania (112 percent higher), Czechia (108 percent higher) and Hungary (108 percent higher).

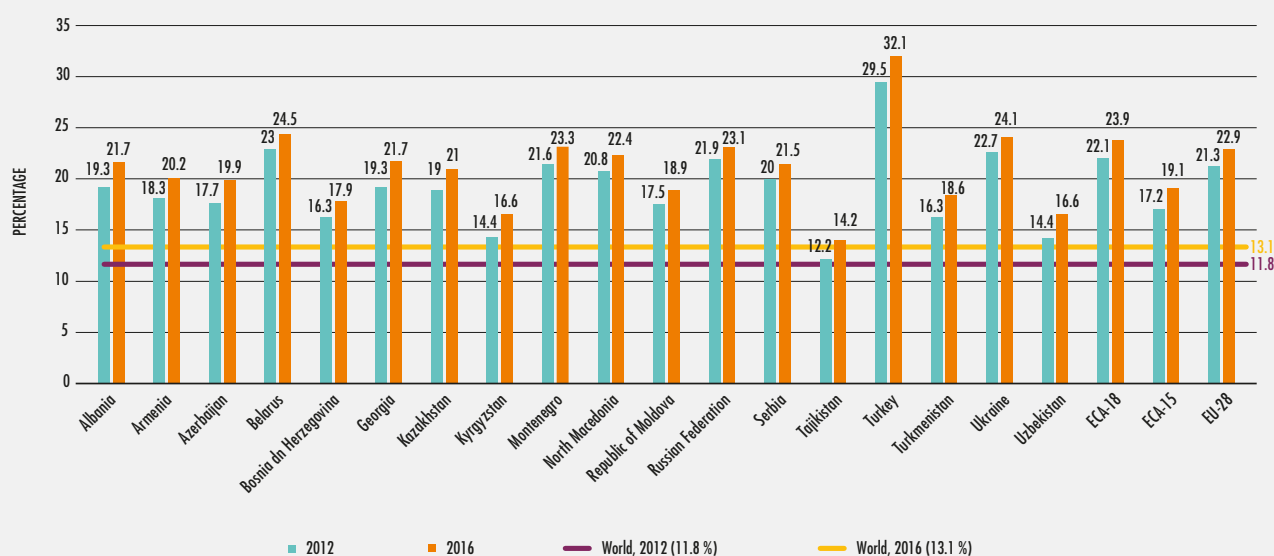
Among the ECA-18 countries, the prevalence in ECA-15 in 2012 was much lower, at 17.2 percent, than in the three other countries (Turkey, Russian Federation and Ukraine). Turkey had the highest rate in the region, at 29.5 percent (150 percent higher than the world average). Four countries in Central Asia had a relatively low prevalence: Tajikistan (3 percent higher), Uzbekistan (22 percent higher), Kyrgyzstan (22 percent higher) and Turkmenistan (38 percent higher).

In 2012, the ECA region had 12.6 percent of the world's population but 26.6 percent of its obese people. Among the obese population in the region, 57.1 percent were in European Union countries, 41.5 percent in ECA-18 countries, 9.2 percent in ECA-15 countries (Figure 18) and 1.4 percent in EFTA countries.

**The prevalence of adult obesity rose in all ECA countries from 2012 to 2016, at an average of 8 percent, and no countries are on track to meet the 2025 and 2030 targets (FAO, IFAD, UNICEF, WFP and WHO, 2020).**

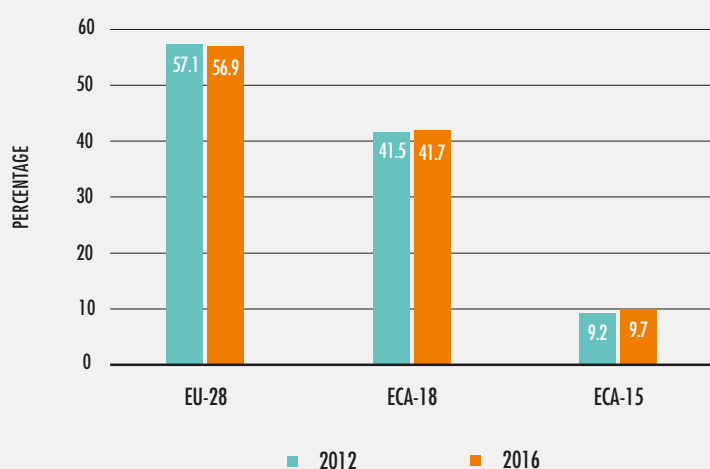
The prevalence of adult obesity in the region rose from 21.5 percent in 2012 to 23.2 percent in 2016 (Figure 17). The prevalence of adult obesity increased in all countries in the region between 2012 and 2016. Thus, no country in the region is on track to halt the rise in obesity by 2025. Both the European Union and the ECA-18 had adult obesity increase by about 8 percent from 2012 to 2016. It is worth noting that the ECA-15

**FIGURE 17**  
PREVALENCE OF OBESITY AMONG ADULTS IN SELECTED COUNTRIES OF THE ECA REGION, 2012 AND 2016



SOURCE: FAO, IFAD, UNICEF, WFP & WHO. 2020.

**FIGURE 18**  
**ALLOCATION OF THE POPULATION OF ADULT OBESITY AMONG THE EUROPEAN UNION, ECA-18 AND ECA-15,**  
**2012 AND 2016**



NOTE: The European Union includes the EU-27 countries and the United Kingdom of Great Britain and Northern Ireland.  
 SOURCE: FAO, IFAD, UNICEF, WFP and WHO. 2020.

had a higher increase (11.2 percent) than the regional average. In particular, the 14-percent increase in Central Asia was higher than the world average of 11 percent and the regional average of 8 percent.

### Natural and climate risks: drivers of food insecurity and malnutrition in Kyrgyzstan and Tajikistan

*The State of Food Security and Nutrition in the World 2018* showed that the impacts of climate change, especially prolonged droughts, constitute a key force behind the recent continued rise in global hunger. *The State of Food Security and Nutrition in Europe and Central Asia 2017* indicated that the current impacts of climate change serve as key risk factors for the ECA region that may hamper the achievement of SDG 2 and related goals by 2030. This section presents a short summary of the impacts of climate change on food security and nutrition at country level (Kyrgyzstan and Tajikistan) based on WFP studies, with evidence of the risks and uncertainties posed by climate change and how they affect the achievement of the SDGs.

The Central Asia region is highly vulnerable to climate change risks to food security, with increasing trends of climate-related natural disasters. In particular, Kyrgyzstan and Tajikistan exhibit high vulnerability to climate risks due to

their dependence on natural resources and the rural economy, which may leave many people at risk. Climate patterns in the Central Asia region, which is characterized by arid climatic conditions, are linked to the prevailing westerlies, particularly the Siberian High and the polar front. Analysis of long-term projections of these climate processes are complex in the region; however, current climate projections have followed the ongoing and short-term trends (Government of the Republic of Tajikistan, 2008). By 2030, the average temperature is projected to rise, and the average amount of precipitation is likely to increase in areas up to 2 500 m and may decrease by 3 percent in mountainous areas. In some parts of Tajikistan, agricultural productivity may fall by 30 percent by the end of the century (ADB, 2016).

According to the UN Framework Convention on Climate Change, the average temperature in Tajikistan will increase from 1.8 °C to 2.9 °C by 2050 (WFP, 2017a). It is expected that rising temperatures may negatively affect the state of the country's water resources, agriculture, transport and infrastructure, as well as the health of the population in Tajikistan. In addition, the country's vulnerability to climate change is aggravated by the lack of quality infrastructure and a range of institutional issues, especially in the agricultural sector.

By 2050, temperatures in Central Asia are expected to rise by 1.8 °C to 2.9 °C (Government of the Republic of Tajikistan, 2008). With this increase in temperatures across the region, glaciers in

the Central Asian mountains are experiencing considerable melting and reduction in size, leaving the water availability, ecosystems, food security and health of the region at risk (Government of the Republic of Tajikistan, 2008). Water availability, in particular, is a key climatic variable affecting food security, agriculture, and the hydropower sectors in the Central Asia region (WFP, 2014).

**Kyrgyzstan** is a highly mountainous country with complex and variable climate trends across its topography. It has been frequently affected by droughts, floods, mudflows and landslides (WFP, 2014). In Kyrgyzstan, trends of variable rainfall and rising temperatures have increased over the last two decades (WFP, 2014). These changes are linked to increased risks of drought in the northeast and floods and landslides in the south. Projections for Kyrgyzstan include the potential for rising temperatures, lower annual rainfall, lessened snow cover and glaciers, changes in seasonal rainfall, and gradually increasing aridity in the region (WFP, 2014).

As climate risks are predicted to become more common in the future, potentially severe impacts on food security are expected. Climate risks have negative impacts across the food supply chain, affecting crop production and, thus, the livelihoods of smallholder farmers. The access of poor and vulnerable people to food in local markets also is affected, due to price volatility (WFP, 2014). Agriculture is highly sensitive to variations in temperatures and rainfall, with negative impacts predicted on the production of some main crops, such as wheat flour, potatoes and vegetables. Changes in timing or intensity of seasonal weather due to climate changes, thus, pose significant threats to food security (WFP, 2014). Analysis by WFP in Kyrgyzstan shows that food insecurity levels are higher among households that depend on such climate-sensitive sources of income as farming, unskilled wage labour and social allowances (WFP, 2014). Reduced agricultural productivity will have a disproportionate impact on the food consumption of farming households who obtain a significant amount of food from their own production or who have small-scale land or limited income from off-farm opportunities. In addition, food-insecure and poor households will be directly impacted by increases in food prices in local markets (WFP, 2014).

**Tajikistan** is highly vulnerable to recurring natural and climate-related events, including such extreme events as floods, droughts, avalanches and landslides that can cause significant damage to land, crops, infrastructure and livelihoods (WFP, 2017a). Among

the 28 countries in the ECA region, Tajikistan is rated as the country that most vulnerable to climate change due to its low adaptive capacity, high exposure and high sensitivity (World Bank, 2009).

These extreme weather events are likely to increase alongside accelerating climate-related effects, including increasing temperatures and reduced annual rainfall. Weather-related events in Tajikistan from 1998 to 2017 are estimated to have caused an average of USD 112 million in damage and loss annually, accounting for approximately 0.65 percent of the national gross domestic product (German Watch, 2019). As Tajikistan is a landlocked, mountainous country, half the territory is at high elevation, with harsh conditions unsuitable for agricultural production (Government of the Republic of Tajikistan, 2018).

Agriculture is the most important sector of the economy in Tajikistan, providing about 25 percent of the national gross domestic product. Agricultural lands constitute about 4.6 million ha, or 32 percent of the total area of the country, with 739 000 ha of arable land (Government of the Republic of Tajikistan, 2008). WFP analysis of climate risks and food security in Tajikistan suggests that seasonality plays a role in the food security and livelihoods of vulnerable people due to their sensitivity to agricultural shocks during the lean and harvest seasons. It is suggested that the rural areas of Tajikistan have a higher vulnerability to climate change than do urban areas, due to their high dependence on agriculture and their low adaptive capacity due to lower incomes (WFP, 2017a). ■

## 1.3 HEALTHY DIETS: CURRENT CONSUMPTION PATTERNS AND GAPS COMPARED TO COUNTRIES' DIETARY GUIDELINES AND DIETS OF CHILDREN

### KEY MESSAGES

- Rather than undernutrition alone, the major concern in the ECA region is malnutrition in all its forms. Malnutrition also includes overbalanced or unbalanced nutrition and its

consequences, such as obesity and overweight and dietary factors that increase the risk of such non-communicable diseases as coronary heart disease, stroke, diabetes and certain cancers.

- The interrelated challenges of an unhealthy diet and obesity are high on the European public health agenda. This naturally leads to a search for solutions to improve the quality of diets, particularly through a **transition to healthy diets with a sustainability** consideration.
- Findings from recent work by WHO show that the prevalence of obesity is either rapidly increasing or stabilizing at very high levels in almost all European countries, and dietary behaviours remains far from optimal.
- Excess intake of saturated fats, trans fats, salt and sugar contribute to diet-related non-communicable diseases, while inadequate intake of fruit, vegetables and whole grains undermines their beneficial health effects. Groups of low socio-economic status are the most severely affected, with significant economic and welfare costs for individuals and society as a whole.
- Many of the countries in the ECA-18 region do not have national **food-based dietary guidelines**. Hence, the first step in the formulation of national food security and nutrition strategies should be the setting up of guidelines that respond to the countries' priority nutrition and health concerns and reflect food availability, dietary customs and cultural practices while adhering to the latest scientific principles of good nutrition and diet-health relationships. These guidelines also should reflect sustainable food practices to promote the health of populations and the planet.
- Further, the importance of food environments in influencing people's choice, dietary behaviours and health outcomes is well understood, and policies for creating healthy food environments are essential, considering the increasing availability of ultra-processed foods and their impact on health.
- The significant increase in the availability for consumption of **plant-based foods** (fruits and vegetables in particular) in the ECA-15 region<sup>22</sup> during the past 15 years can be considered a positive development from the point of view of sustainability. However, the decreased availability of fruits, vegetables and vegetable oils in the European Union (including the EU-27 countries and the

United Kingdom of Great Britain and Northern Ireland), with availability falling below the world average in 2013–2017, is a cause for concern.

- For **fruits and vegetables**, all of the countries except Georgia and Republic of Moldova are found to have access to well above the 400 g per day recommended by FAO and the World Health Organization. However, half of the 18 countries do not meet the recommended level for daily consumption of fruits, with the countries in Central Asia not even reaching 100 g per day.
- It is among the **pulses** crops (peas, beans, lentils, chickpeas and others) that the largest gaps exist between the availability of plant-based foods and the proposed minimum cut-off (50 g per day) for a diet low in legumes (as well as the world average). 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 vegetable protein, need to be improved.
- **Diets with a high content of animal-source foods and proteins** are less efficient in terms of resource use, and they contribute to greenhouse gas emissions that exacerbate climate change. Furthermore, high consumption of red meat has been linked to negative health effects. Overall, the average quantity of animal-based food is much larger in the ECA region than in the world at large. In particular, in the European Union, the per capita availability of animal-based 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. To encourage healthy diets, reduce the prevalence of obesity and lower the risk of non-communicable diseases, it is important to reduce the consumption of red meat and to increase the consumption of fish in ECA-15 and to reduce animal-based food consumption in ECA-15 and ECA-18.
- The availability of **red meat** for consumption surpasses the standard limit of 27 g in all 18 countries of the ECA region by a huge margin. However, countries with historically high red meat consumption are cutting down on this consumption

– notably, Albania, Belarus, Kazakhstan and Montenegro, all of which are moving towards lower consumption, in line with dietary recommendations.

- The availability of **milk** for human consumption in the region shows that 10 of the 18 countries fall within the recommended range (based on the *Global Burden of Disease* study standards of 350 g to 520 g daily) for healthy diets. Among the remaining countries, seven are above the range and one is below.
- The widest gap in the availability of animal-based foods in the ECA region is for **fish**. The 2013–2017 average in the ECA-15 was 18 g per person per day, much lower than the world average of 76 g in the same period. The further expansion of fish and the development of the fish value chain should be among the regional priorities for investment and market development in ECA-15.
- The main conclusion drawn from this analysis is that there are needs to (i) create and develop awareness of healthy food choices among all stakeholders and consumers and (ii) to **reorient production and trade systems** for prominent food items to shift consumption to within the optimal range of healthy diets and to help adopt sustainable and healthy nutrition strategies in ECA countries.
- Optimal complementary feeding practices, as part of infant and young child feeding (IYCF), is critical to child growth and development and the prevention of micronutrient deficiencies and all forms of child malnutrition. Limited information is available on caregiver knowledge and adequacy of complementary feeding practices, and caregivers' time and social norms are also key drivers of optimal diets of young children in Central Asian and the Balkan countries.
- Gaps exist in the policy framework for the prevention of obesity and iron deficiency anaemia in all countries. Countries are increasingly putting in place measures for controlling the presence of unhealthy food in the schools, but they are less advanced in applying approaches to tackle wider marketing beyond the school environment. Intersectoral collaboration and collaboration within the food industry by health, education and other government departments is essential to addressing the issue.

The problem of hunger or undernourishment in the Europe and Central Asia region is not a significant one, in general, as shown in Section 1.1. However, malnu-

trition – in particular, obesity among adults – is much more severe in this region. Poor dietary patterns that lead to ill health over time are a major concern regarding food security and nutrition in the ECA region.

As stated in the *Sustainable Healthy Diets Guiding Principles* report (FAO and WHO, 2019), the term “malnutrition” no longer refers exclusively to hunger or undernutrition and their resulting outcomes, such as wasting, stunting, underweight or deficiencies in vitamins or minerals. Malnutrition also includes overbalanced or unbalanced nutrition and its consequences, such as obesity and overweight and dietary factors that increase the risk of such non-communicable diseases as coronary heart disease, stroke, diabetes and certain cancers. Hence, the public policy goals for the region revolve around shifting from solely managing food security to managing food security and nutrition, especially through the promotion of healthy diets with sustainability considerations.

**There is now enough published evidence to conclude that unhealthy diets provide major challenges for food insecurity and malnutrition, especially in countries in the ECA region with a high prevalence of overweight and obesity. Hence, the national policy orientation requires a focus on the promotion of healthy diets and corresponding sustainable agricultural production and food systems in the region.**

As stated in *The State of Food Security and Nutrition in the World 2020*, “the food system needs important transformations to ensure that healthy diets are affordable to a growing world population. Therefore, the goal of ending all forms of malnutrition (SDG Target 2.2) takes on a high priority.” This is equally applicable to the ECA region as well.

In this section, the gaps between the current patterns of consumption (or availability) of key food groups and the global dietary recommendations are examined. This will serve to define the appropriate policy recommendations for the required transition to healthier dietary patterns discussed in Part 2 of this report.

## What is a healthy and sustainable diet?

The concept of a **healthy diet with sustainability considerations** refers to the creation and promotion of sustainable consumption and production systems that will minimize environmental and health



negative externalities and maximize positive synergies inherent in the dietary patterns. According to the FAO/WHO (FAO and WHO, 2019) report on the guiding principles, healthy diets with sustainability considerations are “dietary patterns that promote all dimensions of individuals’ health and well-being; have low environmental pressure and impact; are accessible, affordable, safe and equitable; and are culturally acceptable.” These diets aim to contribute to preventing all forms of malnutrition (i.e. undernutrition, micronutrient deficiency, overweight and obesity) and promote environmental sustainability.

While the exact composition of a healthy diet varies depending on the geographical and sociocultural context, according to the FAO and WHO guiding principles (FAO and WHO, 2019), a healthy diet for adults is composed of:

- **Fruits and vegetables** (at least 400g a day).
- **Legumes** (e.g. lentils and beans), **nuts and whole grains** (e.g. unprocessed maize, millet, oats, wheat and brown rice).
- Less than 10 percent of total energy intake from free **sugars** (equivalent to 50 g) for a person of healthy body weight, but ideally less than 5 percent of total energy intake for additional health benefits.
- Less than 30 percent of total energy intake from **fats**. Unsaturated fats (found in fish, avocados, nuts, sunflower oil, canola oil and olive oil) are preferable to saturated fats (found in fatty meat, butter, palm oil, coconut oil, cream, cheese, ghee and lard). Industrial trans fats (found in processed food, fast food, snack food, fried food, frozen pizza, pies, cookies, margarine and spreads) are not part of a healthy diet.
- Less than 5 g of **salt** (equivalent to approximately 1 teaspoon of iodized salt) per day.

The FAO guidelines for a healthy diet (as presented in *The State of Food Security and Nutrition in the World 2020*, **Box 5**, p. 42) provide additional comments but are consistent with these WHO guidelines.

Thus, a healthy dietary pattern must include a well-balanced and varied meal plan that includes whole grains, legumes, nuts and an abundance of fruits and vegetables. It can include moderate amounts of eggs, dairy, poultry and fish and small amounts of red meat, as sources of proteins/amino acids based on individual body requirements but should not exceed set limits on the consumption of harmful fats, sugars and salt.

Two other credible sources provide specific quantitative guidance on different prominent food items/groups – the *Global Burden of Disease* study (GBD-2017 Diet

Collaborators, 2019), and the EAT-Lancet Commission report (2019). The specific limits are discussed for each of the dietary food groups later in this section.

According to *The State of Food Security and Nutrition in the World 2020*, a healthy diet consists of four key qualities: **variety/diversity** (within and across food groups); **adequacy** (sufficiency of nutrients or food groups compared to requirements); **moderation** (foods and nutrients that should be consumed with restraint) and **overall balance** (the composition of macronutrient intake). Exposure to **food safety** hazards is another important quality aspect.

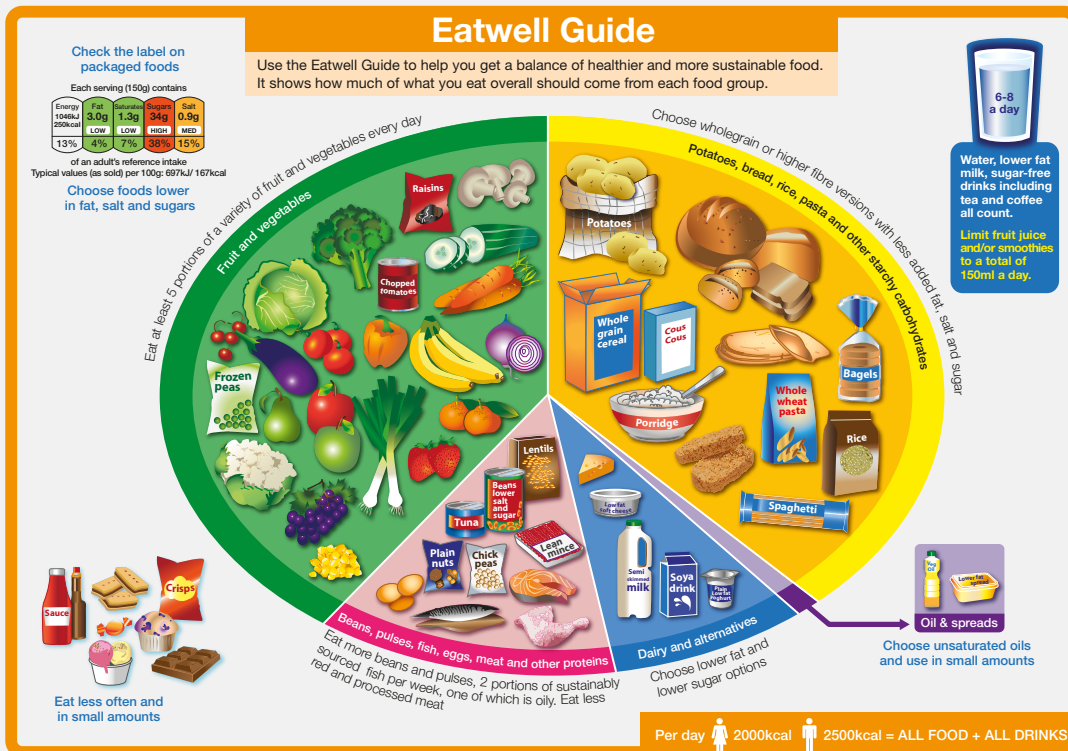
It should be kept in mind that diets evolve in response to many socio-economic and cultural factors, as well as individual preferences and beliefs (WHO, 2015, p. 4). FAO hosts a website<sup>23</sup> that lists more than 90 national food-based dietary guidelines, including five from countries in the ECA region (Albania, Bosnia and Herzegovina, Georgia, North Macedonia and Turkey). Because the methodology for developing food-based dietary guidelines has been published in English for the United Kingdom of Great Britain and Northern Ireland, as an example of one of the informative and straightforward sets of healthy diet guidelines, this guideline is presented in **Box 3**. These indicate the diversity of meal patterns that should include foods from the listed five food groups, with the following general recommendations:

1. **Fruits and vegetables:** Eat at least five portions of a variety of fruit and vegetables every day.
2. **Potatoes, bread, rice, pasta and other starchy carbohydrates:** Choose wholegrain or higher fibre versions with less added salt and sugar.
3. **Beans, pulses, fish, eggs, meat and other protein.** Eat more beans and pulses. Eat two portions of sustainably sourced fish per week, one of which is oily. Eat less red and processed meat.
4. **Dairy and alternatives:** Choose lower fat and lower sugar options.
5. **Oil and spreads:** Use unsaturated oils, and use them in small amounts.

The specific amounts of food items within these groups and their quantities, within these guidelines, would be determined to meet the nutritional needs of everyone based on their gender, age, activity lifestyle, etc. With the inclusion of locally available foods, these overall guidelines, along with specific local requirements, could be useful for other countries as well.

**It should be noted that most national food-based dietary guidelines do not include environmental sustainability considerations, although recently**

## BOX 3 THE EATWELL GUIDE, 2016



Healthy eating guidelines based on the national food-based dietary guidelines developed by Public Health England, in association with the Welsh Government, Food Standards Scotland and the Food Standards Agency in Northern Ireland.

SOURCE: [www.nhs.uk/Livewell/Goodfood/Documents/The-Eatwell-Guide-2016.pdf](http://www.nhs.uk/Livewell/Goodfood/Documents/The-Eatwell-Guide-2016.pdf)

some countries are beginning to include this dimension (Gonzalez Fisher and Garnett, 2016). The new generation of these guidelines should include healthy diets that also account for the negative externalities caused by health impacts and GHG emissions/climate change-related factors.

### Current food availability shaping consumption/dietary intake patterns in the ECA region and comparison to the recommendations

To promote and achieve the goal of a healthy diet in a given country, it is necessary to review the evolution of the prevalent dietary pattern in each country in the ECA region. Unfortunately, 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. Whether this proxy is reasonable needs to be tested, and it is recommended that this should be done for

the countries of the region wherever comparable survey data on consumption are available. For now, this task is outside the scope of this report.

This section provides analysis on the availability of food for consumption at the national level, with implications for national-level food production system transformation and national trade policies. However, it cannot derive household-level food access and food distribution. Similar to the food supply, factors that alter consumer demand – such as relative food prices, per capita incomes and income distribution – are important, as they affect the costs and affordability of healthy diets and access to healthy foods, as discussed in Part 2 of this report.

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 report from 2019 (based on the 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-based (red meat, poultry, fish

and milk), with vegetable oils rounding out the list. The amounts of these can be used to make a qualitative judgement about the general quality of the average diet available in the country. The study in this part includes the latest data available from 2014–2017. However, the analyses do not include any impacts of the COVID-19 pandemic on agriculture and food supply chains in the region. A survey conducted by the FAO Regional Office for Europe and Central Asia (FAO, 2020) shows that disruptions in transportation, storage, output deliveries, input supplies and operational financing throughout the food supply chains have posed operational challenges affecting crop farmers, livestock farmers and traders/processors in most countries in the ECA region (see Section 2.5 of

this report). A survey from UNECE shows that the COVID-19 pandemic has impacted agricultural enterprises in trade, business operations and business (see Section 2.5 of this report). As the COVID-19 pandemic continues to evolve in 2021, not only immediate but also medium-term agricultural prospects and all elements of the food system are affected. The baseline analyses in this section can be used as a baseline and can provide a useful starting point for evaluating potential impacts created by the current COVID-19 pandemic on sustainable food systems.

This distinction is based on the differential influence of the two groups. As concluded by the *Guiding Principles* report (FAO and

**TABLE 7**  
**EVOLUTION OF THE AVAILABILITY FOR CONSUMPTION (G/CAPITA/DAY) OF PROMINENT FOOD SUBGROUPS IN SELECTED COUNTRIES OF THE ECA REGION, 2003–2017**

Country/Region	Fruits			Vegetables			Vegetable oils			Pulses			Total Plant-based 4 (excludes cereals)		
	2003-2007	2008-2012	2013-2017	2003-2007	2008-2012	2013-2017	2003-2007	2008-2012	2013-2017	2003-2007	2008-2012	2013-2017	2003-2007	2008-2012	2013-2017
Albania	284	356	450	510	629	736	18	19	21	13	14	16	826	1018	1223
Armenia	206	275	310	693	868	1028	17	21	26	0	0	6	916	1165	1371
Azerbaijan	146	182	203	454	467	442	12	7	9	2	3	2	613	659	657
Belarus	160	184	189	350	408	429	32	45	52	0	0	0	542	638	669
Bosnia and Herzegovina	239	243	265	522	529	601	19	20	21	18	18	18	798	809	905
Georgia	121	106	122	206	154	152	15	25	21	0	0	0	343	285	295
Kazakhstan	69	152	191	421	506	542	39	51	58	2	2	1	531	711	791
Kyrgyzstan	104	84	96	382	412	463	13	16	17	8	10	13	507	523	589
Montenegro	439	483	334	511	663	364	27	24	25	12	16	14	989	1186	736
North Macedonia	271	295	269	402	505	556	44	45	45	14	15	13	731	860	884
Republic of Moldova	125	131	157	270	282	211	18	35	27	1	3	2	414	451	397
Russian Federation	162	182	165	284	293	308	31	35	40	5	5	6	481	515	519
Serbia	285	248	263	311	311	292	28	24	19	22	23	10	646	607	585
Tajikistan	41	70	101	279	394	521	26	28	26	2	5	7	348	496	654
Turkey	314	340	329	665	650	681	59	64	52	32	33	35	1069	1088	1097
Turkmenistan	177	151	162	385	420	400	18	22	20	0	0	3	580	593	585
Ukraine	107	137	137	330	407	460	35	37	32	6	4	5	479	586	634
Uzbekistan	123	202	268	394	611	793	30	28	30	0	0	0	547	842	1092
ECA-18 Weighted avg.	179	207	210	391	433	476	35	39	39	4	4	11	609	684	737
ECA-15 Weighted avg.	146	183	215	388	483	553	26	30	31	2	2	4	562	697	803
European Union	284	279	244	331	317	298	51	54	47	8	7	8	673	657	596
<b>WORLD</b>	184	203	207	336	367	385	30	31	29	17	18	20	567	620	640

**TABLE 7  
(CONTINUED)**

Country/Region	Fish			Milk			Poultry			Red meat			Total Animal-based 4 (Red meat, poultry, fish and milk)		
	2003- 2007	2008- 2012	2013- 2017	2003- 2007	2008- 2012	2013- 2017	2003- 2007	2008- 2012	2013- 2017	2003- 2007	2008- 2012	2013- 2017	2003- 2007	2008- 2012	2013- 2017
Albania	6	11	18	789	802	974	19	37	38	206	279	230	1020	1130	1260
Armenia	14	20	26	407	507	558	25	37	37	143	200	206	589	763	827
Azerbaijan	7	7	7	278	368	367	13	25	32	92	130	147	390	529	554
Belarus	48	56	55	465	437	353	37	67	79	314	389	370	865	948	856
Bosnia and Herzegovina	19	30	26	478	491	529	19	33	39	90	130	146	607	683	740
Georgia	17	16	16	453	390	396	18	35	43	140	113	129	628	554	584
Kazakhstan	10	17	19	682	759	750	29	40	49	267	309	291	986	1125	1110
Kyrgyzstan	5	6	6	535	548	567	9	17	9	181	178	163	728	750	746
Montenegro	33	44	39	973	925	995	38	41	44	308	381	374	1352	1390	1453
North Macedonia	16	19	18	354	419	433	41	47	51	177	158	157	588	643	659
Republic of Moldova	56	72	69	408	421	364	50	64	80	140	149	158	654	706	671
Russian Federation	12	19	17	427	469	451	4	9	11	243	293	317	685	791	796
Serbia	12	17	15	425	412	449	9	12	12	215	238	267	662	680	742
Tajikistan	22	20	15	154	146	153	37	48	54	52	77	86	265	290	308
Turkey	45	48	37	376	433	501	38	63	62	91	116	148	550	660	748
Turkmenistan	9	10	13	403	388	391	3	3	5	248	305	308	664	706	717
Ukraine	18	22	21	491	444	396	20	25	28	176	211	205	705	702	650
Uzbekistan	25	31	39	386	370	554	28	38	43	133	163	183	572	603	819
ECA-18 Weighted avg.	39	46	42	431	455	471	36	49	57	187	224	238	693	775	809
ECA-15 Weighted avg.	13	17	18	445	456	506	17	26	29	178	210	214	653	709	767
European Union	69	73	73	655	650	645	57	60	63	395	388	379	1176	1171	1160
<b>WORLD</b>	61	69	76	229	244	241	34	39	41	179	189	190	503	540	547

NOTES: The phrase "Weighted avg. (all 18)" refers to the weighted averages for all 18 countries together. The phrase "Weighted avg. (excl. 3)" refers to the population-weighted averages for 15 countries after excluding the data from three countries – the Russian Federation, Turkey and Ukraine – which together account for 70 percent of the total ECA-18 population. Thus, these two rows reflect better changes in ECA-15 together. Also, the fish column includes freshwater fish and seafood; the fruits column does not include wine; the milk column does not include butter; and the red meat column includes bovine meat, mutton, goat meat and pig meat.  
SOURCE: FAOSTAT Food Balance data (food availability for human consumption).

WHO, 2019, p. 18), "Studies of food and health relationships have consistently **highlighted associations** between low intakes of plant-based foods as well as high intakes of animal products and ultra-processed foods, and poor health outcomes."<sup>24</sup> Furthermore, **in terms of sustainability**, plant-based diets are less resource-intensive and thus less environmentally damaging than animal-based diets.<sup>25</sup>

**Table 7** shows the detailed availability for consumption in 18 countries of the ECA region. Also shown are two rows of population-weighted averages. One is for all 18 countries (ECA-18). As just three countries – the Russian Federation, Turkey and Ukraine – together account for about 70 percent of the total population in the ECA-18, weighted averages are also shown for the other 15 countries (ECA-15) after excluding data for these three countries.

## Plant-based foods in ECA

**The rapid increase in the availability for food consumption of plant-based foods in ECA-15 is a positive development for both nutritional foods and sustainability development.**

An overview of the four prominent plant-based food groups – fruits, vegetables, vegetable oils and pulses – is presented in Figure 19 for ECA-18 and ECA-15 in comparison with European Union and world averages. This figure does not include cereals, the largest staple plant-based food group, but the trend remains the same even when cereals are added. Cereals are recommended by the WHO guidelines as part of a healthy diet for consumption only as whole grains.

The availability for consumption of the four plant-based food groups (excluding cereals) in the ECA-15 has increased significantly in the last five-year period compared to the previous decade, more than in the ECA-18. In comparison, the world average saw only a small increase.

Increasing trends in plant-based dietary intake availability are a positive development not only for human nutrition (provided the nutritional requirements are properly managed) but also for improving the sustainability of production systems, considering the increasing impacts of climate change globally.

On the other hand, the decrease in the availability of plant-based foods in 2013–2017 from 2003–2007 in the European Union is a negative development.

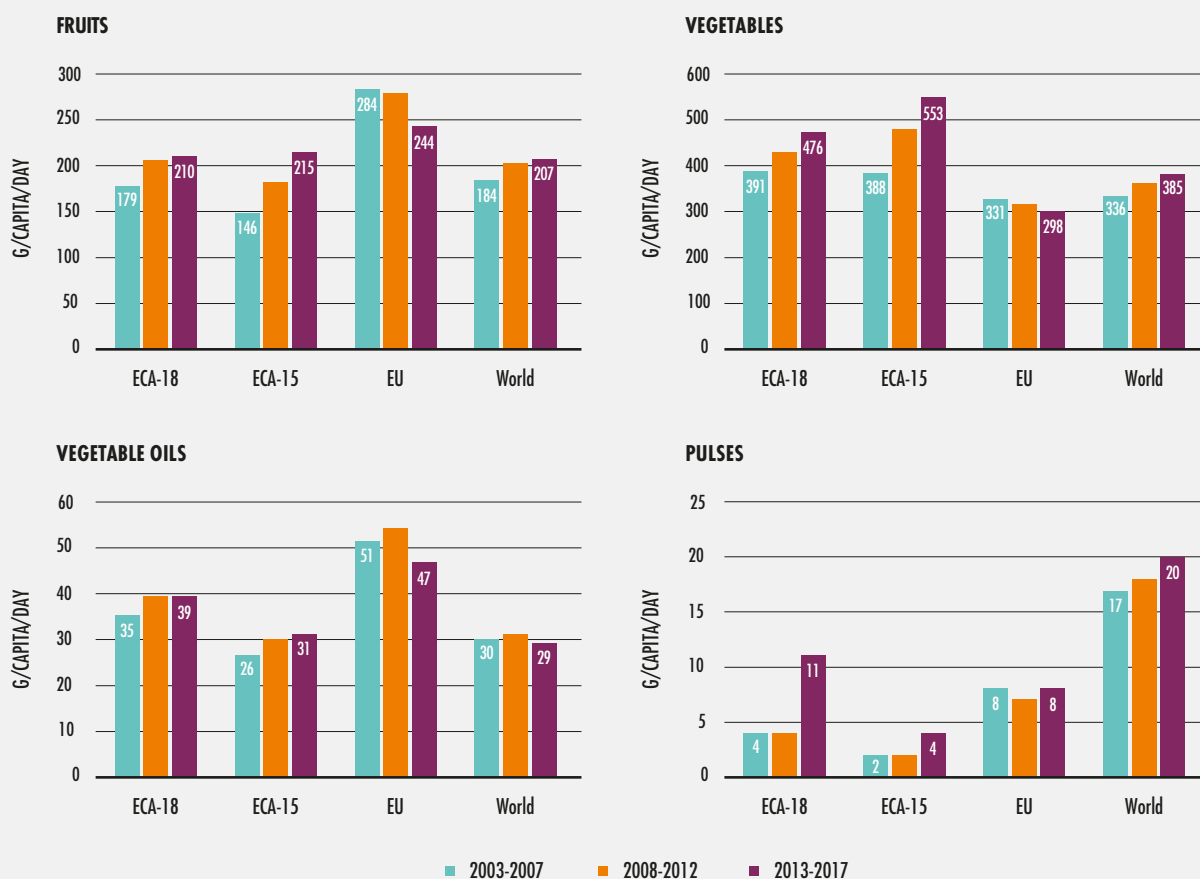
The data in Figure 20 show that all four plant-based food groups in the ECA-15 countries (also in the ECA-18) increased during the 2003–2017 period, while they decreased in the European Union. In the ECA-15, the availability of fruits, vegetables and vegetable oils is closer to or higher than the world 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.

**FIGURE 19**  
EVOLUTION OF TOTAL PLANT-BASED FOODS (FRUITS, VEGETABLES, VEGETABLE OILS AND PULSES) IN THE ECA REGION, 2003–2017



SOURCE: FAOSTAT Food Balance data (food availability for human consumption).

**FIGURE 20**  
**EVOLUTION OF THE AVAILABILITY FOR CONSUMPTION IN SELECTED ECA COUNTRIES OF THREE PROMINENT SUBGROUPS OF PLANT-BASED FOODS, PLUS VEGETABLE OILS (AVERAGE FOOD SUPPLY QUANTITY IN G/CAPITA/DAY) IN THE ECA REGION, 2003–2017**



NOTES: The phrase “Weighted avg. (all 18)” refers to the weighted averages for all 18 countries together. The phrase “Weighted avg. (excl. 3)” refers to the population-weighted averages for 15 countries after excluding the data from three countries – the Russian Federation, Turkey and Ukraine – which together account for 70 percent of the total ECA-18 population. Thus, these two rows reflect better changes in ECA-15 together. Weighted averages for the ECA-18 and ECA-15; population shares as weights.  
 SOURCE: FAOSTAT Food Balance data (food availability for human consumption).

### Plant-based foods – consumption levels and comparison with recommended standards

To assess how current food consumption patterns match with recommended norms, they are compared below to various available standards.

**Fruits and vegetables** are an important part of a healthy diet, as they provide most, if not all, of the micronutrients (vitamins and minerals) required for health maintenance and mental and physical growth and development. FAO and the WHO recommend daily consumption of at least 400 g of fruits and vegetables together. The EAT-Lancet Commission report (2019) provides guidelines of 200 g (target range 100 g to 300 g) for fruits and 300 g (with a range of 200 g to 600 g)

for vegetables – thus 500 g total – for a healthy diet. The *Global Burden of Disease* study (2017) recommends higher limits, at 250 g (optimal range of 200 g to 300 g) and 360 g (optimal range of 290 g to 430 g), for the two fruits and vegetables, respectively.

Nine of the 18 countries in the ECA region do not have an availability of fruits of 200 g per person per day, with Kyrgyzstan and Tajikistan at the bottom (at or below the 100 g level as an average for the most recent five-year period). Of the nine countries with a fruit availability level above 200 g, Albania and Montenegro are the highest, with 450 g and 334 g, respectively. The region as a whole, either ECA-18 or ECA-15, ranks above the 200 g benchmark.



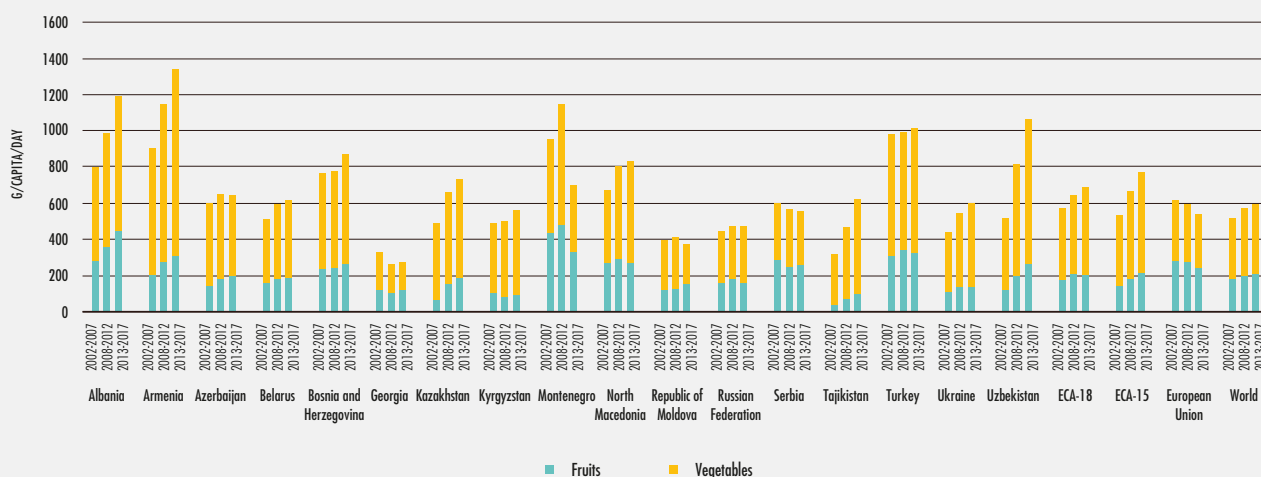
Most of the countries more than make up for the deficit in fruit by accessing more vegetables. Only Georgia remains under the recommendation of at least 400 g per day of fruits and vegetables combined, at 122 g per day of fruits and 152 g per day of vegetables (see Figure 21). Armenia has the highest level of availability, at 1 338 g (310 g of fruits and 1 028 g of vegetables), mostly because of its massive availability of vegetables. Montenegro has had a big drop but remains above the 610 g recommended by the *Global Burden of Disease* study. Countries of concern include Georgia and Republic of Moldova, with under 400 g per day and falling. Further investigation is required to develop strategies to improve the actual consumption of this important food group in these countries.

**Most countries of the region, as well as the aggregate, have shown increases over time. The overall average of all ECA-18 countries is 632 g per person per day, which compares well with the consumption recommendations of 400 g and 610 g. Thus, it can be concluded**

**that, in general, the availability of fruits and vegetables for consumption is well over the threshold recommended by the WHO for a healthy diet in all countries of the ECA except one. Furthermore, looking at the dynamic changes, things have been improving, with a positive trend in most countries.**

Declines in the 2013–2017 average are seen only in Georgia, Montenegro and Republic of Moldova. Among aggregate estimates, the ECA-18 and ECA-15 averages are all well above the highest thresholds of 610 g (*Global Burden of Disease* study) and also are showing the desired positive trends. ECA-15 trends for fruit and vegetable intake are rising faster than in ECA-18 because the Russian Federation has come down in the last five-year average and Turkey is almost stable at a high level. Only the European Union, among the selected aggregates here, shows a slight negative; however, the 542 g per day level (244 g of fruits and 298 g of vegetables) is still above the standards recommended by the WHO and the EAT-Lancet Commission for a healthy diet.

FIGURE 21  
AVAILABILITY OF FRUITS AND VEGETABLES FOR CONSUMPTION IN ECA, G/CAPITA/DAY, IN SELECTED COUNTRIES OF THE ECA REGION, 2003–2017



SOURCE: FAOSTAT Food Balance data (food availability for human consumption).

The 2013–2017 levels of the availability of **pulses**,<sup>26</sup> as shown in [Figure 20](#), indicate that the aggregate per capita availability is extremely low in ECA-15, ECA-18 and the European Union. The world average level of 20 g per person per day is lower than the EAT-Lancet recommended level of intake of 50 g. These crops (peas, beans, lentils, chickpeas and others), which are excellent sources of vegetable protein, are neglected, perhaps due to their relatively low yields and low prices.

The standards for **vegetable oils** provided by the EAT-Lancet study are in the form of unsaturated oils (which include 20 percent each of olive, soybean, rapeseed, sunflower and peanut oil) indicate an optimal daily intake of 40 g (with a range of 20 g to 80 g). From the data shown in [Figure 20](#), only the European Union exceeds the average level, but all four aggregates fall within this optimal range.

### Animal-based foods in Europe and Central Asia

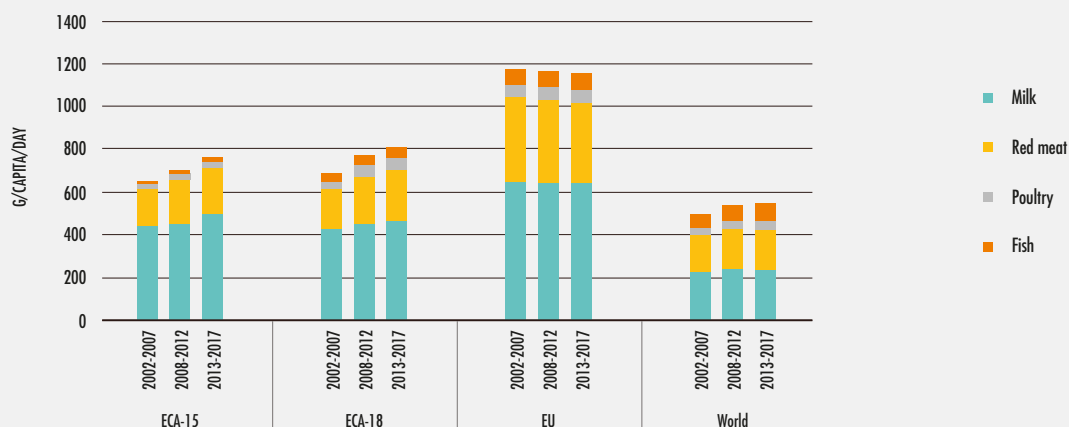
Animal-based diets are less efficient in terms of the use of resources during production and have been known to contribute to greenhouse gas emissions

that exacerbate climate change impacts. The FAO study *Livestock's Long Shadow* (2006) concluded: "Livestock's contribution to environmental problems is on a massive scale and its potential contribution to their solution is equally large. The impact is so significant that it needs to be addressed with urgency. Major reductions in impact could be achieved at a reasonable cost."

However, as stated in FAO's *The State of Food Security and Nutrition in the World 2020*, the increased availability of meat may have positive or negative implications for health. For example, a small increase in meat in most low-income countries can fill the much-needed nutritional deficiency, while the high consumption of red and processed meat can be unhealthy as it may lead to diet-related health risks. By and large, the consumption of meat with high fat content is considered unhealthy in current nutritional guidelines.

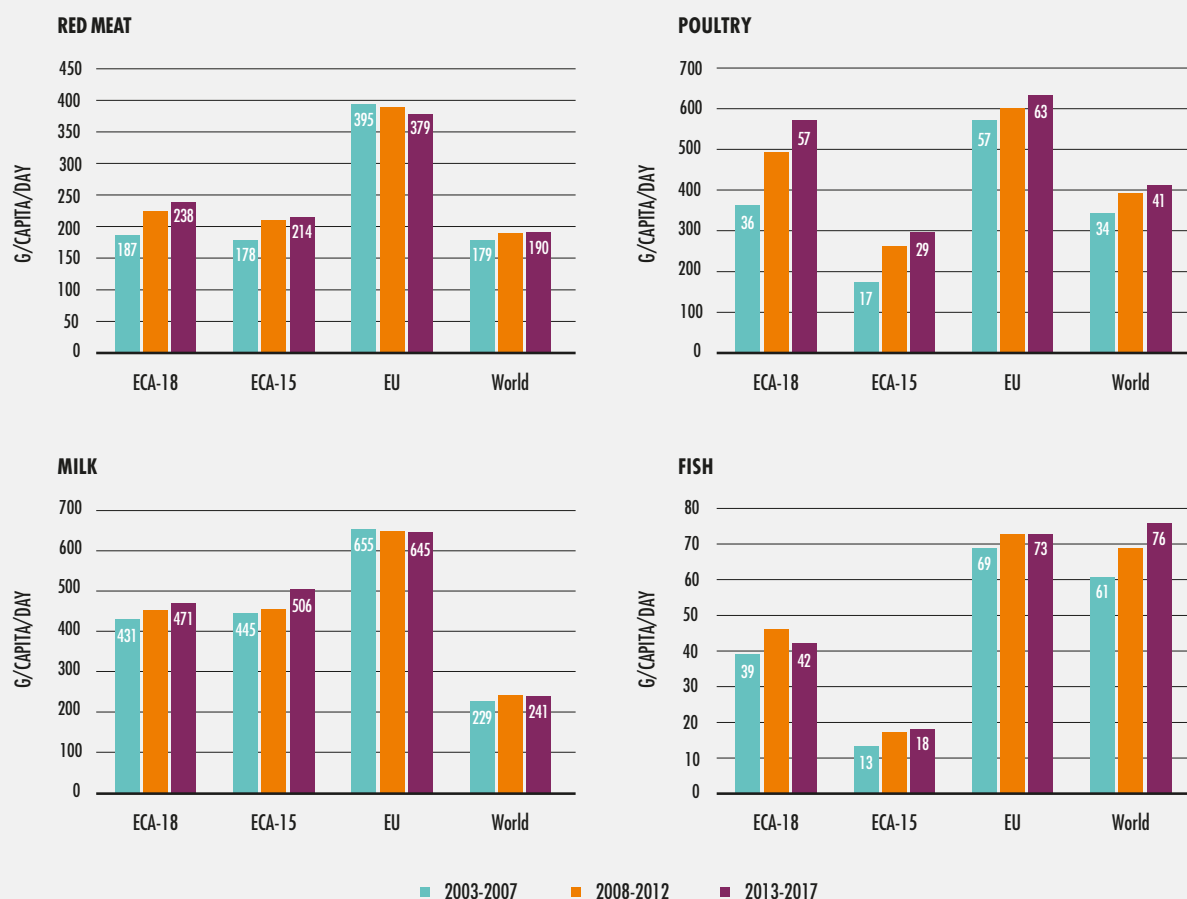
The average estimates of the four animal-based food groups (red meats, poultry, milk and fish) for ECA-15 and ECA-18 (as shown in [Figure 22](#)) show positive growth in 2013–2017 from 2003–2007.

**FIGURE 22**  
EVOLUTION OF TOTAL ANIMAL-BASED FOODS (FISH, MILK, POULTRY AND RED MEAT) IN THE ECA REGION, 2003–2017 (FIVE-YEAR AVERAGES)



SOURCE: FAOSTAT Food Balance data (food availability for human consumption).

**FIGURE 23**  
**EVOLUTION OF THE AVAILABILITY FOR CONSUMPTION IN SELECTED ECA COUNTRIES OF FOUR PROMINENT SUBGROUPS OF ANIMAL-BASED FOODS (AVERAGE FOOD SUPPLY QUANTITY IN G/CAPITA/DAY) IN THE ECA REGION, 2003–2017 (FIVE-YEAR AVERAGES)**



SOURCE: FAOSTAT Food Balance data (food availability for human consumption).

The average availability of these animal-based foods is still rising fast in the ECA region, while it is very high with a slight downward trend in the European Union. The average growth in the availability of animal-based foods worldwide is comparatively less than the growth of plant-based foods.

Figure 23 shows that all four animal-based food groups in the ECA-15 countries (also in the ECA-18 countries) increased from 2003–2007 to 2013–2017 (poultry in particular), while in the European Union there were increases in poultry meat and fish and small decreases in red meat and milk. The ECA-15 countries had higher availability of milk and red meat but lower availability of fish and poultry. The availability of fish in 2013–2017 was extremely low compared to the world average and the European Union average. The European Union has a high availability of milk, red meat and

poultry, well above the world average in recent years (2013–2017). The availability of fish in the European Union is close to the world average.

### Animal-based foods – consumption levels and comparison with recommended standards

For ECA-15, from 2003–2007 to 2013–2017, availability (Figure 23) increased by 70.6 percent for poultry meat, 20.2 percent for red meat, 13.7 percent for milk and 38.5 percent for fish. The data show that ECA-15 has significantly different animal-based food availability/consumption patterns than do the world and the European Union. In recent years (2013–2017), ECA-15 has had a higher level of milk availability (506 g) than the world average (more than double) and a lower level of fish consumption than the world average (more than three times lower).

Meanwhile, total meat consumption (214 g of red meat and 29 g of poultry meat) has remained similar to the world average.

According to the EAT-Lancet Commission's 2019 report, the suggested target range for **red meat** intake is from 0 g to 28 g per person per day, with a midpoint of 14 g as a reference target. Conversely, in the *Global Burden of Disease* 2017 report, where the risk factor of red meat in diets is considered high, the optimal level of intake is determined to be 23 g (with an optimal range of 18 g to 27 g). By these standards, red meat consumption by all four aggregate groups is much higher.

The standard for the optimal intake of **poultry** is 29 g (with a range of 0 g to 58 g), which is exactly the same as the ECA-15 weighted average. The ECA-18 and European Union averages are higher than the upper limit of the range, while the world average is higher than the midpoint but still within the optimal range.

The ECA-15 consumption of **milk**, at 506 g, is higher than the recommended levels of 250 g (with a range of 0 g to 500 g) given by the EAT-Lancet Commission and 435 g (with an optimal range of 350 g to 520 g) given by the *Global Burden of Disease* 2017 study. Consumption in all three aggregate groups – ECA-15, ECA-18 and the European Union – is higher than these average standard levels. The world average, however, remains much lower than the recommended threshold for milk consumption.

For **fish**, scientific studies show that high intakes of fish are strongly associated with good health outcomes (FAO, 2019). Despite the positive trend in fish intake, the availability of 18 g is lower than the recommended standard of 28 g (range of 0 g to 100 g) given by the EAT-Lancet Commission.

Using the recommended standards for healthy diets, it can be concluded that for the ECA-15 countries, the aggregate average consumption of red meat and milk is above the standards of optimal intake, while the consumption of poultry is equal and the consumption of fish is below. Therefore, it is important to increase fish consumption in EU-15 and reduce other animal-based food consumption in ECA-15 and ECA-18 to improve healthy diets and reduce the prevalence of obesity and the risk of non-communicable diseases.

## Country-level analysis of animal-based foods in Europe and Central Asia

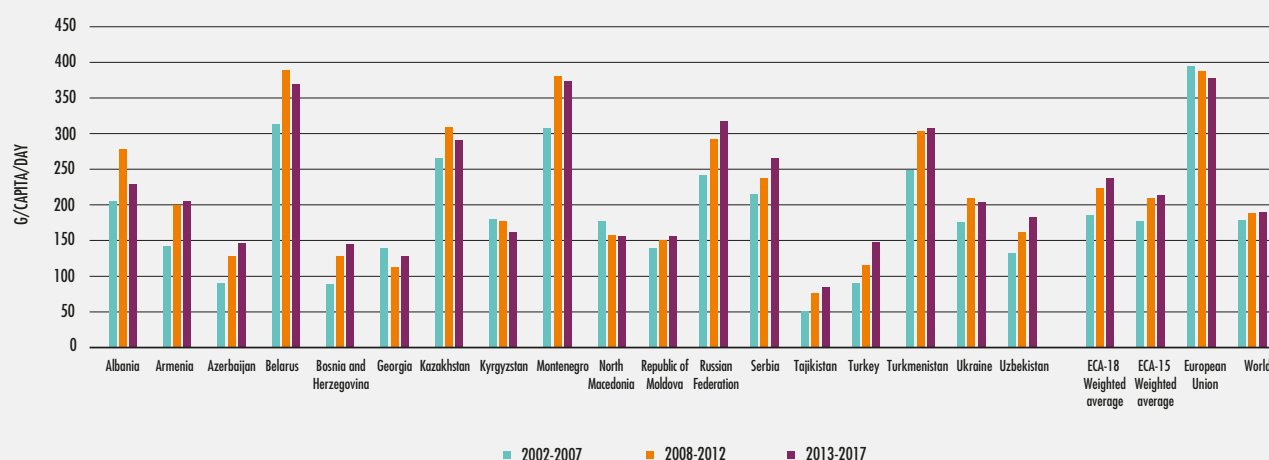
The evolution of the availability of **red meat** in the countries of the region is presented in [Figure 24](#). All countries in the region surpass the recommended limits by a huge margin, as the range of red meat availability per capita spans from 86 g in Tajikistan to 374 g in Montenegro. Countries with a history of relatively high (above 200 g per day) red meat consumption have cut back on availability, notably Albania, Belarus, Kazakhstan and Montenegro. This is a favourable outcome from the point of view of environmental sustainability. The Russian Federation and Turkmenistan, other high-availability countries, have had continuing increases in their estimates over time.

The availability of **poultry** has been rising since 2000, and in the most recent five-year average, it grew by 69 percent in ECA-15 and by 57 percent in ECA-18 over the 2002–2007 average. The data for the 18 ECA countries covered here show that the availability in 2013–2017 exceeded the high point of the optimal range (58 g) only in three countries: Belarus, Republic of Moldova and Turkey. Five countries had a level of consumption below the optimal intake of 29 g: Kyrgyzstan, Russian Federation, Serbia, Turkmenistan and Ukraine. The remaining ten countries are between 29 g and 58 g and thus below the EAT-Lancet Commission's upper limit.

The availability of **milk** for human consumption in the region is relatively high in most countries. The range of daily availability among countries is wide, from 153 g in Tajikistan to 995 g in Montenegro. Only one country – Tajikistan – is below the *Global Burden of Disease* study's lower limit of 350 g, whereas seven countries (Albania, Armenia, Bosnia and Herzegovina, Kazakhstan, Kyrgyzstan, Montenegro and Uzbekistan) have availability above the upper limit of 520 g. A majority of the countries – ten of the 18 – are within the optimal consumption for healthy diets in the region. Therefore, there is a scope to orient production and trade policies so that consumption moves within the optimal range for healthy diets within the countries that exhibit below-average consumption levels.

For **fish**, the data in [Table 7](#) show that only five of the 18 countries had availability exceeding 28 g in 2013–2017. In nine of the 18 countries,

**FIGURE 24**  
**AVAILABILITY OF RED MEAT (BOVINE MEAT, MUTTON/GOAT MEAT AND PIG MEAT) FOR CONSUMPTION (G/CAPITA/DAY) IN SELECTED COUNTRIES OF THE ECA REGION, 2003–2017 (FIVE-YEAR AVERAGES)**



SOURCE: FAOSTAT Food Balance data (food availability for human consumption).

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). This discussion points to the need to find approaches to food security and nutrition to diversify diets through the inclusion of more fish in diets and production systems in the ECA region.

The main **conclusion** of this section on the evolution of the availability of the prominent food groups is that most countries in the region (ECA-18 and ECA-15) have made significant progress in making a diversity of foods available to their populations and have shown ideal trends over time. The brief analysis presented in this report points to areas in which further investigation is warranted in terms of bringing actual consumption levels within optimal dietary intake ranges. This will lead to more accurately identifying “healthy” and “unhealthy” consumption patterns based on scientific nutritional studies and criteria.

Furthermore, there is evidence of the under- or overconsumption/availability of certain food groups, which can lead to various food-related health and environmental problems. These trends and the levels of availability provide potential focal points for developing national healthy diet strategies by implementing nutrition-sensitive policies in the areas of production, trade, stock management and food loss.

As stated in the 2019 *Regional Overview of Food Security and Nutrition in Europe and Central Asia*, the available data, as averages at the national level, disregard the geographical spread of the data. This prevents an understanding of the differences in consumption among individuals, various population groups and regions within countries. These considerations call for intensifying efforts towards nutrition-sensitive agricultural and food policies as well as interventions targeted at vulnerable populations. In this regard, a major regional initiative called the European Green Deal (described briefly

## BOX 4 EUROPEAN GREEN DEAL

The European Union has recently presented an ambitious plan intending to reach climate neutrality in 2050 and to **make the European Union's economy sustainable**. The plan outlines the investments needed and the financing tools available, with a target of mobilizing at least EUR 100 billion during the period 2021-2027 in the most-affected regions.

The roadmap includes several key actions by all sectors of the economy, including:

- ▶ investing in environmentally friendly technologies;
- ▶ supporting industry to innovate;
- ▶ rolling out cleaner, cheaper and healthier forms of private and public transport;
- ▶ decarbonizing the energy sector;

- ▶ ensuring buildings are more energy efficient; and
- ▶ working with international partners to improve global environmental standards.

The most interesting aspect of this pan-regional plan is embedded in the "Farm to Fork Strategy," which aims to develop a fair, healthy and environmentally friendly food system. Thus, the transition to a sustainable healthy dietary system in the ECA region discussed in this report is highly complementary and consistent with the wider regional and international efforts in the next 30 years.

For more information, see: [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green\\_deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green_deal_en).

in **Box 4**) presents a major opportunity to align various national initiatives using similar principles and measures.

In contrast with the ECA-15 countries, the availability of plant-based (excluding cereals) foods in the European Union was reduced by 11.4 percent, from 673 g in 2003–2007 to 596 g in 2013–2017. Compared with the world average, the European Union went from being 18.7 percent above the world average in 2003–2007 to being 6.9 percent below the world average in 2013–2017. The reduction of the availability of plant-based foods in the European Union is a negative development not only for human nutrition (provided the nutritional requirements are properly managed) but also for improving the sustainability of the production systems in light of the increasing impacts of climate change globally.

The data in **Figure 20** shows that the availability of all four plant-based food groups in the ECA-15 countries (also in the ECA-18) increased during the 2003–2017 period while decreasing in the

European Union. In the ECA-15, the availability of fruits, vegetables and vegetable oils was close to or higher than the world average in 2013–2017, while the availability of pulses was 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.

## Complementary feeding and diets of children in their early years

### Complementary feeding

Optimal complementary feeding practices, as part of infant and young child feeding, is critical to child growth and development and the prevention of micronutrient deficiencies and all forms of child malnutrition (i.e. wasting, stunting, overweight and obesity). Complementary feeding is defined by WHO as the "process when breast-milk alone is no longer sufficient to meet the



nutritional requirements and other foods and liquids are needed alongside breastmilk, from 6–24 months of age.” Inadequate quality and/or quantity of first foods, poor feeding practices and increased rates of infection have been associated with declines in child height-for-age or length-for-age in most countries. Moreover, while interventions on complementary feeding have largely focused on undernutrition, the increasing importance of child overweight in relation to processed and/or excess food consumption are key to understanding suboptimal complementary feeding practices and food environments.

To better examine policies and programmes, barriers, drivers and enabling factors on young children’s diets in the ECA region, the UNICEF Regional Office for Europe and Central Asia has undertaken a landscape analysis to enable policymakers to have evidence-based recommendations to improve complementary feeding and diets of young children in the region.

The landscape analysis was framed around the 2020 UNICEF programming guidance to improve the diets of young children during the complementary feeding period, and the findings were organized around five key actions, as highlighted in the UNICEF *The State of the World’s Children 2019* report, to reduce malnutrition and improve children’s diets:

- Empower families, children and young people to demand nutritious food.
- Drive food suppliers to do the right thing for children.
- Build healthy food environments for all children.
- Collect, analyse and use good-quality data and evidence regularly to guide action and track progress.
- Mobilize supportive systems – health, water and sanitation, education and social protection – to scale up nutrition results for all children.

This analysis reviewed the existing situation under the three main pillars of adequate food, adequate services and adequate practices. The methodology included the following

components: i) literature and policy review of peer-reviewed articles, grey literature and country documents; ii) descriptive analyses of national-level survey data (e.g. Demographic and Health Surveys, Multiple Indicator Cluster Surveys) for all countries in the region, with the exception of infant feeding patterns (six focus countries) and trends in complementary feeding (two of six focus countries); and iii) qualitative, in-depth interviews with key informants from six focus countries in region. The key informant interviews were conducted with country stakeholders on the following interrelated systems, pertaining to determinants (adequate foods, services and practices) of good diets for young children: i) agriculture/food system; ii) health/nutrition system; iii) water, sanitation and hygiene (WASH) system; and iv) social protection system.

When looking to the adequate practices that are among the major drivers of diets, it was found that caregiver knowledge of good complementary feeding practices is of importance to change feeding practices/behaviours. Considering the multiple influences of household dynamics, caregivers’ time and social norms are key drivers of optimal diets of young children, according to data from the literature review and key informant interviews. In Balkan countries, early introduction of foods prior to 6 months of age, perceptions of insufficient breastmilk, and use of infant formula go hand-in-hand, not only affecting exclusive breastfeeding but also timely introduction of complementary foods and associated feeding practices. There was limited information on caregiver knowledge and adequacy of complementary feeding practices in Central Asia, based on the literature review and key informant interviews. Stakeholders relayed that the problem was mothers’ and families’ awareness of what and how to feed children, including food preparations and recipes. There was no data from Caucasus countries.

### Caregiver time

In Balkan countries, mothers may have less time due to return to work, or they may not have grandparents or family members to help with food preparation due to changing support structures; these may impact children’s diets, according to data from the interviews with key

informants. Screen time was also notable for young children, as relayed by stakeholders. In Central Asia, while caregiver time and household dynamics were not mentioned as determinants of complementary feeding in Kazakhstan, in Tajikistan, it was noted that women have limited time to care for children due to household chores and increasing responsibility for agricultural production as men migrate to other countries for work. There was no data from Caucasus countries.

### Social norms

Food taboos, myths and perceptions regarding specific foods strongly influence diets in the Balkan and Central Asian countries due to fear of childhood allergies and food taboos, incorrect knowledge and beliefs among mothers and health providers, according to data from the key informant interviews. In Central Asia, some mothers introduce foods early, before 6 months of age, including sweet foods such as cookies. Meat is a primary feature of diets, as is the consumption of processed foods. The restriction or elimination of taboo foods is believed to protect children's health by lessening the risk of upset stomach, foodborne illness and delayed language acquisition in Central Asia. These food taboos can restrict the dietary diversity of foods consumed by young children. There were no data from Caucasus countries.

In terms of the availability, affordability, quality and use of health and nutrition services in the ECA region, counselling on complementary feeding was weak for several reasons, based on key informant interviews with stakeholders. Countries face challenges in rolling out infant and young child feeding counselling through primary health care facilities due to lack of time, shortages of health providers due to migration/ageing, and lack of incentives. Quality of counselling on complementary feeding is believed to be low at facility and community level.

### Adequate food for children's complementary feeding

Availability was not viewed as a hinderance to adequate diets among young children during the period of complementary feeding in Balkans and Caucasus countries, according to information collected from key informant interviews. In Central Asia, complementary feeding practices are hindered

by seasonal fluctuations in agriculture and incomes, inadequately diverse agricultural production and diets, dependence on imported foods and their price fluctuations, climate change risks, and insufficient availability of nutritious foods. In Central Asia, processed, energy-dense food is increasingly available in urban areas through street and market vendors, threatening to disrupt the availability of nutrient-rich foods consumed by families and subsequently fed to young children.

In Balkan and Caucasus countries, access to adequate foods was not seen as affecting young children's diets, but access was described as an issue for the most vulnerable segments of the population (i.e. the poorest). In Central Asian countries, while stakeholders also voiced that access to food was not of concern in urban and rural areas, the seasonal availability of certain food items (i.e. fruits and vegetables) was seen to affect dietary intake.

### Affordability

Affordability is not viewed as a major prohibitive influence on young children's diets in the region, according to stakeholders, yet data from the literature review provides further insight on affordability in the region. In Balkan countries, views on the affordability of food vary; some families may perceive that processed foods are expensive, while others may view certain foods (i.e. biscuits) as cheap. In Central Asian countries, cost can be a prohibitive factor for increasing the intake of nutrient-rich foods, according to data extracted from the literature review. Yet, two-thirds of respondents named foods that their household could not routinely afford (most commonly meat, followed by fruits and vegetables). Given that male members of households often work abroad, women, in their absence, are the heads of households and work in agricultural activities to supplement income from overseas remittances.

### Convenience and processed foods

In Balkan countries, according to stakeholders' interviews, key factors that determine what foods people choose include convenience (ease of cooking), time for food preparation, and parents' knowledge of healthy foods. These factors are especially relevant





**BAGYSH,  
KYRGYZSTAN**

Mother of three has dinner  
with her family in the  
village of Bagysh.  
©FAO/ Vyacheslav  
Oseledko





regarding decisions of whether to buy processed foods for young children. In Caucasus countries, while processed foods are available in markets, parents prefer to prepare local home-made foods for their children, due to the high costs of processed foods.

### Food quality and safety

In Balkan countries, complementary feeding guidance is primarily about the do's and don'ts regarding the consumption of certain foods, dictated by concerns about food safety and the development of child allergies and allergic reactions to foods, preservatives and the use of pesticides. In Central Asian countries, high levels of trans fatty acids are present in such processed foods as cookies, pastries, fast food, savoury snacks and margarines and are widely consumed by the population.

### Nutrition and diets of school-age children and adolescents

Middle childhood and adolescence are important times not only for growth and development, but also for the establishment of healthy eating habits. The ECA region has been through economic and nutrition transitions over the last 20 years that are likely to have affected the nutritional status of this group.

In 2019, UNICEF commissioned a comprehensive review on school-age children's and adolescents' nutritional problems versus existing policies and services in the region (Mates *et al.*, 2020). This review aimed to collate and present data and information on the nutritional status and unhealthy dietary patterns and behaviours of children and adolescents (those between 7 and 18 years of age) across the ECA region and on the policies, strategies and programmes in place in nine countries<sup>27</sup> of the ECA region to assist with evidence-informed advocacy, policy and programming decisions and to highlight nutrition policy and programming gaps for this group to generate clear policy recommendations.

Based on the findings of this review, the most significant nutrition issue among children and adolescents between 7 and 18 throughout the region

is overweight and obesity. Fourteen countries had an overweight and obesity prevalence of 20 percent or greater among boys, and ten countries had an overweight and obesity prevalence of 20 percent or greater among girls. Three countries reached over 30 percent among boys. Micronutrient deficiencies, particularly anaemia, emerge as a further challenge. While several of the nine countries are making progress in addressing the nutrition challenges in this age group through national policy and programmes, there are gaps in the policy framework for the prevention of obesity and iron deficiency anaemia in all countries, and some have focused very little attention on this area to date. The findings suggest that countries are increasingly putting in place measures for controlling the presence of unhealthy food in the schools; however, countries are less advanced in applying approaches to tackle wider marketing beyond the school environment.

The findings of this review suggest that these critical areas need immediate attention in the region: the promotion of healthy diets and physical activity to address high levels of overweight/obesity and micronutrient deficiencies, and the prevention of anaemia.

More can be done to promote and incentivize healthy food choices and better inform parents, caregivers, adolescents and children about nutrition. Intersectoral collaboration is critical to ensure joint thinking on tackling overweight in children and adolescents – a broader, pan-societal approach to ensure that consistent messages are relayed to children and adolescents in their day-to-day lives and at a variety of contact points. Actions must be targeted not only towards children and young people, but also to parents, caregivers and their communities.

Collaboration with the food industry by health, education and other government departments is an essential component of protecting children and adolescents from inappropriate marketing. Supportive fiscal policies, regulation (including of marketing and advertising), and supportive school nutrition programmes are required. ■





**BARCELONA, SPAIN**

Fresh fruits and vegetables are displayed on sale at a fruit stall at the Boqueria market in Barcelona.

©FAO/Alessia Pierdomenico



**PART 2**  
**COST AND AFFORDABILITY OF HEALTHY DIETS IN EUROPE AND CENTRAL ASIA**





# COST AND AFFORDABILITY OF HEALTHY DIETS IN EUROPE AND CENTRAL ASIA

To change food consumption and production systems to enable programmes to deliver healthy diets and make healthy diets accessible by consumers, it is first necessary to understand the prices of food paid by consumers and the hidden costs of diets that are imposed on society. Estimates of real costs and the affordability of various diets are not readily available. Thus, estimates need to be generated for each country – and with a relatively complex methodology to ensure the comparability of estimated costs.

Evidence suggests that the high costs and unaffordability of healthy diets are strongly associated with increased food insecurity and the various forms of malnutrition, including stunting and obesity (FAO, IFAD, UNICEF, WFP and WHO, 2020). In such cases, many people’s answer to the problems of hunger and food insecurity are diets with the cheapest possible calories. In countries throughout the world, the increasing trend of “fast food” (food rich in calories from meat fat, sugar and salt sold at attractively low prices) is a disturbing development. The disruptions along agrifood supply chains and losses of income as a result of the ongoing COVID-19 have caused many households to face increased difficulty in accessing nutritious foods. To cope with the financial difficulties, many households have reported using their own savings – at the expense of their households’ living conditions – and reducing food consumption and selling agricultural productivity assets (see Section 2.5 of this report).

A 2016 study by the Healthcare Leadership Blog using data (adjusted for inflation) from the United States Department of Agriculture concluded that “the price of fresh produce in the United States over the past 30 years has increased by 40%, whereas soda and processed food has decreased by 30%.” The study suggested that “if the cost of treating chronic diseases was incorporated into the price of unhealthy, processed, fast foods, we could likely reach this price parity [with fresh produce].”

Thus, the facts surrounding the real costs of current dietary patterns, including hidden health and environmental costs, combined with current food consumption and nutritional choices, are critical to understanding how to foster healthy nutritional outcomes. This knowledge can then support the development of appropriate national strategies to eliminate malnutrition in all its forms under Target 2.2 of the Sustainable Development Goals.

Understanding a healthy diet pattern involves defining it, finding the monetary costs, comparing those costs with the population’s ability to pay, and assessing direct and indirect hidden costs. Part 2 of this report covers these topics, in addition to the various cost drivers and policy actions related to improving the affordability of healthy diets, social protection and safety net programmes to ensure that vulnerable populations have access to healthy diets. The impacts of the COVID-19 pandemic on the regional economy, food supply chains, agribusiness and markets, and policy responses also are covered here in Part 2. ■

## 2.1 COSTS AND AFFORDABILITY OF THREE DIETS

### KEY MESSAGES

- If 63 percent<sup>28</sup> of incomes can be spent on food, roughly 19 million people in the ECA-14 (those countries in the ECA region that are not part of the European Union and for which data were available)<sup>29</sup> cannot afford a healthy diet. This is roughly 18 percent of the population in the ECA-14.

- However, these results are much better than the global average estimates; using the 63-percent threshold, it is estimated that 38 percent of people worldwide cannot afford a healthy diet.
- Using two other extreme thresholds for food spending, between 5 million and 99 million people in the ECA-14 region are unable to afford a healthy diet. The 5 million are spread out in eight of the 14 countries, mostly in the Western Balkans, Central Asia and the Caucasus.
- To promote the affordability of healthy diets in sustainable food systems in the region, appropriate policies would be needed to reduce food prices and costs and/or to increase incomes for the millions of people who cannot afford a healthy diet.
- There are large variations in the cost and unaffordability of nutritious diets by region and by segment of population within region and household in a country. Addressing malnutrition in a sustainable manner must take a life-cycle approach. It must include a range of context-specific, targeted interventions that engage stakeholders across multiple sectors, including food production, food processing and social protection.
- Results also show large variations in the cost and affordability of nutritious diets by season, with prices and costs falling during harvest seasons. The analysis and findings are useful to inform the design of food-based nutrition intervention programmes, based on the season, to make nutritious foods available at all times.

The cost of a healthy diet can act as the main barrier to food access for many individuals. Hence, it is useful for policymakers to know the absolute and relative levels of costs so that they can come up with solutions to make diets affordable. If countries seek to adopt

healthy diets as one of the ideal food security and nutrition goals, the most important thing that must be made known is their cost, especially compared to the current value. Presumably, current diets are not – scientifically speaking – precisely balanced, not only in nutrients but also in the diversity of foods from the various recommended food groups.

The affordability of a healthy diet depends not only on its cost but also on the individual's income. A healthy diet is affordable if the cost of the diet is less than the maximum income the individual can devote to buying food (i.e. the person's food budget). These two measures – cost and affordability – are country-specific and need to be established in each situation to discuss the feasibility of adopting or promoting healthy diets. The following two sections deal with the costs and affordability of healthy and basic diets.

### Costs of healthy and energy sufficient diets

In most countries, neither the monetary costs of current diets nor the costs of alternative diets are published. Typically, data related to food costs comprise statistics about the cost of a typical food basket, used to determine inflation and changes in food costs and/or the poverty line. However, the costs of the three selected diets (energy sufficient, nutrient adequate and healthy) at the national level are estimated in *The State of Food Security and Nutrition in the World 2020*.<sup>30</sup> As listed in that document (Box 10, p. 73), the three reference diets can be described as the following:

**Energy sufficient diet:** This diet provides adequate calories for energy balance each day by using only the basic starchy staple for a given country (e.g. wheat, rice or maize only).

**Nutrient adequate diet:** This diet not only provides adequate calories (per the energy sufficient diet), but also relevant nutrient intake values of 23 macro- and micronutrients.

**Healthy diet:** This diet provides adequate calories and nutrients (for the energy sufficient and nutrient adequate diets), but also includes a more diverse intake of foods from several different food groups.

These costs for the countries of Europe and Central Asia are analysed in this regional report. The health and environmental costs of unhealthy or less-healthy diets (and thus the benefits of healthy diets, also generated for *The State of Food Security and Nutrition in the World 2020*) are presented in Section 2.2 of this report to facilitate the comparison of the true total socio-economic costs of the three diets in the ECA countries.

The three diets' costs were generated using the linear programming method to formulate a diet that will cost the least given the available set of foods and constraints. The nutritional standards were based on selected criteria for each of the three diets, defined by the set of nutritional and other constraints.

For example, for the energy sufficient diet, the caloric requirement is met using the lowest-costing starchy staples and is based only on the energy content of each food.

For the nutritionally adequate diet, the diet formulation picks various locally available sources of food items to meet the minimum requirements of various major nutrients, micronutrients, vitamins, minerals, etc. To make the diets more realistic and cost-effective, the seasonal availability of foods, especially of fruits and vegetables in various months, is considered.

For analysis purposes, the healthy diet is guided by the quantified recommendations from ten national food-based dietary guidelines representing a range of dietary recommendations articulated by countries. These are then locally adapted to each country through the assignment of least-cost food items available by food group in each country.<sup>31</sup>

It should be kept in mind that the lowest-cost diets assume an optimal allocation of a household's income for food consumption.

However, many households may end up paying much more than the minimum cost for various reasons, such as a lack of full information about nutrition or prices. Hence, the costs presented as the lowest costs are required to meet a certain standard, especially for the poor, and can be considered underestimations.

For the 14 ECA countries for which data were available, the lowest-cost estimates for the year 2017 were analysed at the country level. The data are consistent with the aggregated data presented in *The State of Food Security and Nutrition in the World 2020*. The regional aggregate for ECA-14 and subregional costs are calculated using the simple average of countries listed in the table. Also discussed are the results for the European Union (EU-27 plus the United Kingdom of Great Britain and Northern Ireland) and the European Free Trade Association (EFTA) countries.

The results presented in [Table 8](#) show that the average costs (converted to international dollars using purchasing power parity, or PPP) for the ECA-14 countries are USD 0.76, USD 2.26 and USD 3.66 per person per day for the energy sufficient, nutritionally adequate and healthy diets, respectively. These costs are about 3–4 percent lower than the corresponding world average costs of USD 0.79, USD 2.33 and USD 3.75, respectively. Compared to costs in the European Union and the EFTA, the cost of a healthy diet is higher in ECA-14 countries.

The average cost of a healthy diet, as expected, is much higher than the cost of the other two diets. In the ECA region, the cost of a healthy diet is relatively more expensive, about 5 times the cost of the energy sufficient diet and 1.6 times the cost of the nutritionally adequate diet. The corresponding ratios of the costs of healthy/energy sufficient diets and healthy/nutritionally adequate diets at the world level are similar (about 4.75:1 and 1.6:1, respectively).

The level of the cost depends on the availability of several alternative products to meet the cost of dietary food group requirements, the stringency of the nutritional constraints applied, and the prices of the products used in the optimal cost programmes. In general, the more numerous the alternatives and the cheaper the sources of nutrients, the lower the cost of the diet.

**TABLE 8**  
**COST OF THREE DIETS IN THE ECA REGION, 2017 (PPP, CONSTANT 2017 USD)**

Country/Group	Energy Sufficient Diet	Nutrient Adequate Diet	Healthy Diet
<b>CENTRAL ASIA</b>	<b>0.84</b>	<b>2.04</b>	<b>3.39</b>
Kazakhstan	0.65	1.64	3.07
Kyrgyzstan	0.96	2.29	3.72
Tajikistan	0.91	2.20	3.36
<b>EUROPEAN CIS</b>	<b>0.71</b>	<b>1.95</b>	<b>3.52</b>
Belarus	0.80	2.01	4.20
Republic of Moldova	0.71	1.57	2.96
Russian Federation	0.62	2.27	3.40
<b>THE CAUCASUS</b>	<b>0.90</b>	<b>1.94</b>	<b>3.38</b>
Armenia	1.01	2.09	3.86
Azerbaijan	0.79	1.79	2.90
<b>THE WESTERN BALKANS</b>	<b>0.68</b>	<b>2.70</b>	<b>4.07</b>
Albania	0.76	2.55	4.33
Bosnia and Herzegovina	0.71	3.00	4.10
North Macedonia	0.74	3.00	3.74
Montenegro	0.56	2.32	3.82
Serbia	0.61	2.61	4.37
<b>THE WESTERN BALKANS AND TURKEY</b>	<b>0.69</b>	<b>2.64</b>	<b>3.95</b>
Turkey	0.73	2.37	3.34
EFTA	0.63	2.37	2.78
European Union	0.44	2.18	3.07
ECA-14	0.76	2.26	3.66
<b>WORLD</b>	<b>0.79</b>	<b>2.33</b>	<b>3.75</b>

NOTES: ECA-14 refers to the ECA countries listed in the table that are not European Union Member States and for which data are available. The simple averages are calculated and reported in the table for subregions and for the ECA-14 region. The European Union includes the EU-27 and the United Kingdom of Great Britain and Northern Ireland.

SOURCE: Calculated based on the same database as in FAO, IFAD, UNICEF, WFP and WHO. 2020.

As expected, the cost of the diet increases as the diet quality increases, with this pattern holding across all subregions and countries (Table 8).

In terms of subregional comparisons, the cost of a healthy diet is lower in the Caucasus (USD 3.38) and in Central Asia (USD 3.39) and higher in the Western Balkans (USD 4.07). Looking at individual countries, the cost of a healthy diet ranged from

USD 2.90 in Azerbaijan, in the Caucasus, to USD 4.37 in Serbia, in the Western Balkans. The cost of an energy sufficient diet was lowest in Montenegro, at USD 0.56, and highest in Armenia, at USD 1.01. Energy sufficient diet costs were less than USD 1 in all countries except in Armenia. A nutrient adequate diet was cheapest in Republic of Moldova, at USD 1.57, and most expensive in Bosnia and Herzegovina and North Macedonia, at USD 3.

These costs themselves do not have much significance unless they are compared to incomes or to the abilities of people to pay for them. This relates to the concept of affordability, which is discussed in the Section Affordability of three diets.

## Affordability of three diets

The affordability of a diet is more important than its absolute cost. The concept of affordability (or, inversely, unaffordability) comprises the cost of a diet compared to an individual's ability to pay. Thus, the affordability of various diets is determined in *The State of Food Security and Nutrition in the World 2020* by comparing the cost of a given diet to per capita income, or more precisely to the portion of per capita income designated as the food budget. When a person's food budget is less than the cost of a particular diet, that diet is considered unaffordable.

The main analysis presented here is based on the **unaffordability indicator** showing the percent and number of people in a country who would not be able to afford a given diet, **based on estimated 2018 income distributions** provided by the World Bank PovcalNet online tool. This indicator produces a middle level between lower- and upper-bound estimates. It assumes that people spend, on average, 63 percent of their income per capita on food, with the remaining 37 percent reserved for non-food expenditures such as housing, transportation, school and farm inputs. As stated in *The State of Food Security and Nutrition in the World 2020*, "The 63 percent accounts for a portion of the poverty line that can be credibly reserved for food, based on observations that the poorest people in low-income countries spend, on average, 63 percent of their incomes on food." Further details can be found in Annex 3 and Table A3.3 of *The State of Food Security and Nutrition in the World 2020*.

The results of costs and unaffordability estimates of the three diets – energy sufficient, nutrient adequate and healthy – generated in the main study project<sup>32</sup> for *The State of Food Security and Nutrition in the World 2020* are extracted for the countries of the ECA region, organized into subregions and presented in the following sections. This regional report is thus supplementary to the global report.

The parameters of interest for this study are the percentage of the population and the absolute number of people who cannot afford each of the three selected diets under the three food expenditure assumptions described here.

**Nearly 19 million people in ECA-14 could not afford a healthy diet in 2017, and even in high-income countries, sizeable portions of the population have difficulty accessing healthy diets, including 7 million in the European Union (EU-27 plus the United Kingdom of Great Britain and Northern Ireland).**

This is calculated using the 63 percent **unaffordability indicator** threshold, which assumes that up to 63 percent of the per capita income can be spent on food. The results are presented in [Table 9](#).

The results show that 18 percent of the population in the ECA-14 region – about 19 million people – cannot afford a healthy diet. This is significantly lower than the world average, which indicates some 38 percent not being able to afford a healthy diet. Nutritionally adequate diets are seen to be unaffordable by 6 percent of the population in ECA-14 and more than 23 percent globally. Therefore, it can be concluded that achieving the goal of the adoption of nutritionally fulfilling diets, even if they are not high-quality diversified healthy diets, is not easily reachable for a sizeable population in the ECA region (based on the 14-country analysis).

The results reveal that even in high-income countries, sizeable portions of the population cannot afford a healthy diet. In 2017, there were some 7 million people in the European Union who had difficulty affording a healthy diet.

The results for individual subregions in Europe and Central Asia indicate that Central Asia, the Western Balkans and Turkey, and the Caucasus have much higher percentages of their populations who are unlikely to be able to afford healthy diets than does the European CIS subregion. Individual countries vary a great deal, ranging from less than 1 percent in Azerbaijan and Belarus to more than 50 percent in Kyrgyzstan and Armenia. Out of the 14 countries, four (Kyrgyzstan, Armenia, Albania and Tajikistan) are sitting above or close to the world average. In other words, the challenges involved in making a healthy diet affordable in this region are quite similar to those at the global level.

**TABLE 9**  
**PERCENTAGE AND NUMBER OF PEOPLE WHO COULD NOT AFFORD THE THREE SELECTED DIETS**  
**(WITH 63 PERCENT OF INCOME SPENT ON FOOD) IN THE ECA REGION, 2017**

Country/Group	% of population			Number of people (millions)		
	Energy Sufficient Diet	Nutrient Adequate Diet	Healthy Diet	Energy Sufficient Diet	Nutrient Adequate Diet	Healthy Diet
<b>CENTRAL ASIA</b>	0.3	11.03	33.2	0.1	2.4	7.4
Kazakhstan	<0.1	0.1	2.2	<0.1	<0.1	0.4
Kyrgyzstan	0.2	18.6	60.3	0.0	1.2	3.7
Tajikistan	0.8	14.4	37.2	0.1	1.3	3.3
<b>EUROPEAN CIS</b>	<0.1	0.1	2.2	0.0	0.4	2.4
Belarus	<0.1	<0.1	0.7	<0.1	<0.1	0.1
Republic of Moldova	<0.1	<0.1	4.3	<0.1	<0.1	0.1
Russian Federation	<0.1	0.3	1.5	0.0	0.4	2.2
<b>THE CAUCASUS</b>	0.4	5.6	25.9	0.0	0.3	1.5
Armenia	0.8	11.2	51.7	<0.1	0.3	1.5
Azerbaijan	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<b>THE WESTERN BALKANS</b>	0.4	7.5	18.2	<0.1	0.9	2.6
Albania	<0.1	14.9	43.9	<0.1	0.4	1.3
Bosnia and Herzegovina	<0.1	1.0	2.8	<0.1	<0.1	0.1
North Macedonia	2.0	12.7	16.9	<0.1	0.3	0.4
Montenegro	<0.1	7.5	16.1	<0.1	<0.1	0.1
Serbia	<0.1	1.5	11.2	<0.1	0.1	0.8
<b>THE WESTERN BALKANS AND TURKEY</b>	0.3	6.6	16.2	<0.1	2.6	7.6
Turkey	<0.1	2.1	6.2	<0.1	1.7	5.1
EFTA	0.1	0.1	0.1	<0.1	<0.1	<0.1
European Union	0.3	1.1	1.8	1.4	4.6	7.0
ECA-14	0.3	6.0	18.2	0.2	5.7	19.0
<b>WORLD</b>	4.6	23.3	38.3	185.5	1513.0	3021.5

NOTES: The unaffordability percentages and the numbers of people are calculated by comparing the cost of each diet with the income distribution in a given country, under the assumption that 63 percent of the income available can be credibly reserved for food. A diet is considered unaffordable when its cost exceeds 63 percent of the income in a given country. See *The State of Food Security and Nutrition in the World 2020*, Box 10, for a definition of the three diets, and see Box 11 and Box 12 in that report for a brief description of the cost and affordability methodology. The European Union includes the EU-27 and the United Kingdom of Great Britain and Northern Ireland.

SOURCE: Calculated based on the same database used in *The State of Food Security and Nutrition in the World 2020*. FAO, IFAD, UNICEF, WFP and WHO. 2020.

### Lower bounds of unaffordability in ECA

In addition to the levels of unaffordability at the 63 percent threshold, two other extreme alternative indicators are presented. One is the **unaffordability lower bound**, which estimates the percentage of people not able to afford the diets even when they spend all their income on food alone. This is not a realistic option, but it does provide an extreme case with a theoretical lower limit. Since the full income is used as a potential

source to purchase food, very few people fall into the category of “cannot afford,” hence providing a mathematical lower limit to unaffordability.

On average, 6.4 percent of the ECA-14 region’s population are estimated to be unable to afford a healthy diet using the unaffordability lower bound threshold. Thus, the absolute lower limit of unaffordability applies to about 5 million people in the ECA-14 region. Detailed results by country are presented in the **Annex, Table A1**.



## Upper bounds of unaffordability in ECA

Similarly, the **unaffordability upper bound** indicator utilizes the actual food share of income spent on food, based on the income class of each country. This is used to calculate the upper bound for the percentage and number of people who cannot afford each of the three diets. Following the World Bank classification of income, countries are divided into four income groups: high-income, upper-middle-income, lower-middle-income and low-income countries. In high-income countries, 15 percent of the average income is spent on food, on average. That figure is 28 percent in upper-middle-income countries, 42 percent in lower-middle-income and 50 percent in low-income countries, on average. The majority of the countries in the ECA-14 region (12 of the 14) belong to the upper-middle-income group, with one in the lower-middle-income group and one in the low-income group. Hence, the relevant limits of food expenditure out of total income for the three groups are 28 percent, 42 percent and 50 percent, respectively.

The results presented in the **Annex, Table A2** reveal that about half of the population of the ECA-14 countries, or almost 99 million people, are unable to afford the proposed higher-quality diet without increasing their food budget by reducing non-food expenditures. It should be noted, however, that out of this 99 million, 64 million belong to the two most populous countries in the region, namely the Russian Federation (35 million) and Turkey (29 million).

In terms of the relative impact of the costs of a healthy diet on unaffordability by country, the range is fairly wide, from a low of 3.3 percent in Azerbaijan to 93 percent in Armenia (both of which are in the Caucasus). High percentages of unaffordability of healthy diets also are found in Albania (87 percent) and Kyrgyzstan (86 percent). The cost of a healthy diet – with Azerbaijan being the lowest in the entire ECA region – may explain the low unaffordability in some countries. Republic of Moldova and Russian Federation also are among the least-impacted (under 25 percent) countries as far as the unaffordability of a healthy diet is concerned.

In conclusion, the costs and unaffordability of the three diets – energy sufficient, nutrient adequate and healthy – in each of the 14 selected countries presented here can be used to identify the challenges and opportunities in each country regarding the development of strategies for transitioning to

a healthy dietary regime. The information also indicates where the focus should be and whether it is the cost, income or both that need to be made the focus of the transition strategy to adopt healthy diets.

## Variations in affordability within countries, and country case studies and policies in Armenia, Kyrgyzstan and Tajikistan

The findings in this section are based on the World Food Programme Fill the Nutrient Gap (FNG) analysis in three countries: Armenia, Kyrgyzstan and Tajikistan. These are the countries in which WFP has country programmes in the ECA region.

Tajikistan and Kyrgyzstan are two of the poorest countries in the ECA region, with per capita GDPs ranked the lowest (Tajikistan) and second lowest (Kyrgyzstan) in recent years. According to World Bank income category, Tajikistan is a low-income country and Kyrgyzstan is a low-middle-income country. An upper-middle-income country, Armenia represents most of the non-European Union, high-income countries in the region.

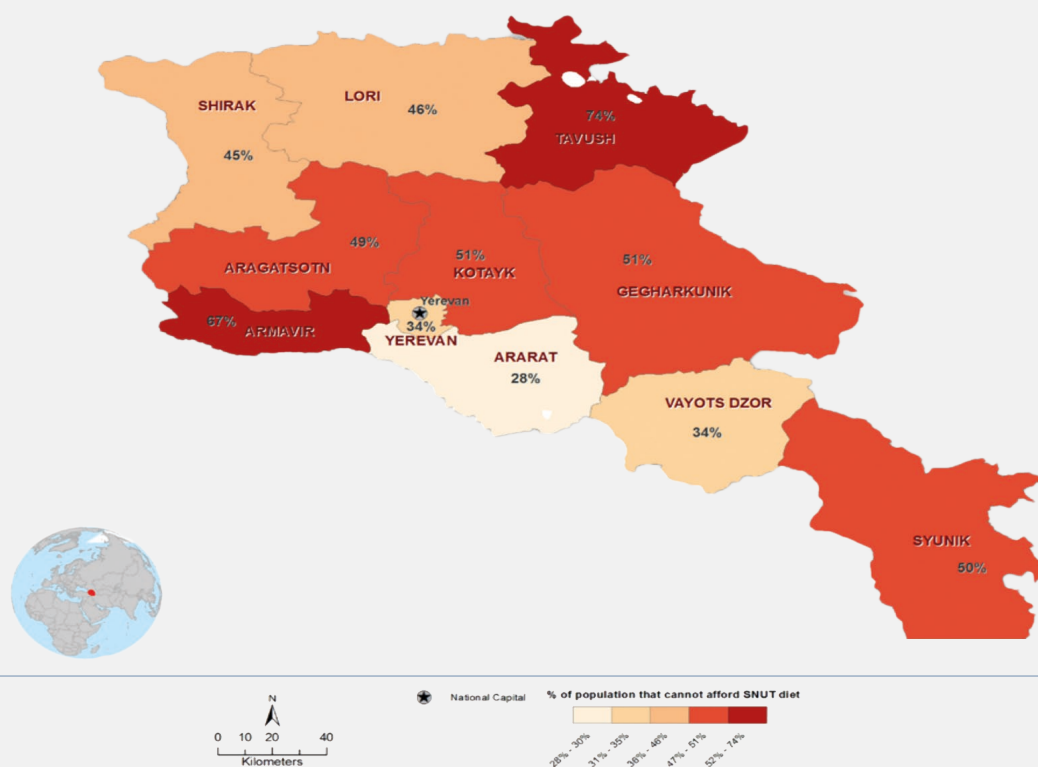
The overarching objective of the FNG analysis was to bring together stakeholders from health and nutrition, education, social protection, agriculture, trade and industry, academia and the private sector to identify and prioritize context-specific policies and programmes aimed at improving the nutrient intakes of target groups across the life cycle.

**There are large differences in the affordability of nutritional diets among the regions in Armenia, with the highest rate of affordability at 72 percent, in Ararat region, and the lowest at 26 percent, in Tavush region. This suggests a need for targeted interventions based on geographical differences.**

The energy-only diet in **Armenia** costs approximately the same in all regions for a four-person household, from AMD 17 447 to AMD 19 706 (USD 36 to USD 42) per month. The nutritious diet was more varied and three to four times more expensive, ranging from AMD 62 760 in Ararat to AMD 86 718 in Tavush (USD 131 to USD 181).

The household affordability of a staple-adjust nutritious diet was calculated based on households' food expenditures and the cost of the staple-adjust

**FIGURE 25**  
**AFFORDABILITY OF STAPLE-ADJUSTED NUTRITIOUS DIETS, BY PROVINCE, ARMENIA**



SOURCE: WFP, 2017b.

nutritious diet, taking own production into consideration, especially for rural areas. Data used on food expenditures is from the 2015 Integrated Living Conditions Survey in Armenia.

Overall, a high share of households cannot afford a staple-adjust nutritious diet and are not able to meet their nutrient requirements, based on the availability of food items and the related prices in the local market.

The percentages for affordability (ability to afford a staple-adjusted nutritious diet) ranged from 26 percent in Tavush region to 72 percent in Ararat (Figure 25). These calculations were based on reported household food expenditure data, taking own production into consideration, especially for rural areas. The analysis clearly indicates the articulated differences in population well-being and human development across regions. Great effort will be needed to overcome development disparities by region and to implement targeted policy as a priority for the country's development. Regions with high unaffordability rates may need assistance

with nutrient-dense foods and/or incomes in the short term and targeted social protection schemes in the long term.

### Large variations in costs and affordability of nutritious diets by seasonality

The types of available food items change seasonally in Armenia, with larger amounts of nutritious food items becoming available during harvesting seasons, either in the markets or at home, from own production. Food prices and the costs of nutritious diets change accordingly. The analysis has shown similar patterns in the seasonality dimension across provinces in Armenia. As shown in Table 10, the cost of a nutritious diet is cheapest from July to October, during the major harvesting period of food products (fruits and vegetables in particular). Nutritious diets are most expensive in January and February, during the lean season. It is common practice to prepare for the winter and for Christmas celebrations with high household food expenditures at the end of year.

**TABLE 10**  
**SEASONAL VARIATIONS IN THE COSTS OF STAPLE-ADJUSTED NUTRITIOUS DIETS PER HOUSEHOLD, BY PROVINCE, ARMENIA (ANNUAL AVERAGE =100%)**

City/Village	January/ February, %	March/ April, %	May/ June, %	July/ August, %	September/ October, %	November/ December, %	Annual Average, %
Yerevan	110.7	98.9	104.1	91.4	93.1	102.4	100.0
Aragatsotn	135.0	92.0	84.7	83.4	113.4	93.0	100.0
Ararat	113.8	91.5	100.6	83.6	108.7	102.7	100.0
Armavir	118.4	95.2	83.8	112.4	98.8	91.9	100.0
Gegharkunik	104.6	103.3	90.9	108.4	100.6	92.2	100.0
Lori	120.0	95.1	105.2	90.1	87.1	103.4	100.0
Kotayk	121.2	99.1	95.8	87.6	97.5	99.8	100.0
Shirak	109.0	100.0	96.2	109.7	96.8	88.4	100.0
Syunik	102.5	103.1	95.7	98.1	109.7	90.9	100.0
Vayots Dzor	111.8	105.7	93.5	98.8	78.6	112.1	100.0
Tavush	118.2	107.9	89.4	103.8	89.3	91.9	100.0
<b>National average</b>	<b>115.0</b>	<b>99.3</b>	<b>94.5</b>	<b>97.0</b>	<b>97.6</b>	<b>97.1</b>	<b>100.0</b>

SOURCE: Calculated based on WFP, 2017b.

### There are big variations in the cost and affordability of the nutritious diets by subnational region in Tajikistan.

In **Tajikistan**, the nutritious diet was found to be 2 to 3 times more expensive than the energy-only diet (Figure 26). The cost of diet analysis was conducted in three regions of the country, in addition to the capital city, Dushanbe. The energy-only diet costs were similar in the various regions in 2017, but the costs of nutritious diets varied widely by region. An energy-only diet costs TJS 10.9 per day in Sughd, on the low end, and TJS 12.8 in Gorno-Badakhshan Autonomous Province, on the high end. A nutritious diet, meanwhile, ranges in cost from TJS 32.3 per day in Sughd to TJS 50.8 TJS in Gorno-Badakhshan Autonomous Province.

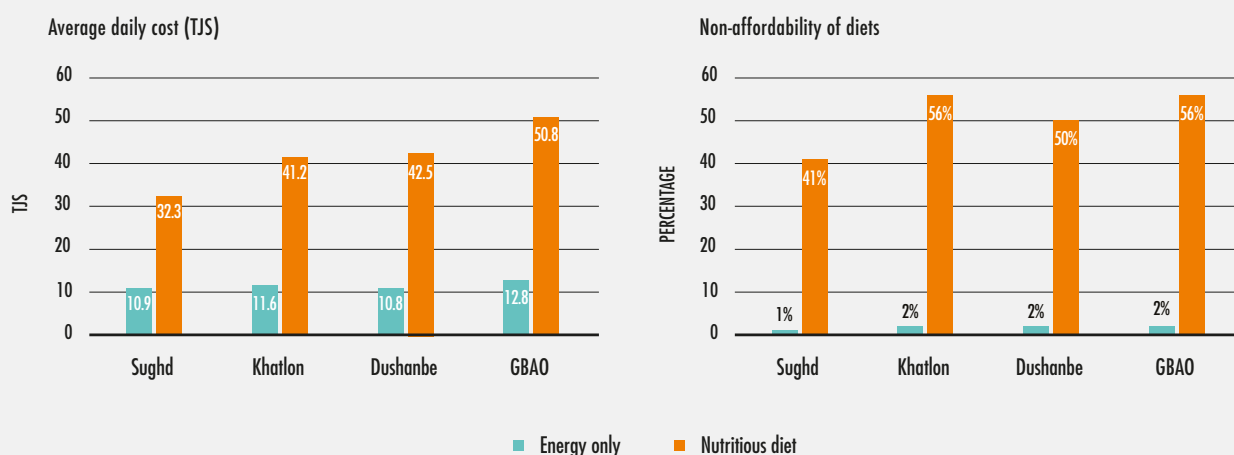
Using these figures, it was estimated that Sughd had the highest percentage of households (59 percent) that could afford the nutritious diet (Figure 26), while Khatlon and Gorno-Badakhshan

Autonomous Province had a much lower percentage of households (44 percent in both provinces) that could afford nutritious diets.

Target groups with high needs – such as those in the first 1 000 days of life, adolescent girls, pregnant and lactating women and the elderly – are most at risk of inadequate nutrient intake.

In addition to variations among regions, each household includes within it highly varying costs per individual, based on their nutrient needs. The Fill the Nutrient Gap method employs the life-cycle approach in its selection of household members, focusing on individuals who tend to have the highest micronutrient needs, such as children younger than 2, adolescent girls or lactating women. In Tajikistan, the adolescent girl's diet was the costliest, since the provision of her iron needs often necessitates the inclusion of expensive animal-based foods such as red meats. This makes the diets possibly more expensive than a national average poverty line, but if the monetary value

**FIGURE 26**  
**COST AND UNAFFORDABILITY OF ENERGY-ONLY AND NUTRITIOUS DIETS BY REGION IN TAJIKISTAN**



SOURCE: WFP, 2018b.

does cover her needs, then it would most likely also cover the needs of less nutritionally vulnerable household members or other households with different combinations of members. When looking at individual persons' diets, we see that girls and women often have a combined share of at least 50 percent of a household's diet costs.

Given that households are not currently consuming sufficient diverse, micronutrient-dense foods, the needs of adolescent girls and pregnant and lactating women are less likely to be met.

### Polices based on Fill the Nutrient Gap analyses in Tajikistan and Kyrgyzstan

The Fill the Nutrient Gap analysis in Tajikistan shows that different solutions require different tools. Long-term success, for example, requires educating schoolchildren on healthy eating habits. A central domain that links solutions together is agriculture, as the physical availability of foods on a local level is the starting point for ensuring food security.

Two full-scale Fill the Nutrient Gap analyses were conducted in Tajikistan (2018) and Kyrgyzstan (2019–2020), with opportunities to review national policy documents and to conduct consultation meetings with stakeholders from various ministries, United Nations agencies and many other development partners. The discussions led to ideas for creating “what if” scenarios in the software, testing the effects of various interventions such as free or subsidized micronutrient supplements, school meal programmes, or national-level staple fortification programmes. These tests allow us to see whether certain micronutrients would be more abundant in the new hypothetical and healthy diet, possibly contributing to reducing monthly food budgets. Different scenarios are tested for comparison, and combinations are created that may imply coordinated responses from ministries of education, health, agriculture, internal trade, etc. These results show the effect on a household budget but do not compare the programmatic cost that would be covered by the government or development partners. This section reviews the

existing and proposed policies in Tajikistan and Kyrgyzstan, and it also includes Armenia in a discussion of what could be achieved or researched further if a full study beyond the existing cost of the diet analysis were to be conducted.

### Tajikistan

The consultative process in Tajikistan resulted in more than 15 recommendations spanning six major domains: health and nutrition, fortification, social protection, education, agriculture and media. Among the proposed measures are developing new national dietary guidelines that call for reduced levels of consumption of grains and oils and improving infant and young child feeding practices through the promotion of exclusive breastfeeding and appropriate practices for introduction of complementary foods, with support from local health centres whose infrastructure and staff capacity would be expanded or improved. This also links with the needed coordination with the Scaling Up Nutrition platform, particularly the Committee for Youth and Women's Affairs, given the health challenges facing these demographic groups.

In terms of fortification, there was a call to expedite the passing of a fortification law and to set standards for several products, not just wheat flour. This requires collaboration with many government partners, development agencies and industry representatives.

The Fill the Nutrient Gap analysis shows that different solutions require different tools. For example, economically vulnerable groups could be supported with cash transfers as part of the social protection measures to enable them to purchase a more diverse food basket. Thinking of long-term solutions, another approach was to educate school children on healthy eating habits, so they could carry these with them for many decades, and to set good examples, working on establishing school kitchens that would provide healthy hot meals on a regular basis. A central domain that links many of these together is agriculture, as the physical availability of foods on a local level is the starting point for ensuring food security. To achieve this, it was recommended to increase the use of greenhouses and tunnels and to provide adequate storage facilities to prevent food losses (WFP, 2018b).

### Kyrgyzstan

The current Food Security and Nutrition Programme (2019–2023) is part of a larger set of state policies that aim to reduce poverty and improve the quality of life for the Kyrgyz population. It contains several multi-sectoral programmes that aim to promote food security, for example through increased domestic agricultural production and the prevention of food loss in order to ensure a reliable supply of healthy foods to meet peoples' needs (United Nations, 2019).

Kyrgyzstan shares many of the intervention sectors of Tajikistan, with ongoing or proposed programmes that either focus on a single household member or the whole household as a unit, such as the national wheat flour fortification programme or the "social contract" income-generation activities.

The school feeding programme is a success story, with a modified law that promotes the application of stringent regulations to guarantee food safety and an expanded capacity for school kitchens to prepare hot, cooked meals for primary school-aged children. As part of the Fill the Nutrient Gap analysis, a few typical meal options were compared to assess their effect on reducing a schoolchild's daily diet cost and to measure the extent to which they contribute to meeting one-third of a child's daily nutrient needs. The most nutritious foods were often the more expensive ones. This could create an additional financial burden, because parents contribute to the school feeding fund, topping up the Government's budget.

Among the Government's other aims, in terms of nutrition, is the reduction of the burden of iodine and iron deficiency. In terms of iron, models have been created to measure the effect of iron and folic acid supplements for adolescent girls and pregnant and lactating women. A supplement in the form of micronutrient sprinkles was also tested for children younger than 2 to prevent new cases of stunting. Not all of these programmes are currently ongoing, and the aim of some analyses is to promote and advocate for nutritional support for vulnerable groups, especially given the significant reductions in daily diet cost, assuming perfect adherence to the programmes.

In addition to the ministries of education and health, the Ministry of Labour and Social Development is actively working on programmes for poverty reduction and improvement of the local supply of food across the different regions, to reach the hard-to-reach areas. These two goals shape the ideas for two projects whose broad principles were raised in discussions with the World Food Programme. One is the 'social contract' programme, which would provide training and financial grants to start small businesses. The second project focuses on establishing shops in local markets and villages and procuring fresh and nutritious foods at various levels of subsidies to improve affordability for vulnerable households.

The results of the analysis showed that even with a modest reduction in food cost through one intervention, the combination of several development programmes would yield positive and significant results for individuals' nutritional status and a reduction in households' food expenditures (WFP, 2020c). ■

## 2.2 HIDDEN COSTS OF CURRENT CONSUMPTION COMPARED WITH HEALTHIER ALTERNATIVES

### KEY MESSAGES

- Unhealthy diets are a leading cause of malnutrition in all its forms and of environmental degradation in the Europe and Central Asia (ECA) region, threatening the feasibility of ending malnutrition by 2030, in accordance with Target 2.2 of the Sustainable Development Goals.
- If current consumption patterns continue in the selected 11 countries of the region,<sup>33</sup> it is estimated that, by 2030, diet-related health costs will exceed USD 152.1 billion per year and climate change will cost USD 62.1 billion per year.
- Considering the full costs of the diets under current dietary patterns, health costs relative to food expenditures in 2030 will be relatively high in Russian Federation (89 percent), Kazakhstan (55 percent), Belarus (53 percent), Republic of Moldova (45 percent) and Ukraine (44 percent). The regional ECA-11 average ratio of health cost to food cost (49 percent) is much higher than the world average (20 percent).
- It is projected that environmental costs related to the benchmark diet in 2030 will represent 20 percent of its cost in the ECA-11 region. This is below the estimated world average of 26 percent. On the other hand, health costs related to current consumption patterns represent 49 percent of the wholesale cost of the diet in the ECA-11 region, well above the world average of 20 percent.
- In absolute terms, the Russian Federation and Turkey – the two most populous countries in the region – dominate, together accounting for USD 42 billion of the total USD 62 billion in climate change costs.
- The costs of climate change relative to the cost of the benchmark diet also are estimated to be fairly high in 2030 in all three countries of the Central Asia subregion: Kyrgyzstan (42 percent), Kazakhstan (40 percent) and Tajikistan (32 percent).
- The adoption of healthy and sustainable dietary patterns would lead to significant reductions in costs by 2030. For example, adopting flexitarian or vegan diets could lead to reductions of 93–99 percent in health costs, 40–73 percent in greenhouse gas emissions costs and 78–91 percent in combined hidden costs in the ECA-11 region.
- To make the necessary transition happen, the countries of the region will have to tackle the challenges of designing and promoting national food security strategies that are more nutrition-centric.
- There is no one-size-fits-all solution. For countries – especially upper-middle-income and high-income countries, such as in the European Union – in which diet patterns exceed optimal energy requirements and people consume more animal-source foods than required (see Section 1.4), major changes in food systems to plant-based diets are required. In countries and communities in which farmers' incomes and livelihoods depend on the present food systems, reorientation of government support could undermine livelihoods, and compensatory/incentive measures may be required.



## What are hidden costs or externalities, and why are they important?

The relatively low costs of calorie-dense foods, primarily the major cereal staples, can produce affordable diets that can help deal with hunger and undernourishment problems. But in areas of the ECA region where hunger is not a significant problem – with most countries being in the upper-middle-income category – the objective of national food security strategies is to focus on ending malnutrition, especially issues of overweight and obesity and their impacts on health. To deal with the challenges of meeting the SDG target of ending malnutrition by 2030 (SDG 2.2), countries must urgently focus their attention on the transition to healthy diets.

The food we choose to consume has a different cost than the price we pay at the market due to the negative externalities created by the production of that food, its consumption, or both. An item of food might cost us USD 1 to purchase, but if it makes us sick or unhealthy or causes a loss of productivity due to illness, that amounts to a hidden cost on top of that dollar. This hidden cost is paid by the consumer, by the government medical system, or by society as a whole. There also could be environmental damage caused by the production of this particular food which the consumer did not pay because it was not accounted for in the market price. This is an example of a negative externality and therefore of a hidden cost.

Current methods of food production result in negative environmental impacts, including the overuse of inputs (agro-chemical) and natural resources (water) and costs associated with the degradation of natural resources, loss of biodiversity and ecosystem services, and environmental pollution. In countries where energy intake and consumption of animal-source foods is too high (such as in the European Union), a rebalancing of diets and a transition to plant-based foods may be needed to reduce the negative environmental impacts of chemical use, land use, freshwater extraction and biogeochemical flows.

The first step in a strategy for transitioning to healthy diets would be to understand the implications of current dietary patterns.

Enough evidence has been provided worldwide on the effects of poor diets, which typically involve the overconsumption of red meat, milk, other fatty foods and sugary drinks and the underconsumption of fruits, vegetables, legumes and fish, among others. The high content of saturated fats, added sugars and salt in diets is associated with several non-communicable diseases and general poor health, causing death and loss of productivity and consequently resulting in huge health costs.

In addition, studies have shown that the production of food products – especially animal-based commodities – can cause long-term environmental damages due to carbon footprints and greenhouse gas emissions, thus worsening climate change. Food systems contribute an estimated 19 percent to 29 percent of global greenhouse gas emissions (FAO, 2017b). This effect, in turn, raises the question of sustainability. These are the main hidden costs that each country needs to address to begin the process of improving food security and nutrition strategies. There may exist other, less significant externalities, but they are not considered here as they are difficult to quantify.

It should be noted that it is equally possible for there to be positive externalities that create benefits for consumers or society as a whole. However, these benefits still would not be accounted for in the market price or cost of the product. Such positive externalities in the production system are called the multi-functionalities of agriculture, accounting for the various positive roles played by agriculture (for example, the prevention of flooding through the holding of excess rainwater in paddy fields or the sequestration of carbon to avoid the production of greenhouse gases and global warming of the climate, etc.). This report, however, has a different scope and does not address the externalities, positive or negative, of the entire agricultural sector, per se, but rather explores, by determining their real costs, the externalities of the foods and commodities that we consume.

Furthermore, given that the dietary patterns around the world are neither healthy nor environmentally sustainable (FAO, IFAD, UNICEF, WFP and WHO, 2020, p. 76), the focus of this report is on the negative health and climate externalities of current consumption patterns, their impact as hidden costs, and how to transition to

healthy dietary patterns in the countries of ECA region. *The State of Food Security and Nutrition in the World 2020* considers hidden costs that are not due to agriculture specifically but to the production and consumption of unhealthy diets (in other words, the costs that can be avoided by transitioning to healthy diets, which is the principal aim of the exercise). In that sense, the relevant hidden costs in the global report are those related to greenhouse gas emissions and to the direct and indirect health costs that result from consumption.

## Health- and nutrition-related costs

A major scientific report by from the EAT-Lancet Commission on Food, Planet, Health concluded that malnutrition in all its forms – including

obesity, undernutrition and other dietary risks – is the leading cause of poor health globally (EAT-Lancet Commission, 2019). Unhealthy diets are identified as one of the major contributors to the global burden of disease responsible for about 11 million deaths and over 250 million disability-adjusted life-years globally (FAO and WHO, 2019).

Hence, the hidden costs or externalities related to the health impact of diets are based on the estimated number of deaths due to four specific non-communicable diseases, namely coronary heart disease, stroke, cancer (both in aggregate and site-specific cases, such as colon and rectal cancer) and type 2 diabetes mellitus. These costs include both direct and indirect health costs associated with these four diseases. (See **Box 5** for a brief explanation of the original estimates prepared for almost all countries worldwide).

### BOX 5

#### METHODS USED IN *THE STATE OF FOOD SECURITY AND NUTRITION IN THE WORLD 2020* TO ASSESS CONSUMPTION-RELATED HEALTH AND ENVIRONMENTAL COSTS

The quantification of health and environmental costs related to a dietary shift from current consumption patterns to healthy and more sustainable diets utilizes a region-specific health model that covers dietary and weight-related risk factors, combined with emissions accounting and economic valuation models, to quantify the associated health and environmental consequences of the dietary change.

In the global model, the current food demand (**benchmark**) – used to simulate healthier and more sustainable dietary patterns – is based on a harmonized dataset of food-availability estimates from FAO. Similar to other estimates, future demand is estimated by the model based on how expected changes in income, population and dietary preferences affect food demand.

To determine how much the health and climate-change costs of diets can be reduced, a range of healthy and sustainable dietary patterns are used. The four reference diets include: a flexitarian diet, which contains small to moderate amounts of all animal-sourced foods; a pescatarian diet, which contains moderate amounts of fish but no other meat; a vegetarian diet, which contains moderate amounts of dairy and eggs, but no fish or other meat; and a vegan diet, which is completely plant-based.

The data required for this highly complex exercise were not available for all countries of the ECA region. Therefore, estimates and analysis are presented only for the 11 countries (referred to as ECA-11) for which data were available. These countries are shown in the results table.

**Health costs:** To quantify the cost of health impacts, two costing methods – the value-of-statistical-life approach and the cost-of-illness approach – were used. For estimating the health costs of diets, the estimates of cause-specific attributable deaths obtained from the comparative risk assessment paired with cost-of-illness estimates were used to capture both the direct costs (i.e. medical and health-care costs) and indirect costs (costs of informal care and lost working days) associated with treating a specific disease.

**Environmental/greenhouse gas emissions costs:** The environmental or climate-change costs of diets are based on the greenhouse gas emissions associated with food consumption. Greenhouse gas emissions were then monetized using estimates of the social cost of carbon, which represents the economic cost caused by an additional tonne of greenhouse gas emissions.

The specific estimates were generated in a separate background paper (Springmann, 2020) for *The State of Food Security and Nutrition in the World 2020*.

Note: This report presents the same estimates generated for *The State of Food Security and Nutrition in the World 2020*. Hence, only a brief explanation of how they are estimated is shown here. For full details on methodology and data description, please refer to the original report (pp. 77–80, including Textbox 11, with further details in Annex 6).

The adoption of healthy diet patterns is estimated to avoid deaths; 12.7 million deaths would be obviated by the adoption of flexitarian diets, and 13.7 million deaths would be avoided by the adoption of vegan diets (FAO, IFAD, UNICEF, WFP and WHO, 2020, Figure 32). In the ECA region (considering only the 11 countries with data availability), the estimates are surprisingly high; the region contains 12 percent of the global deaths estimated to be avoided under all four healthy diet scenarios. The total deaths avoided in the region would be more than 1.5 million per year in 2030 – corresponding to a simple average of 140 584 per country (see Table 11) – with a range from 10 500 in Albania to 830 000 in the Russian Federation. In comparison, the estimates of deaths avoided in the geographic regions of Central Asia and Western Europe are much lower.

The results of this exercise of the valuation of direct, indirect and total health costs for the selected 11 countries of the region (those for which all the necessary data are available) are presented in Table 12. It is projected that by 2030,<sup>34</sup> under the status quo baseline scenario, the total health costs could amount to about USD 152 billion, representing 34 percent of the wholesale food costs projected in 2030. Alternatively, benefits could arise if these costs are avoided by transitioning to healthy diets.

The projected health costs in the ECA region, at 34 percent of food expenditures, are 50 percent more than the global average share, which is only 20 percent. This implies that there is a better opportunity for diet-related health cost avoidance in the ECA region than worldwide.

**TABLE 11**  
**NUMBER OF DEATHS AVOIDED ANNUALLY DUE TO ALL RISK FACTORS (FOUR FOOD CONSUMPTION-RELATED DISEASES) UNDER FOUR SELECTED DIET SCENARIOS (THOUSANDS) IN SELECTED COUNTRIES OF THE ECA REGION**

Country/Region	Diet scenarios			
	FLEXITARIAN	VEGETARIAN	PESCATARIAN	VEGAN
Albania	10.5	11.2	11.5	11.7
Armenia	17.5	17.7	18.2	19.0
Azerbaijan	33.8	34.6	35.5	36.5
Belarus	53.6	54.1	55.3	55.8
Kazakhstan	80.9	80.5	82.2	83.7
Kyrgyzstan	18.7	18.8	19.1	19.5
Republic of Moldova	17.8	18.0	18.6	18.9
Russian Federation	829.8	827.5	852.6	874.3
Tajikistan	22.7	22.5	23.0	23.5
Turkey	136.5	136.4	141.2	148.8
Ukraine	295.7	294.4	300.1	303.5
ECA-11	1518.0	1516.0	1557.0	1595.0
Central Asia	122.3	121.8	124.3	126.7
Eastern Europe	1575.0	1571.0	1612.0	1641.0
Western Europe	384.0	381.0	390.0	384.0
<b>WORLD</b>	<b>12 711.0</b>	<b>12 946.0</b>	<b>13 203.0</b>	<b>13 664.0</b>

NOTES: The four diseases considered are coronary heart disease, stroke, cancer and type 2 diabetes mellitus. The four selected diet scenarios are FLX (flexitarian), VEG (only vegetarian), PSC (pescatarian) and VGN (vegan). Details are in the text. ECA-11 refers to the 11 non-European Union countries in this table for which data are available. SOURCE: FAO, IFAD, UNICEF, WFP and WHO. 2020.

**TABLE 12**  
**DIRECT AND INDIRECT HEALTH COSTS FOR SELECTED COUNTRIES OF THE ECA REGION UNDER THE DIET SCENARIO BENCHMARK, PROJECTED FOR 2030 (PPP, CONSTANT 2017 USD BILLIONS)**

Country/Region	Direct Health Costs	Indirect Health Costs	Total Health Costs	Food Expenditure	Health Cost/ Food Expenditure, %
Albania	0.12	0.23	0.35	3.09	11
Armenia	0.15	0.35	0.51	2.64	19
Azerbaijan	0.58	1.24	1.82	7.57	24
Belarus	1.42	3.08	4.51	8.57	53
Kazakhstan	2.83	6.43	9.26	16.88	55
Kyrgyzstan	0.17	0.21	0.38	4.90	8
Republic of Moldova	0.50	0.34	0.84	1.86	45
Russian Federation	48.18	58.14	106.32	119.15	89
Tajikistan	0.15	0.21	0.36	3.69	10
Turkey	6.17	6.54	12.71	110.07	12
Ukraine	6.82	8.23	15.05	33.83	44
ECA-11	67.09	85.00	152.10	312.25	34
Central Asia	3.15	6.84	10.00	25.47	39
Eastern Europe	60.20	26.67	86.87	168.57	52
Western Europe	75.50	90.59	166.09	239.71	69
<b>WORLD</b>	<b>749.35</b>	<b>561.7</b>	<b>1311.0</b>	<b>6710.4</b>	<b>20</b>

NOTES: The Direct Health Costs column includes direct medical and health care costs associated with treating a specific disease. Indirect costs include the loss of productivity per working days and the costs of informal care associated with a specific disease. Health costs refer to the four diet-related diseases included in the analysis: coronary heart disease, stroke, cancer and type 2 diabetes mellitus. The Indirect Health Costs column includes costs for the loss of productivity and indirect informal care costs.

SOURCE: FAO, IFAD, UNICEF, WFP and WHO. 2020.

Health costs (only those related to the four non-communicable diseases) in relation to total food expenditures on the benchmark diet vary widely, from 8 percent in Kyrgyzstan to 89 percent in the Russian Federation. In relation to the full costs of diets, these health costs also are fairly high in Kazakhstan (55 percent), Belarus (53 percent), Republic of Moldova (45 percent) and Ukraine (44 percent), related to current dietary patterns. The diet-induced health costs are found to vary a great deal in other regions and among other groups in Europe as well.

The exact magnitude of the savings, as shown in [Table 13](#), depends on whether one switches to a completely plant-based vegan diet (with almost no added health costs) or a vegetarian diet.

However, assuming that any of the four healthy diets would be adopted by the entire ECA-11 population, the benefits in terms of health costs avoided could be between USD 143 billion and USD 151 billion. This provides a significant incentive for policymakers to consider an alternative nutrition strategy in the region.

As stated in *The State of Food Security and Nutrition in the World 2020* (FAO, IFAD, UNICEF, WFP and WHO, 2020, p. 97), these estimated costs are likely underestimated due to missing, inadequate or incredible data on some key impacts of unhealthy (current) diets. These might be, for example, costs related to the health impact of undernutrition, both in terms of lost lives and lost productivity due to diets that are not sufficiently nutritious.

**TABLE 13**  
**ECA-11 REGION: AGGREGATE HEALTH COSTS UNDER DIFFERENT DIET SCENARIOS, 2030 PROJECTION**  
**(PPP, CONSTANT 2017 USD BILLIONS)**

Diet Scenario	Total Health Costs	Food Expenditure	Health Cost/ Food Expenditure, %
BMK	152.10	312.25	34
FLX	9.11	265.84	3
PSC	5.29	284.00	1
VEG	9.23	260.79	2
VGN	1.25	283.77	1

NOTES: BMK = benchmark, FLX = flexitarian, PSC = pescatarian, VEG = vegetarian and VGN = vegan.  
 SOURCE: FAO, IFAD, UNICEF, WFP and WHO. 2020.

Despite the data limitations, the report states: “The current analysis provides important insights on the health benefits and costs of consuming healthier diets that are produced with more environmental sustainability.”

It should be mentioned that not all the health impacts described here are attributable to poor diet alone. As illustrated in the FAO’s latest *The State of Food and Agriculture publication (2020)* “... polluted water impacts negatively on health and well-being by presenting food safety issues and water-related health risks.” Several waterborne diseases, which are transmitted by the ingestion of contaminated water, can lead to malnutrition and morbidity and sometimes death. In most developing countries, lack of access to safe and clean drinking water causes many of the diseases that are aggravated by poor diets. However, differentiating the health and environmental costs due to poor diets and bad water quality would be difficult and well beyond the scope of this report.

### Costs related to the environment and climate change

Concentrations of the major greenhouse gases – carbon dioxide, methane and nitrous oxide – continued to increase in 2019 and 2020 (WMO, 2020b). The central part of the methodology of calculating the diet-related costs of environmental externalities hinges upon the amount of greenhouse gas emissions produced by various agricultural

activities/commodities. As stated in *The State of Food Security and Nutrition in the World 2020*, “more than three quarters (77 percent) of the diet-related GHG emissions were associated with animal-sourced foods, including beef and lamb (41 percent), and milk and dairy (25 percent), which were the greatest contributors at the global level.” Hence, in countries where animal-based production dominates, greenhouse gas emissions and negative externality damages become more significant.

The results of this complex modelling-based exercise of the valuation of the societal costs associated with diet-related greenhouse gas emissions – conducted by Springmann (2020) as a background paper for *The State of Food Security and Nutrition in the World 2020* – are extracted for the selected 11 countries of the region (ECA-11) and are presented in [Table 14](#) only for the benchmark (BMK) scenario.

The results presented and depicted here reveal several interesting facts with important consequences to bear in mind when designing a revised national strategy on food security and nutrition for the countries of the region. The key results are as follows:

#### At the aggregate regional level:

1. The estimates show that for the baseline scenario (BMK) of the continuation of existing dietary patterns, the environmental (climate change-related) costs could amount to more than USD 62 billion per year in 2030, representing 25 percent of the wholesale food costs for the ECA-11 region.<sup>35</sup>

2. These 25 percent added costs due to greenhouse gas emissions are close to the world average of 26 percent. On the other hand, health costs in the ECA-11 region, at 34 percent, were found to be more than 50 percent of the world average.
3. The ECA-11 environmental costs associated with the benchmark diet represent only about 4 percent of the world total environmental costs, much less than the corresponding health cost share of 12 percent. Still, transitioning to healthy diets – especially plant-based diets – represents substantial benefits for the ECA-11 region.

#### At the country level:

1. The variation among environmental costs is not as wide as among health costs. In absolute terms, the Russian Federation and Turkey, the two most populous countries, overwhelmingly dominate together, accounting for USD 42 billion of the total USD 62 billion in climate change costs. These are also the top two countries in terms of livestock numbers. The lowest costs, at 16 percent, are found in Ukraine.
2. The relative climate change costs also are estimated to be fairly high in Kyrgyzstan (42 percent), Kazakhstan (40) and Tajikistan (32) – all three

**TABLE 14**  
**HIDDEN COSTS: PROJECTIONS OF ENVIRONMENTAL COSTS FOR SELECTED COUNTRIES OF THE ECA REGION (PPP, CONSTANT 2017 USD BILLIONS) AND PERCENTAGE OF FOOD COSTS PER YEAR BY 2030**

Country/Region	BMK		FLX		PSC		VEG		VGN	
	GHGc	GHGc/fexp (%)	GHGc	GHGc/fexp (%)	GHGc	GHGc/fexp (%)	GHGc	GHGc/fexp (%)	GHGc	GHGc/fexp (%)
Albania	0.67	22	0.36	15	0.38	15	0.26	11	0.20	8
Armenia	0.82	31	0.44	19	0.39	16	0.36	17	0.18	8
Azerbaijan	1.42	19	1.03	14	0.90	11	0.81	11	0.58	8
Belarus	1.42	17	0.71	11	0.64	9	0.64	11	0.46	7
Kazakhstan	6.76	40	2.60	21	2.24	17	2.27	19	1.10	8
Kyrgyzstan	2.07	42	0.85	20	0.71	17	0.72	17	0.33	7
Republic of Moldova	0.31	17	0.23	12	0.22	11	0.21	11	0.16	8
Russian Federation	22.25	19	12.64	13	11.06	11	11.06	12	7.74	8
Tajikistan	1.17	32	0.96	17	0.79	13	0.77	14	0.41	7
Turkey	19.78	18	14.44	15	13.66	13	10.79	11	5.52	5
Ukraine	5.43	16	3.29	11	2.98	10	2.95	10	2.15	7
ECA-11	62.11	25	37.60	15	34.00	13	30.90	13	18.80	7
Western Europe	39.52	23	17.23	13	15.49	11	14.83	12	10.66	8
Eastern Europe	42.22	18	24.13	12	21.81	10	21.54	11	15.49	8
Central Asia	10.00	3	4.40	20	3.73	16	3.76	17	1.84	7
<b>WORLD</b>	<b>1738.80</b>	<b>26</b>	<b>1047.60</b>	<b>16</b>	<b>898.60</b>	<b>13</b>	<b>784.20</b>	<b>12</b>	<b>472.90</b>	<b>7</b>

NOTES: The food expenditure (fexp) for the baseline diet scenario (BMK) here is the same as in the case of health cost. The fexp for other diets are different and are implicit in the GHGc/fexp % calculation. BMK = benchmark, FLX = flexitarian, PSC = pescatarian, VEG = vegetarian and VGN = vegan. GHGc stands for the cost of greenhouse gas emissions.

SOURCE: FAO, IFAD, UNICEF, WFP and WHO. 2020.



of which are countries in the Central Asia subregion – likely due to the predominance of livestock agriculture and a relatively high level of animal-based food consumption.

Finally, it is important to recognize that continuous, innovative solutions as a part of climate-smart agriculture are required when discussing structural adjustments on account of climate change and health costs associated with food production and the consumption of healthy diets.

### Combined health and climate change costs

Having calculated the two major negative externalities as the diet-related costs to be fully realized by 2030 on a per-year basis, they can be combined to calculate not only the monetary costs but also the total hidden costs (sometimes called private costs). It is useful to compare the total “hidden” health and environmental costs of a food expenditure with its monetary costs.

These external costs, which are usually not internalized in the price of the items, are borne separately, knowingly or unknowingly, by individual consumers, by governments (in the case of social or subsidized health care systems and mitigating pollution impacts) or by society as a whole.

As shown in [Table 15](#), the total annual hidden costs for the ECA-11 region, measured by health and climate change costs, are projected to be USD 214 billion by 2030. In relative terms, these add USD 0.58 to every dollar spent on food, much higher than the USD 0.45 added at the global level. Health costs dominate in the ECA-11 region much more than they do at the world level.

Among the ECA-11 countries, the lowest combined hidden costs to every dollar spent on food is USD 0.30 in Turkey, while the highest is estimated in the Russian Federation, at USD 1.08, mainly driven by high health costs. The median level of hidden costs in the ECA-11 region, that of Armenia, is at USD 0.50 added to every dollar of food spending, slightly more than the world aggregate level of USD 0.46. These estimates are based on the baseline scenario, which more or less assumes the continuation of current dietary patterns.

In comparison, Eastern Europe’s total hidden costs are found to be very high, at 87 percent of their total monetary food expenditure in the baseline scenario, primarily due to their projected large health cost bill by 2030.

If we divide the countries at the median cost level (at 50 percent hidden cost for Armenia) into two groups – countries with low hidden costs and countries with high hidden costs (see [Figure 27](#)) – it can be deduced that environmental costs are dominant in the first group and health costs are dominant in the second. Arguably, this could be attributed to the relative importance of livestock-based products in current food systems and dietary patterns.

In summary, these 2030 projections show that the combined impact of hidden costs is estimated at 58 percent in the ECA-11 region and 45 percent worldwide. These findings are similar to the findings of other independent studies, despite the differences in the methodologies employed. For example, as shown in [Table 16](#), in the study from the United Kingdom of Great Britain and Northern Ireland (Fitzpatrick *et al.*, 2019), 97 percent hidden costs are added to the monetary costs of food; however, comparable items in the FAO study amount to only 48 percent (including the 37 percent health costs and 11 percent greenhouse gas costs).

Another recent study by Mehrens (2020) concludes that total hidden costs add as much as 78 percent to the monetary cost of food in Germany (2017 estimates), of which the food consumption-related health costs add 26 percent and environmental costs due to greenhouse gas emissions add about 20 percent in FAO comparable category costs (see [Table 16](#)).

Environmental hidden costs could be relatively much higher in livestock-producing countries, and health costs could be relatively lower in less-developed countries. These and other studies indicate that a shift to healthy and sustainable diets would significantly reduce those externalities. However, the approach would differ for each country, depending on its local agricultural situation, food security concerns, and the extent of gains/losses of the old and new systems. The methodology and specific country-level costs are discussed below.

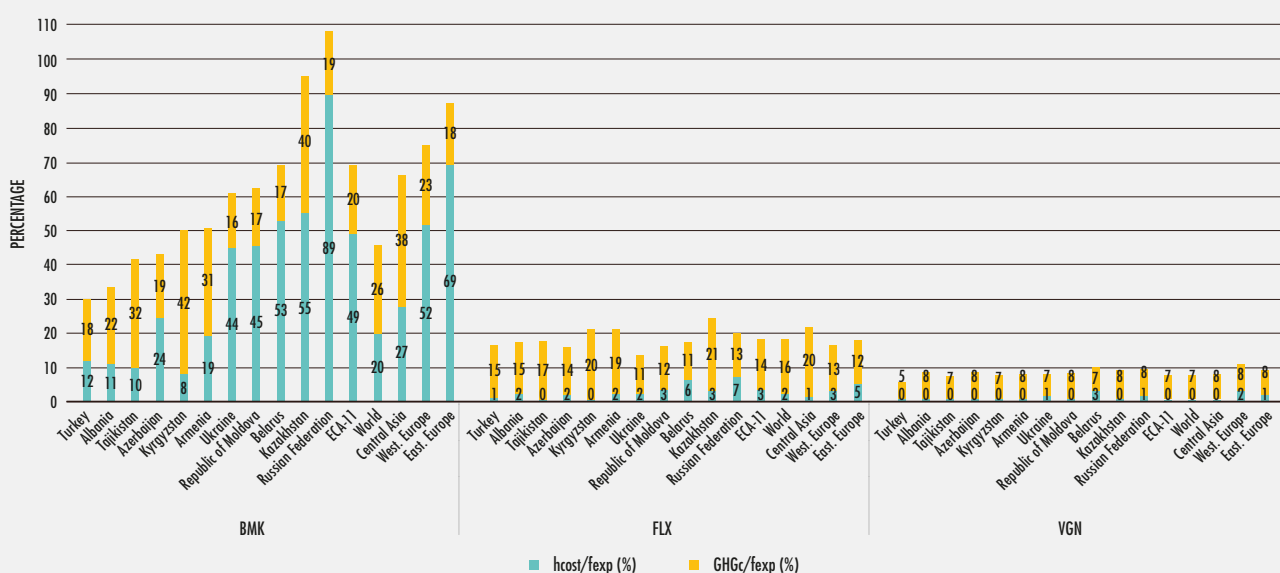
**TABLE 15**  
**TOTAL HIDDEN COSTS OF FOOD: PROJECTIONS OF HEALTH AND ENVIRONMENTAL COSTS IN RELATION TO MONETARY FOOD COSTS FOR SELECTED COUNTRIES OF THE ECA-11 REGION IN 2030, BILLIONS USD**

Country/Region	hcost	GHGc	hcost & GHGc costs	fexp	hcost/fexp (%)	GHGc/ fexp (%)	hcost & GHGc/ fexp (%)
Albania	0.4	0.7	1.1	3.1	11	22	33
Armenia	0.5	0.8	1.3	2.6	19	31	50
Azerbaijan	1.8	1.4	3.2	7.6	24	19	43
Belarus	4.5	1.4	5.9	8.6	53	17	69
Kazakhstan	9.3	6.8	16.1	16.9	55	40	95
Kyrgyzstan	0.4	2.1	2.5	4.9	8	42	50
Republic of Moldova	0.8	0.3	1.1	1.9	45	17	62
Russian Federation	106.3	22.3	128.6	119.2	89	19	108
Tajikistan	0.4	1.2	1.6	3.7	10	32	41
Turkey	12.7	19.8	32.5	110.1	12	18	30
Ukraine	15.0	5.4	20.4	33.8	44	16	61
ECA-11	152.1	62.1	214.2	312.2	34	25	58
Western Europe	86.9	39.5	126.4	168.6	52	23	75
Eastern Europe	166.1	42.2	208.3	239.7	69	18	87
Central Asia	10.0	10.0	20.0	25.5	24	38	62
<b>WORLD</b>	<b>1 311.0</b>	<b>1 738.8</b>	<b>3 049.8</b>	<b>6 710.4</b>	<b>20</b>	<b>26</b>	<b>45</b>

NOTES: hcost = health costs, GHGc = greenhouse gas emission costs (on environmental costs of diets focusing only on greenhouse gas emissions), fexp = food expenditure (wholesale costs of food). All figures given are projections to 2030 (in USD billions per year) under the baseline (BMK) dietary scenario.

SOURCE: FAO, IFAD, UNICEF, WFP and WHO. 2020.

**FIGURE 27**  
**TOTAL HIDDEN COSTS: HEALTH AND ENVIRONMENTAL COSTS IN RELATION TO MONETARY FOOD EXPENDITURES IN THE SELECTED COUNTRIES OF THE ECA REGION, 2030 PROJECTION**



SOURCE: FAO, IFAD, UNICEF, WFP AND WHO. 2020.

**TABLE 16**  
**COMPARISON OF FAO ESTIMATES OF HIDDEN COSTS AND THOSE FROM RELEVANT INDEPENDENT STUDIES**

	Fitzpatrick, <i>et al.</i> (2019 Rev)	Mehrens (2020)	FAO global report ( <i>The State of Food Security and Nutrition in the World 2020</i> )	
	UK - 2015 est.	Germany -2017 est.	World, 2030 proj.	ECA-11, 2030 proj.
Food consumption-related health costs (%)	37	26	20	49
GHG emissions and air pollution costs (%)	11	20	26	20
Total hidden costs (%)	48	46	46	69

SOURCE: FAO, IFAD, UNICEF, WFP and WHO. 2020.

It should be noted that none of the four selected dietary scenarios (FLX, PSC, VEG and VGN) is entirely free from health and environmental costs. However, the costs associated with them are much lower in comparison with the baseline BMK scenario (see [Figure 28](#)) at the ECA-11 region level. This indicates that a transition to these four alternative diets would result in substantial economic savings, improve the population's health and promote a cleaner environment.

In conclusion, it can be stated that the adoption of healthy and sustainable dietary patterns would lead to significant reductions in societal costs by 2030 (see [Figure 28](#)). Depending on the dietary scenario adopted, there would be a potential reduction from 93 percent for the flexitarian diet scenario to 99 percent for the vegan diet scenario in diet-related health costs, compared to the corresponding costs of the baseline diet in the ECA-11 region. In diet-related greenhouse gas emissions costs, the reduction would be 40 percent for flexitarian diets and 69 percent for vegan diets, and in diet-related combined hidden costs, the reduction would be 68 percent for flexitarian diets and 85 percent for vegan diets. Typically, the greatest reduction is found with the vegan diet, and the smallest reduction is found with the flexitarian diet.

Taking an alternative approach and considering the food costs and combined hidden costs together, the cost savings (i.e. the full cost of a given healthy diet compared to the full cost of the benchmark diet) would be 33 percent for the

vegetarian diet and 32 percent for the vegan diet (see [Figure 28](#)). The benefits would be lowest but still significant, at 28 percent, for the pescatarian diet. The differences in cost savings among the four selected diet options are small, indicating that a transition to a mix of these healthy diets would yield cost savings of around 30 percent from the baseline (unhealthy) diet. These benefits potentially could increase over time with the innovation and adoption of new technologies involving climate-smart agriculture.

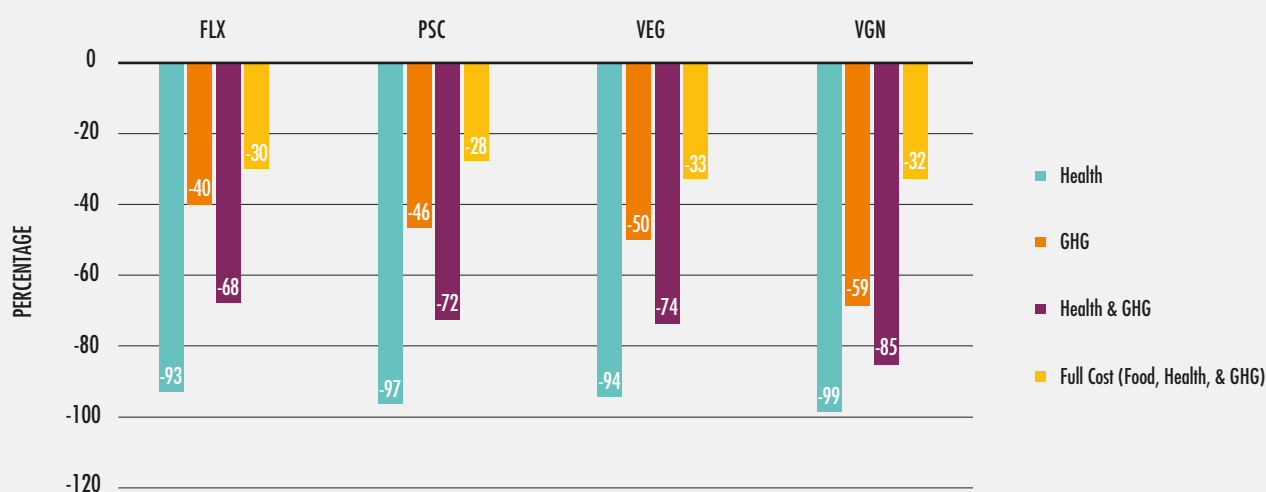
Finally, it should be mentioned that to ensure the necessary transition, the countries of the region will need to tackle the many and unique challenges of designing, promoting and implementing national food security strategies that are more nutrition-centric, with healthy diets for all. ■

## 2.3 FOOD COST DRIVERS AND POLICIES TO ENSURE THE AFFORDABILITY OF HEALTHY DIETS

### KEY MESSAGES

- Considering the various hunger-related targets in the Sustainability Development Goals (SDGs), along with all forms of malnutrition and climate-related consequences, the successful adoption of healthy diets with sustainability

**FIGURE 28**  
**COST SAVINGS OF REGIONAL ADOPTION OF HEALTHY AND SUSTAINABLE DIETS COMPARED TO BENCHMARK DIETS**  
**IN ECA-11 COUNTRIES IN 2030**



NOTES: fexp = food expenditure (wholesale costs of food), hcost = health costs, GHGc = greenhouse gas or environmental costs, all per year by 2030 (projection). Also, BMK = baseline scenario, FLX = flexitarian, PSC = pescatarian, VEG = vegetarian and VGN = vegan.

SOURCE: Calculated based on the same database used in FAO, IFAD, UNICEF, WFP and WHO. 2020.

considerations may, in the long run, require some trade-offs in activities and goals while taking advantage of the inherent synergies.

- As in the results described in *The State of Food Security and Nutrition in the World 2020*, factors in the realms of food production, food supply chains, food environments, consumer demand, food loss and waste, and the political economy of food can alter the monetary and hidden costs and affordability of food in the ECA region.
- The existing significant gaps in food productivity and diversity among the countries of the region provide an opportunity to drive down food costs and improve affordability in the long run.

- Similar to other regions, capacity-enabling hard infrastructure (such as adequate food storage, transportation infrastructure and food preservation capacity) and soft infrastructure (such as marketing and financial facilities) are necessary for the efficient functioning of food supply chains that can drive down the cost of nutritious, healthy foods.
- Similar to the food supply, factors that alter consumer demand – such as relative food prices, per capita incomes and income distribution – are important, as they affect the costs and affordability of healthy diets.
- Other non-monetary factors – including nutrition education, training and lifestyle modification – can change consumer tastes, preferences and demand. Nutritional standards

and food content information regarding nutrients, fat, added sugar and salt in prepared foods and drinks can result in significant positive changes in the consumer demand for healthy foods.

- To improve the availability of healthy foods, policies providing incentives – such as smart subsidies aimed at smallholder farmers, in the short run, and public and private sector investments, in the long run – are required in the entire supply chain. Similarly, policies of imposing disincentives (taxation) for unhealthy, energy-dense foods and drinks with significant amounts of fats, sugar and salt can be effective in reducing their consumption.
- Policies to stimulate demand for healthy foods and increase their affordability will involve raising purchasing power by creating incomes and lowering food prices for low-income and vulnerable sections of the population in each country.
- Policies that encourage the trade of food items can improve diversity and lower prices in importing countries and increase incomes in exporting countries.
- Policies that set up international financing facilities for structural adjustment (e.g. transition from animal-based to plant-based agriculture), in high-income countries (such as the European Union green deal) and lower-income countries, would benefit not only the affected populations but also the global community because of reduced greenhouse gas emissions.
- The impacts of climate and environmental changes increasingly challenge current governance efforts to develop and implement adaptation responses. Global warming is projected to increase the number of water-stressed regions and to exacerbate shortages in regions already dealing with water difficulties. Policies are needed that support sustainable land management, reduce air pollution, ensure the supply of food for vulnerable populations, reduce crop loss and limit greenhouse gas emissions associated with agriculture. Sustained long-term monitoring; the sharing of data, information and knowledge;

and improved context-specific forecasts and analysis can help manage the negative impacts of climate and environmental changes.

- Achieving these priorities would require that the ECA region take the following actions: (i) improve governance, systems thinking, policy coherence and coordination; (2) conduct multi-sectoral analysis to understand synergies and trade-offs; and (3) hold evidence-based, inclusive, multi-stakeholder policy dialogue to manage trade-offs and make the most balanced decisions.

Healthy diets generally cost more than energy sufficient or nutrient adequate diets. Consequently, to make them more affordable, one needs to analyse cost drivers and methods for reducing their impact. Hence, this section discusses some of the major factors considered as cost drivers of healthy diets that are particularly relevant for the countries of the ECA region. These follow the conceptual framework discussed in *The State of Food Security and Nutrition in the World 2020*.

The cost of a healthy diet can be a barrier to quality dietary patterns, but even when enough income is available, some people may not adopt healthy diets for other reasons. Poor dietary choices can lead to issues of overweight, obesity and other nutrition-related diseases. Therefore, it is also important to elaborate on various impediments and the policies required to make the transition to healthy eating a reality. As such, the following two sections elaborate on these issues.

### Trade-offs and synergies in transforming food systems for achieving healthy diets

The main theme of this 2020 report regards a transition from the current consumption patterns and agricultural production systems to an improved system of healthy and sustainable consumption and availability (through production and trade). This requires an evaluation of the measurable potential benefits and costs of current dietary patterns and of healthier and more sustainable alternatives. A successful transition will allow countries to meet their targets for SDG 2 related to hunger, food insecurity and all forms of malnutrition, and to contribute to achieving SDG 3 on health and SDG 13 related to climate-related consequences of

dietary patterns. However, these SDG targets are interrelated and may involve trade-offs and synergies in the activities required.

On the cost side, not only must the costs of various diets borne by the consumer be considered, but also the hidden costs in terms of the diets' implications for social (health) and the environment.

The countries of the ECA region – primarily those in the upper-middle- and lower-middle-income categories – face problems of undernutrition more than undernourishment, as mentioned in Part 1 of this report. This presents special challenges and opportunities for the countries in the region. For example, in areas where the food system is also a backbone of the rural economy, the intended structural change<sup>36</sup> (i.e. fewer livestock and more crop agriculture) could mean dramatic impacts through direct and multiplier effects on income, employment and the livelihoods of smallholder farmers and the rural poor.

Care must be taken – especially in lower-income, developing countries – to mitigate the negative impacts of this transition, and there may be a need to allow an increase in these countries' national greenhouse gas emissions to enable them to meet their nutrition targets and livelihoods. Countries predominantly dependent on livestock production may also need to see how best to make a structural transition for production diversification. This could have significant implications for the speed and modalities of progress towards greenhouse gas reduction targets.

Looking at data from FAOSTAT on the relative contribution of livestock to total agricultural production, more than 50 percent of agricultural production in Belarus, Georgia and Kyrgyzstan is related to livestock. Also, Albania and Turkmenistan demonstrate similarly high livestock dependency, at more than 40 percent of total agricultural production. These are the countries that may come up against the biggest challenges in terms of making the structural adjustment to healthy diets with sustainability considerations, which typically see production diversification towards nutritious foods and a reduced role for overall livestock consumption.

Furthermore, the structural adjustment/transition costs are borne privately by each country, and the environmental benefits accrue to the global

community. Hence, a detailed policy analysis to accept some trade-off between, say, greenhouse emissions and economic performance, in the short term, may be necessary. For example, Kyrgyzstan is one of the three lower-middle-income countries in the region. A large part of its economy is dependent on livestock production, with almost 55 percent of total agricultural gross domestic product coming from the livestock sector. Economies already devastated by the COVID-19 pandemic may have difficulty making long-term sustainability a priority and accepting lower productivity without regional/international assistance.

The recommended structural change for a transition to a healthy production/consumption system would have a significant impact on the incomes, livelihood, food security and nutrition of those affected. As stated in *The State of Food Security and Nutrition in the World 2020*, “for countries where the food system not only provides food but also drives the rural economy, it will be important to consider the impact of shifting to healthy diet patterns in terms of the livelihoods of smallholder farmers and the rural poor as well. In these cases, care must be taken to mitigate the negative impact on incomes and livelihoods as food systems transform to deliver affordable healthy diets.”

## Principal cost drivers

Some of the principal drivers that can affect, not only monetary costs but also hidden costs, and the affordability of healthy diets relevant to this region are outlined below.

### **Diversity and supply of food products in the country**

As demonstrated by various national food-based dietary guidelines and the recommendations of World Health Organization, EAT-Lancet Commission and *Global Burden of Disease* studies, the diversity of food products is a key element of healthy diets. The more diverse the choices, generally speaking, the more nutritious and cheaper the diet. One of the measures of the diversity of products in marketing literature is the concentration ratio, which measures the share of the most dominant products in the industry or the economy. If a country produces a handful of specialized products, then the concentration ratio



**TABLE 17**  
**INDICATIVE FOOD DIVERSITY IN SELECTED COUNTRIES OF THE ECA REGION**

	Georgia, Caucasus	Albania, Western Balkans	Kyrgyzstan, Central Asia	Ukraine, European CIS
Number of plant-based food products	42	58	61	73
Number of animal-based food products	19	15	19	20
Number of total food products	61	73	80	93
Number of agricultural products	63	76	85	97
Diversity rank based on top five product share	2	1	3	4
Diversity rank based on the number of plant food products	4	3	2	1

SOURCE: Based on FAOSTAT data.

would be high, indicating low diversity. As such, considering the share of production value of the top five products among four selected countries,<sup>37</sup> Albania, in the Western Balkans subregion, shows the most diverse distribution of products in agriculture (see Table 17). However, by another indicator of diversity – the number of food products available for consumers based on domestic production data – it is Ukraine, in the European CIS subregion, that displays the highest diversity.

For a concrete conclusion, one would have to examine several critical food groups, assess the availability from a consumption survey (or food availability data from food balance sheets) similar to the analysis in Section 1.4 of this report, and then establish diversity in each group, combining all diversity scores into one composite score.

Finally, it is important to note that diversity of availability does not only come from domestic production but can also be achieved through trade. The importation of food items produced in other countries at greater economic efficiency and the exportation of surplus domestic production where the country finds a comparative advantage can harness trade gains and improve the diversity of healthy diets in both countries.

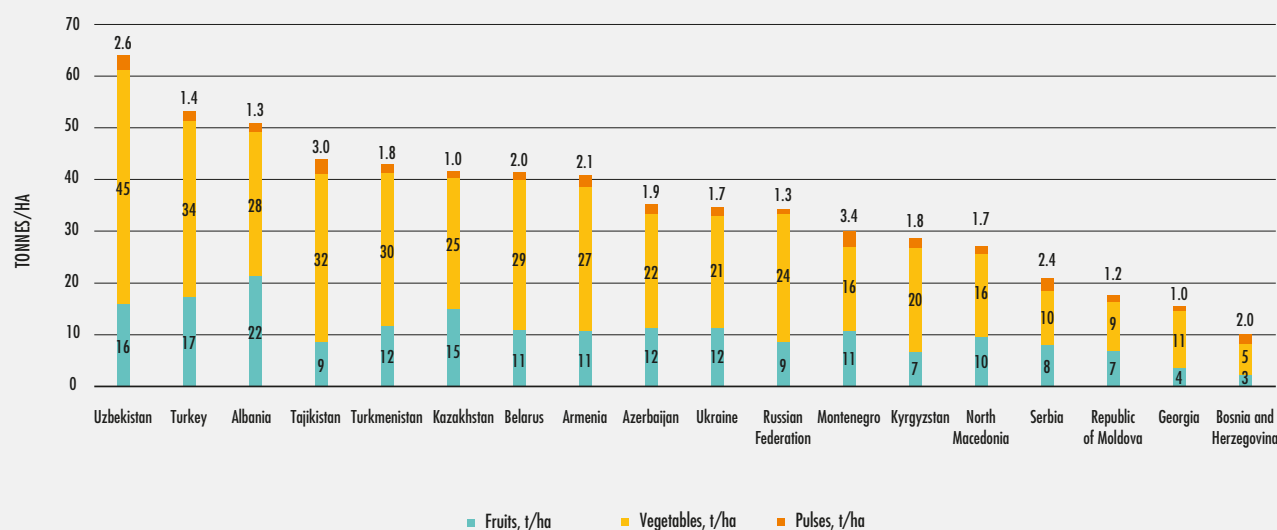
### *The productivity of food commodities in the country*

Another food production-related cost factor is the productivity of various food products considered essential in a healthy diet. In general, higher productivity leads to a lower per-unit cost of that food. Even with the liberalized trade environment, resource-use efficiency gains can help reduce food prices directly and/or improve the incomes and overall affordability of healthy diets.

The productivity of selected plant-based commodity groups critical for healthy diets (namely fruits, vegetables and pulses/legumes, which are also currently consumed at below-recommended levels in general in the ECA region) is presented in Figure 29. It is surprising to see the variation in the yield per hectare in the 18 countries of the region. For example, vegetable yields range from 6 tonnes/ha in Bosnia and Herzegovina to 45 tonnes/ha in Uzbekistan, implying opportunities to improve productivity in the region.

Similarly, pulse yields can be up to three times, for example in Tajikistan, as compared to Georgia or Kazakhstan. Of course, local resource conditions determine yields to some extent, but the harmonization of technologies (types of seed, input use and other management practices) can lead to improvements in productivity, resulting in the lowering of prices. Furthermore, vast

**FIGURE 29**  
**PRODUCTIVITY (YIELD) OF SELECTED FOOD COMMODITIES IN SELECTED ECA COUNTRIES, 2018 (TONNES/HA)**



SOURCE: FAOSTAT.

differences in the productivity of animal-based food products (milk and meat) are evident in the FAOSTAT data (not shown here).

### **Enabling infrastructure in the supply chain for delivery of and access to food**

One of the major drivers of food costs is the existence and state of infrastructure for food delivery from the farm gate to the final consumer. This includes hard infrastructure – such as storage facilities, transport infrastructure and food preservation capacity, especially for highly perishable foods – and soft infrastructure, such as efficient market access (market structure, conduct and performance) and financing facilities along the supply chain for food commodities.

The costs of food items are harmonized and stabilized by reducing price volatility when supply becomes available in all parts of the country and throughout the year. The geographic and seasonal or temporal volatility of key food prices is a good indicator of the power of this factor.

Typically, the estimates of food loss and waste reflect the existence and quality of various infrastructure facilities and services in each country. Results from a case study (Themen, 2014) covering Armenia, Turkey and Ukraine show a huge variation in loss and waste estimates. For example, the loss and waste of fruits and

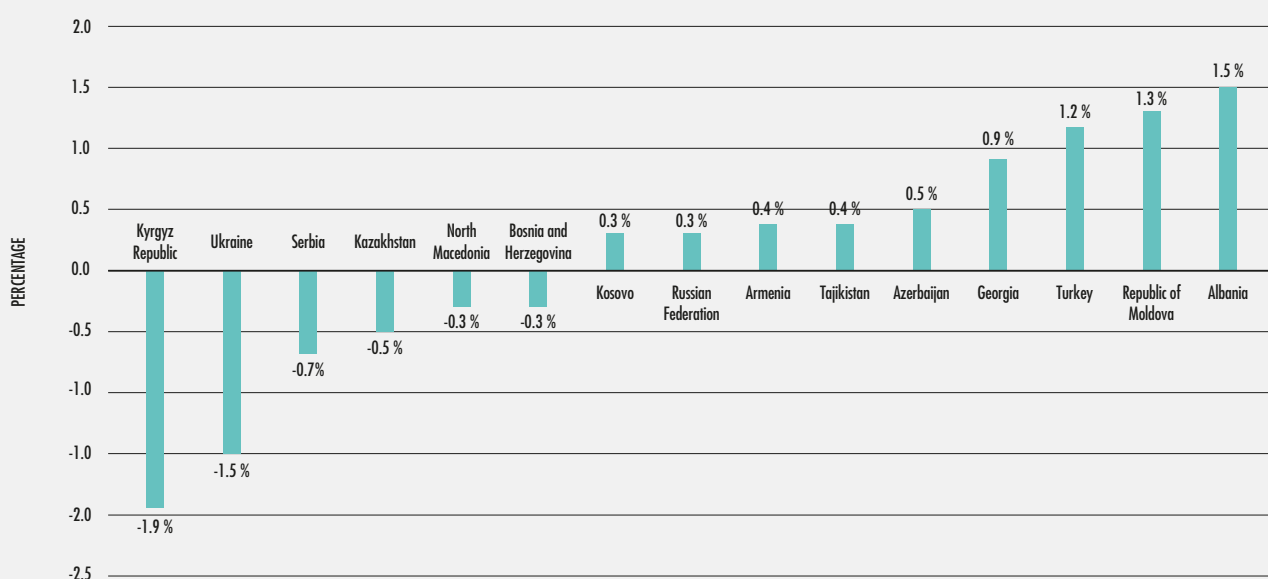
vegetables varies from 20 percent in Armenia to 58 percent in Ukraine. Similarly, cereals lost in the supply chain are equal to 17, 35 and 38 percent of the consumable production in Turkey, Ukraine and Armenia, respectively. Milk and dairy losses of 9 percent in Armenia and 38 percent in Ukraine are indicative of the quality of transport, storage and processing infrastructure in each country. This information demonstrates the critical role of this factor in determining the final costs of food for consumers.

### **Consumer demand – food prices, income and income distribution**

The price of food is perhaps the most important cost driver when it comes to establishing the cost and affordability of food. Moreover, it is not just the absolute level, but changes over time (i.e. the food price index relative to the general consumer price index) that determine changes in real purchasing power and therefore access to affordable quality food over time. For the selected countries of the ECA region, these relative food price changes (year-on-year), as a ten-year average, are presented in [Figure 30](#).

The examination of the data on the consumer food price index deflated by the overall consumer price index and averaged over the past ten years (year-on-year changes) shows that food has

FIGURE 30  
REAL FOOD CPI CHANGE, 10-YEAR AVERAGE (2009–2018), ECA-15



NOTE: All references to Kosovo should be understood to be in the context of United Nations Security Council resolution 1244 (1999).  
SOURCE: Based on FAOSTAT data.

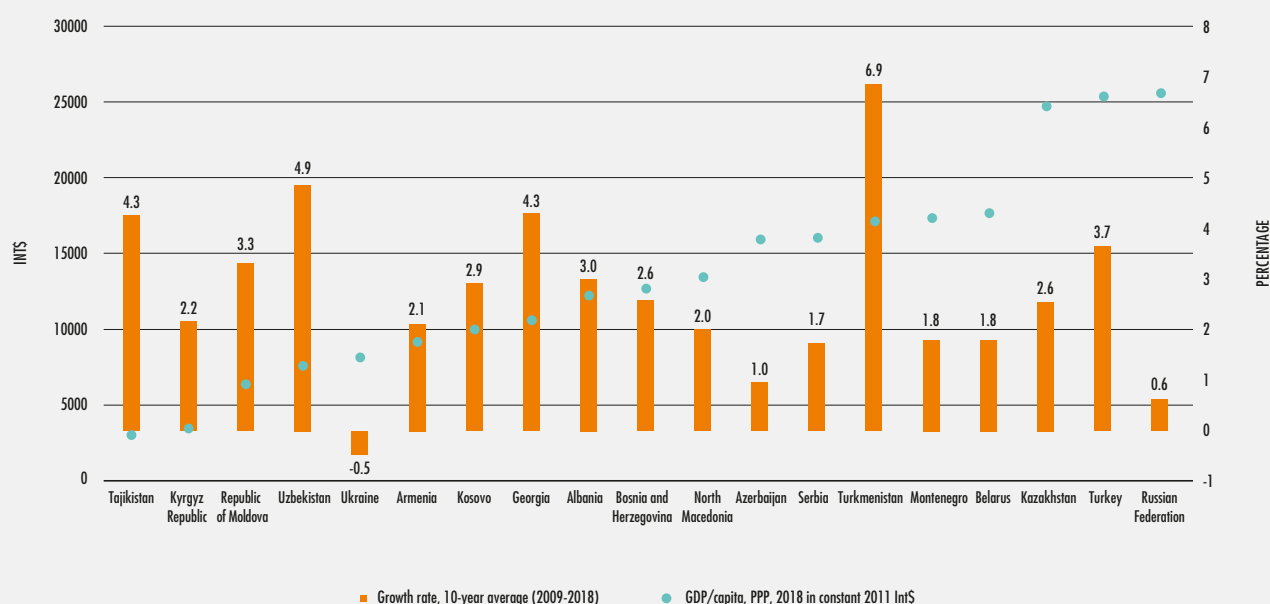
become relatively more expensive than all other commodities in nine of 15 ECA countries, to varying degrees. On the other hand, food has become relatively less expensive in six countries. The overall range of this change is -1.9 percent in Kyrgyzstan to 1.5 percent in Albania.

The most important factor in determining the affordability of diets is per capita income and the changes to income over time. The absolute level of per capita income in 19 selected countries and their average annual growth rate is presented in [Figure 31](#). The absolute level helps in the comparison across countries, while the growth rate aids in the over-time comparison for each country. There is a wide variation in the level of per capita income, ranging from Int\$ 3 061 in Tajikistan to Int\$ 25 629 in the Russian Federation (World Bank 2018 estimates in constant 2011 purchasing power parity).

The growth rates (a simple average of ten-year annual change) have also varied significantly for all countries except Ukraine, which exhibits a negative growth rate possibly due to the conflict situation (see [Figure 31](#)). According to World Bank data, Turkmenistan recorded an impressive annual growth rate of 6.9 percent over the 2009–2018 decade. Most countries have growth rates of over 2 percent per annum. This information reveals the current status of the economy, which in turn points to the potential impact in the coming years as far as food costs and affordability are concerned.

Another cost driver factor in the purchasing power category has to do with the distribution of income. The methodology to calculate the percentage (or number) of people who cannot afford a given healthy diet is based on the underlying income distribution

**FIGURE 31**  
**GDP PER CAPITA (PPP, CONSTANT 2011 INT\$) AND GROWTH RATE, 2009–2018 AVERAGE, ECA-19**



NOTES: The ECA-19 referred to here includes the ECA-18 countries plus Kosovo. All references to Kosovo should be understood to be in the context of United Nations Security Council resolution 1244 (1999).

SOURCE: World Bank.

in the country. Income inequality is measured by the Gini coefficient. The lower the value of this coefficient (within the possible range of 0 to 100 or 0 to 1) the better, as it implies less inequality or more equality of income distribution in the country. The World Bank publishes these estimates periodically for selected countries for which data are available.

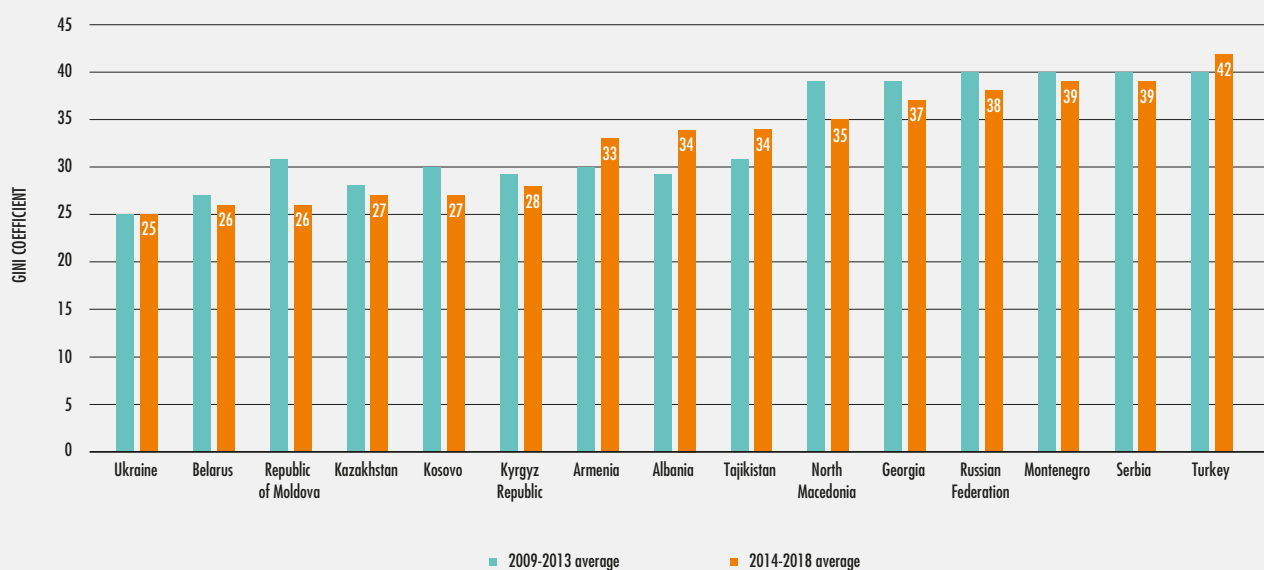
The Gini coefficients for the 15 selected countries of the ECA region are presented in [Figure 32](#). Only six of the 15 countries have a Gini coefficient value under 30, using the latest period estimates. There has been a rapid increase in this inequality indicator in Armenia, Albania, Tajikistan and Turkey. This factor, similar to income size and growth, deals more with affordability than the cost of healthy diets.

Finally, it should be recognized that the existing consumer demand is a reflection of the tastes and preferences of the population. In many cases, the non-monetary factors such as nutrition education, training, and lifestyle modification can play a major role in the country's population transitioning to healthy dietary habits. Therefore, government regulations on nutritional standards, information and product labelling including the nutrients, fat, sugar, and salt content of food and drinks can contribute to significant positive change in the consumer demand for healthy foods.

### ***The political economy and the policy environment***

The political economy, or policy environment, as outlined in *The State of Food Security and Nutrition*

FIGURE 32  
GINI COEFFICIENTS OF INCOME INEQUALITY IN ECA-15, 2009–2013 AND 2014–2018



NOTE: All references to Kosovo should be understood to be in the context of United Nations Security Council resolution 1244 (1999).  
SOURCE: World Bank estimates. 2020.

in the World 2020, is an important cost driver, as it can have an impact similar to that of an incentive or disincentive to certain commodities. This government protection (or its opposite) is typically measured by the observed end effect on the market prices of the commodities involved and is called the nominal rate of protection (NRP). The NRP measures the distortion of a commodity price received by farmers from its true economic price. It can be positive, in favour of the producer, or negative, in disfavour.

A fairly long series of NRPs for Kazakhstan, published by ag-incentives.org, is presented in Table 18. The same database also covers Russian Federation, Ukraine and Turkey in the ECA region, and further study can be done on these three countries in the region. However, no data

are available for other low- or middle-income countries in the region. The NRP indicator for total agricultural (crop and animal) products has shown negative values for four of the past five years (it was positive for 2015), meaning that agriculture and food production in Kazakhstan has been taxed. This is a negative factor overall for the affordability of food. The implications of this for the affordability of healthy diets, *per se*, would depend on the NRP coefficient values for the so-called healthy foods.

From the table, it can be seen that the NRP for several grains, oilseeds, sunflower seeds and others is negative (taxation), while for fruits and vegetables it is zero (neutral) in the past several years, from 2013 to 2018. For most red meats and other animal products, it is positive (subsidies).



**TABLE 18**  
**NOMINAL RATE OF PROTECTION FOR CROP AND ANIMAL PRODUCTS IN AGRICULTURE, 2005–2018, KAZAKHSTAN**

Product	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average 2005- 2018
Barley	-17.2	8.1	-34.8	-25.3	57.8	-2.5	-16.0	-15.4	-7.2	-5.4	3.7	-18.5	7.2	-0.3	<b>-4.7</b>
Cotton	7.5	19.9	21.7	25.0	0.1	54.7	-11.4	8.2	4.5	-9.5	4.3	-10.0	-0.8	4.4	<b>8.5</b>
Fruits and vegetables	0.0	0.0	1.6	2.1	8.4	0.0	8.5	11.4	0.0	0.0	0.0	0.0	0.0	0.0	<b>2.3</b>
Grains	0.6	-1.2	-19.3	-31.8	7.2	-8.9	-19.5	-18.4	-7.1	-20.6	-7.3	-21.7	-16.3	-18.4	<b>-13.0</b>
Maize	-1.3	10.4	-3.8	-37.8	-10.1	-17.6	-32.2	-24.2	15.4	-28.3	-11.9	-6.1	-22.7	-24.2	<b>-13.9</b>
Oilseeds and products	-3.3	10.4	-13.1	-2.7	6.1	-28.8	19.6	-13.5	2.5	-35.4	-52.4	-48.5	-43.5	-42.3	<b>-17.5</b>
Other	7.5	19.9	21.7	25.0	0.1	54.7	-11.4	8.2	4.5	-9.5	4.3	-10.0	-0.8	4.4	<b>8.5</b>
Potatoes	0.0	0.0	1.6	2.1	8.4	0.0	8.5	11.4	0.0	0.0	0.0	0.0	0.0	0.0	<b>2.3</b>
Rice	5.1	-34.5	-31.5	-54.6	-29.6	-23.4	-51.3	-47.1	-42.0	-39.8	-23.5	-49.8	-53.8	-53.2	<b>-37.8</b>
Sunflower seeds	-3.3	10.4	-13.1	-2.7	6.1	-28.8	19.6	-13.5	2.5	-35.4	-52.4	-48.5	-43.5	-42.3	<b>-17.5</b>
Wheat	15.7	11.1	-7.0	-9.4	10.7	8.0	21.7	13.2	5.6	-8.8	2.7	-12.6	4.2	4.2	<b>4.2</b>
Bovine meat	15.7	27.6	19.8	3.2	6.0	1.3	2.1	17.3	57.5	8.3	16.0	0.0	0.0	9.8	<b>13.2</b>
Eggs	13.8	34.9	31.3	39.1	33.6	31.4	16.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>14.3</b>
Milk	25.8	8.7	0.0	0.0	18.4	0.0	0.0	2.8	0.0	0.0	21.0	0.0	0.0	0.0	<b>5.5</b>
Pig meat	5.6	10.4	18.5	24.3	16.8	42.0	35.0	58.4	31.1	9.8	24.2	0.0	0.0	0.0	<b>19.7</b>
Poultry meat	107.5	128.7	14.0	16.2	15.1	9.3	0.9	2.9	1.6	18.5	5.9	0.0	0.0	0.0	<b>22.9</b>
Sheep meat	0.0	2.5	16.9	17.1	0.0	0.0	0.0	43.7	33.9	25.9	17.4	0.0	0.0	0.0	<b>11.2</b>
Animal products	28.1	35.5	16.7	16.6	15.0	14.0	9.1	20.9	20.7	10.4	14.1	0.0	0.0	1.6	<b>14.5</b>
<b>TOTAL</b>	<b>13.5</b>	<b>18.3</b>	<b>2.6</b>	<b>-0.2</b>	<b>10.3</b>	<b>5.7</b>	<b>-0.5</b>	<b>4.4</b>	<b>7.9</b>	<b>-5.0</b>	<b>0.6</b>	<b>-11.2</b>	<b>-8.4</b>	<b>-7.8</b>	<b>2.2</b>

SOURCE: Ag-Incentives. 2020.

These NRPs can affect food production in two ways: In the short run, the implicit taxation can decrease farm gate prices, and in the long run, they provide a disincentive for investment and production in general.

In the new paradigm of nutrition-centric food security policies, this cost factor can be used to help in the adoption of healthy diets, provided these NRPs are used in line with the principles of smart incentives.

## Policies to reduce the cost and ensure the affordability and adoption of healthy diets

A comprehensive approach to policies is required so that both the supply side and demand side of healthy foods are stimulated in a coherent way. Furthermore, a national and/or regional nutrition-centric food security and nutrition strategy is required for countries to move closer to their relevant 2030 Sustainability Development Goal targets. This transformation, however, is likely to involve a major structural change in the agricultural production system to augment the availability of nutritious food items and to de-emphasize unhealthy commodities. On the other hand, policies to improve consumer access to healthy diets, encourage healthier eating, facilitate demand for healthy foods and create a general enabling environment also are critical for successful transformation.

There is a set of policy instruments to choose from, depending on their context and circumstances. The key policy instruments, consistent with those outlined in *The State of Food Security and Nutrition in the World 2020*, are briefly mentioned here. The policies can be grouped into three sets: supply-affecting policies, demand-affecting policies and general national/international enabling environment-creation policies.

### **Policies to improve the supply of healthy foods throughout the country**

Such policies aim to improve the availability of healthy foods at affordable prices and also increase supply chain efficiency by providing incentives to producers. This typically involves the provision of smart subsidies or price incentives to smallholder producers. The smart subsidies typically involve the objective of pro-poor economic growth, development of local markets, promotion of competition in input supply, pursuit of regional integration, and the clarity of an exit strategy, among other desirable goals (Morris *et al.*, 2007; Baltzer and Hansen, 2011). Ideally, the subsidy support is provided on a short-term basis to get smallholder farmers used to adopting lucrative but risky technologies or services, including fertilizer applications and the use of improved seeds. Besides incentives for desirable healthy foods and foster improved use and

management of natural resources, there can be disincentives (i.e. direct or implicit taxes) on those commodities deemed to be unhealthy, typically to internalize the negative externalities caused. The taxation of energy-dense unhealthy foods and beverages with minimal nutritional value has proven to reduce consumption in some countries (FAO, IFAD, UNICEF, WFP and WHO, 2020).

The COVID-19 pandemic has disrupted the national economies and real gross domestic products of emerging markets and developing economies in the ECA region. Countries will need to rebalance budget allocations to mitigate COVID-19 and short-term food security problems and incentives towards nutrition-sensitive investment and policy actions.

In addition to the subsidy/tax regime, more economically efficient and sustainable solutions in the long term can be found. These, for example, include public-private investments in technologies, infrastructure and others to produce more with less cost and make food affordable to many.

Besides the primary production sector, policies to improve supply chain efficiency to avoid losses is equally important. Once the food is produced, it needs to be made accessible to the final consumer. The efficiency of this depends on how the produced food is transported, preserved, stored and handled through the marketing systems. Improvement in the efficiency of the supply chain, therefore, involves necessary capacity-enabling hard infrastructure (such as adequate food storage, transportation infrastructure and food preservation capacity) and soft infrastructure (such as marketing and financial facilities) for the efficient functioning of food supply chains. Studies have shown that food loss and waste is high in the region, typically 20–40 percent for grains and other non-perishables and more than 50 percent for perishable food commodities (Themen, 2014). Investments in this supply chain infrastructure, therefore, are essential. This can be facilitated by government policies, with appropriate tools in each area in each country. Policies in support of sustainable food consumption and food waste reduction are also recommended by *The State of Food Security and Nutrition in the World 2020*.

### **Policies to improve access to and facilitate demand for healthy foods**

Increasing access through higher purchasing power includes better income-earning opportunities for low-income populations and lower prices for vulnerable people. It also may involve publicly supported safety net policies, especially to deal with emergencies and disasters.

However, the problem of not eating healthy food does not always relate to the ability or inability to pay. The choice of dietary pattern also is a matter of lifestyle, taste preference and knowledge of nutritional consequences. Therefore, it is necessary to raise awareness and acceptance of healthy dietary patterns through nutrition education. Equally important are regulations on nutritional information and product labelling, including of nutrients, fat, added sugar and salt content in prepared foods and drinks.

Other important policies mentioned in *The State of Food Security and Nutrition in the World 2020* related to promoting breastfeeding, regulating the marketing of breast milk substitutes and ensuring access to nutritious foods by infants apply to the ECA region countries as well.

### **Policies to create a general enabling environment**

Improved availability for consumption does not necessarily have to come from locally produced food items. Improved trade can help normalize food prices and realize economic trade gains, provided the hidden costs of these traded items due to such negative externalities as greenhouse gas emissions while transporting items over long distances, or water used in producing these commodities, are considered. The trade of food items that are under- or overproduced locally can improve diversity and incomes. Furthermore, unfair trade restrictions usually put in place to serve narrow national interests are generally harmful to importers and exporters, and during a time of crisis (e.g. COVID-19, global food price crisis and others) they can exacerbate the negative impacts of the crisis.

As shown earlier, some of the countries in the ECA region are heavily dependent on animal production (with over 50 percent of the total value of agriculture), which provides, especially for smallholders, income, employment and other multiplier effects in the processing, transporting

and marketing sectors of the overall economy. Many animal-based products are also exported, adding jobs and other economic contributions in both countries. A decline in demand for unhealthy meats or other animal-based food products will result in the downsizing of the sector.

Therefore, the adoption of the structural adjustment strategy for the agriculture sector could be difficult and costly. In such cases, a financing facility for this transition, especially for the affected lower-income countries, would help countries achieve the targets set under the relevant SDGs and improve the general well-being of the populations affected. Furthermore, it should be kept in mind that international assistance related to reducing greenhouse gas emissions also may be in the best interest of the global community, given that the benefits accrue to all. Hence, it would be highly appropriate and opportune for the ECA countries and the European Union to work together, in light of the proposed major regional European Green Deal initiative.

### **Policies to address climate change and air quality, support sustainable land management, and ensure the supply of food for vulnerable populations – while reducing greenhouse gas emissions and avoiding crop loss**

The global mean temperature in 2020 was one of the three warmest on record. The past six years, including 2020, are the six warmest years on record. The global mean sea level has risen throughout the altimeter record, but it has recently been rising at a higher rate partly due to the increased melting of ice sheets in Greenland and Antarctica (WMO, 2020b). Western Europe experienced a significant heatwave in late July and early August, and according to Copernicus Climate Change Services, 2020 was Europe's warmest year on record. The next four warmest years for Europe also happened during the past decade (European Commission, 2019, 2020).

Dry and hot conditions affected parts of north-central Europe during spring and summer 2020. In early September 2020, the focus of extreme heat shifted to the eastern Mediterranean, with all-time records at several locations. The most severe impacts of the Atlantic hurricane season in the United States came from Laura, which was

associated with USD 19 billion in economic losses (NOAA, 2020). The lessons learned – highlighted in the State of the Climate in Africa 2019 report from WMO (WMO, 2020a) – show that efforts need to be pursued to build resilience against high-impact events through effective multi-hazard early warning systems (MHEWS) and appropriate prevention and risk management strategies.

Climate change is affecting all four pillars of food security: availability (yield and production), access (prices and ability to obtain food), utilization (nutrition and cooking), and stability (disruptions to availability) (WMO, 2020c). Climate extremes, variability and change contributed to increasing trends in the number of undernourished people globally in 2019, along with other drivers such as COVID-19 and conflicts (WMO, 2020b). Presently, about 85 million tonnes of wheat grain are lost annually due to ozone exposure, and ozone damage causes economic losses in the range of USD 10–20 billion due to its effects on staple food crops such as wheat, soybean and maize (WMO, 2018).

Although the emission of greenhouse gases and air pollutants fell during the peak of the COVID-19 pandemic confinement measures, they have since increased, and greenhouse gas concentrations in the atmosphere are at record levels and continue to increase, leading to decreases in nutrition value. WMO temperature predictions for 2020–2024 indicate a 24 percent chance of at least one year being 1.5 °C above pre-industrial levels, and a 3 percent chance of the five-year mean exceeding this level. It is likely (roughly 70 percent chance) that one or more months during the next five years will be at least 1.5 °C warmer than pre-industrial levels.

Global freshwater withdrawals for agriculture, industry and municipal use have increased by a factor of six since 1900 (Ritchie and Roser, 2018), with 70 percent of freshwater used for agriculture. Low-income countries use on average of 90 percent of their freshwater for agriculture, while many developed countries use less than 40 percent.

Water storage is essential for food security. In their study of expected growth in dam construction to 2030, Grill *et al.* (cited in WMO,

2020c) estimated that, as of 2015, 43 percent of river volume was moderately to severely impacted by flow regulation, fragmentation or both. Grill *et al.* reported that most affordable potential water storage sites are likely to have been constructed by 2030, leaving only more challenging options available for further development, with demand continuing to increase. At the same time, net water storage worldwide is falling due to sedimentation.

Land plays an important role in the climate system (IPCC, 2019). When land is degraded, it becomes less productive, restricting what can be grown and reducing the soil's ability to absorb carbon. Agriculture, forestry and other types of land use account for 23 percent of human greenhouse gas emissions. About 9.9 GtCO<sub>2</sub><sup>38</sup> is absorbed by the biosphere, out of 34 GtCO<sub>2</sub> emitted through fossil fuel combustion. Deforestation, which often happens in competition for agricultural lands, is associated with 5.9 GtCO<sub>2</sub> emissions in the atmosphere, according to the Global Carbon Project (Global Carbon Project, 2020).

Policies that are outside the land and energy domains, such as on transport and environment, also can make a critical difference in tackling climate change and addressing air pollution. Acting early is more cost-effective, as it avoids losses. Climate-smart agriculture includes many agricultural practices that can mitigate the impact of the climate on agriculture and contribute to reducing the impact of agriculture on greenhouse gas emissions (FAO, 2013; 2017d). These include using weather forecasts to determine the best time for applying chemicals, integrated pest management, and planting more suitable crops and varieties.

Sustained long-term monitoring; the sharing of data, information and knowledge; and improved context-specific forecasts, including early warning systems and analysis, help manage the negative impacts of climate changes on food production. Climate services for agriculture and food security have been shown to be highly effective in managing climate-related risks, and there is potential for expanding these services to support adaptation and to deliver increased cost-effective socio-economic benefits (WMO, 2019). ■

## 2.4 SOCIAL PROTECTION AND SAFETY NETS IN ARMENIA, KYRGYZSTAN AND TAJIKISTAN

### KEY MESSAGE

→ Armenia, Kyrgyzstan and Tajikistan have comprehensive and established social protection systems that are part of national strategies to reduce poverty, improve livelihoods and build resilience among their populations. These social protection systems include social insurance, social assistance and social services. School feeding programmes – to be embedded into national social protection strategies and programmes and run with WFP support in Armenia, Kyrgyzstan and Tajikistan – are moving towards gradual handover to governments. A regional synthesis study by WFP recommends that comprehensive safety nets must break the cycle of hunger and poverty and achieve the SDGs and Agenda 2030 (WFP and Maastricht University, 2018b).

Armenia, Kyrgyzstan, and Tajikistan are three countries of the Central Asia and Caucasus regions that continue to face challenges related to food security and nutrition. Similar contexts further threaten these countries as they continue facing geographic and geopolitical challenges, as well as political instability, ethnic conflicts, and security risks. These issues are further exacerbated by the regions' vulnerability to natural disasters and climate change that poses a further threat to people's food security. Following a long period of transition after the collapse of the Soviet welfare state, members of the Commonwealth of Independent States (CIS) have achieved major economic growth (WFP and Maastricht University, 2018b). The unique context of these countries has shaped the state of the nutrition and food security that is seen today.

### Case Study: Social Protection and Safety Nets for Enhanced Food Security and Nutrition in Armenia

**Source:** WFP, Maastricht University and CRRC-Armenia. 2018.

Since the difficult early years after independence, Armenia has undergone large-scale reforms towards a market economy and the building of democratic institutions, changing from a low-income to an upper-middle-income country. However, food insecurity and malnutrition remain a problem in Armenia. In 2014, 15 percent of Armenians were found to be food insecure. An estimated 15 percent of families in the country were classified as food insecure in 2017, with huge disparities across different population groups and regions not only regarding food security, but also the prevalence of poverty, undernourishment and malnutrition (WFP, 2019a).

The 2018 Global Nutrition Report (Development Initiatives, 2018) identified the coexistence of two forms of malnutrition, namely overweight and anaemia (WFP, 2020d). The proportion of overweight children younger than 5 was 14 percent in 2015–2016, even reaching 36 percent in Ararat province. The prevalence of anaemia among women between 15 and 49 years of age was 13 percent – and 16 percent among children younger than 5 – with peaks of 39 percent (women) and 49 percent (children) in Gegharkunik province.

The double burden of malnutrition, combined with micronutrient deficiencies, is a serious problem that Armenia must solve in the future. Food insecurity shows a strong correlation with poverty. Unemployment is one of the key determinants of poverty in Armenia. One-third of the population lives below the national poverty line, with stark regional inequalities.

Though some components are modest in size, Armenia has a well-developed and comprehensive social protection system that includes social insurance and social assistance transfers, social services and active labour market policies. As an informal safety net, Armenia also relies heavily on remittances from migrants working abroad. Pension schemes seem to be particularly effective in reducing poverty. School feeding, which offers a combination of protective and promotive functions and helps improve food and nutrition security for children and their families, is an important component of the system. In the long term, Armenia aims to improve school-age children's access to education, health and nutrition through the "home-grown school feeding" approach –



particularly in rural and remote areas, under the implementation of the Sustainable School Feeding Programme framework. Currently, the school feeding programmes is the only nutrition-sensitive or nutrition-specific programme run by the Government of Armenia.

Since 2010, the Government has prioritized social protection programmes and introduced social protection reforms to shift from an ad hoc and fragmented system to an approach that is more integrated, coordinated and efficient. Altogether, these social protection systems are a considerable achievement, contributing significantly to the reduction of extreme poverty in Armenia.

However, though these social protection systems do contribute substantially to the reduction of (extreme) poverty, certain gaps remain. Inclusion and exclusion errors are high, hampering their poverty-reduction effect. Shock-responsive and promotive safety nets, nutrition objectives in social protection and a life-cycle approach are lacking. Challenges regarding governance and policy implementation also must be addressed. These gaps can be addressed by the cooperation of stakeholders towards a systematic reform of social protection. The Government of Armenia, in cooperation with development partners, can focus on further fostering the ongoing policy dialogue around the following elements:

- Guiding policy dialogue with a set of minimum standards, such as those proposed in the International Labour Organization's Social Protection Floor recommendations.
- Supporting nutrition-sensitive social protection by investing in the capacity of social case managers to detect child malnutrition, introducing referral mechanisms between social and health services, and strengthening communication about nutrition.
- Strengthening governance and cooperation among line ministries, such as the Ministry of Labour and Social Affairs, the Ministry of Agriculture, the Ministry of Health, the Ministry of Education and Science, and the Ministry of Territorial Administration and

Infrastructure. Close cooperation between the Ministry of Labour and Social Affairs and the Ministry of Agriculture could create important synergies, particularly in rural areas, and could contribute to the development of active labour market policies, public work programmes and productive safety net programmes.

- Strengthening governmental programme management and implementation by further investing in a comprehensive policy monitoring and evaluation system and investing in integrated social protection information management systems and beneficiary registries.
- Introducing and developing sustainable local food systems to ensure the sustainability of the school feeding programme.
- Creating and using synergies in cooperation with development partners to make the best use of each partner's strength. While developing programmes, crosscutting issues such as gender equality and the inclusion of young people need to be considered and duly incorporated.

### Case Study: Social Protection and Safety Nets for Enhanced Food Security and Nutrition in Tajikistan

**Source:** WFP and Maastricht University. 2018a.

Economic growth in Tajikistan began to improve after a difficult first decade following the dissolution of the Soviet Union. Between 2012 and 2019, the economy grew at an average rate of 7.05 percent per year<sup>39</sup> – though it remains a low-income economy<sup>40</sup>, with a gross national income of USD 1 030 per capita (Atlas method, World Bank) in 2019, and has the worst food security and nutrition indicators in the region. Food insecurity and poverty in Tajikistan are widespread throughout the country, with geographic discrepancies and seasonal fluctuations observed. The Tajikistan population suffers from the double burden of malnutrition, and both chronic and transitory food insecurity are prevalent. According to the Statistical Agency under President of the Republic of Tajikistan (2020c), in 2019, the overall poverty rate

was 26.3 percent, and the extreme poverty (food poverty) rate was 10.7 percent at the national level. Poverty levels in rural areas have been higher, with the overall poverty rate at 30.1 percent and the extreme poverty rate at 12.3 percent in 2019. The country shows a direct correlation between poverty rates and the seasonality of agriculture and remittance inflows (WFP and Maastricht University, 2018a). It is suggested that food insecurity in Tajikistan is primarily due to a lack of economic access attributed to the low purchasing power of households (WFP, 2016). Poverty and behavioural patterns also contribute to food insecurity and malnutrition. Issues such as obesity and overweight are related to poor behavioural practices influenced by social norms. Indices used to observe poverty rates include monetary poverty and multidimensional indices. Findings show that the country suffers from chronic food insecurity tied to its root cause, poverty (WFP and Maastricht University, 2018a).

Remittances from workers who have gone abroad are an important form of informal social protection. In fact, remittances – mainly from migrant workers in the Russian Federation – are the main source of the gross domestic product in Tajikistan, making the population vulnerable to external shocks. Poor households depending on remittances report that more than 80 percent of their remittances are primarily spent on food and other basic necessities (World Bank, 2020).

Tajikistan has a relatively comprehensive social protection system that includes elements of social insurance, social assistance and social services. However, existing social protection programmes have limited impact on food security, particularly due to the poor identification, limited coverage and adequacy of the social assistance system.

In Tajikistan, social pensions are not considered enough to allow for the consumption of a balanced diet; on average, they cover only half the amount needed. Studies have shown that benefits from social pensions do not guarantee a nutritionally adequate diet or protection from poverty for households or children (WFP and Maastricht University, 2018a).

Similarly, the cash compensation programme in Tajikistan is inadequate in providing for nutrition-adequate diets for children. In terms of energy sufficient diets, the issue persists, with the energy compensation covering only about 8 percent of the energy gap of a household.<sup>41</sup> With nutrition objectives not yet incorporated into national social protection programmes (other

than school feeding), there remains a long way to go before positive nutrition outcomes are observed (WFP and Maastricht University, 2018a).

Schoolchildren from poor households receive cash assistance to cover costs associated with school attendance; however, studies about its impact on the food security of eligible households is unknown. Several types of social services are offered in Tajikistan, mostly targeting such vulnerable groups as the elderly, orphans, persons/children with disabilities, and other individuals in difficult life circumstances. Since 1999, the World Food Programme has been operating school feeding programmes for primary school children in Tajikistan, aiming to increase school attendance rates and to provide a nutrition-sensitive social safety net (Tajstat, 2017). The school feeding programme is moving towards integration within the national protection system and utilizes the Systems Approach for Better Education Results (SABER)<sup>42</sup> framework. Within the national framework, school feeding is the only programme with a clear nutrition objective.

Finally, labour migration is a major consequence of high unemployment and low and inadequate wages within seasonal and agricultural work in Tajikistan. As a result, remittances have become an important source of income for a large amount of the population, with remittances to Tajikistan making up 30–40 percent of the gross domestic product (World Bank, 2017). Households receiving remittances are highly vulnerable to the seasonality of employment opportunities and to the volatility that can come from economic shocks (WFP and Maastricht University, 2018a). Due to lockdowns and travel restrictions caused by the COVID-19 pandemic, remittances have dropped sharply, putting children from migrant families at high risk of multiple deprivations.

The country's social assistance is provided by the Targeted Social Assistance programme, which was introduced as a pilot in 2011. Targeted Social Assistance has been expanded and currently covers the entire country. To mitigate the impacts of COVID-19, the Government introduced two types of one-time emergency cash supports to poor families, elderly, persons/children with disabilities, refugees and stateless persons, families left behind by labour migrants, persons living with tuberculosis or HIV/AIDS, and recipients of social pensions.

Overall food security deteriorated during the peak of the COVID-19 outbreak across a range of indicators, with rising shares reporting going hungry, reducing dietary diversity, and worrying about obtaining enough food (World Bank, 2020). Food packages, personal protective equipment, medications, cash and other in-kind support has been distributed among the population by individuals, with overall coordination from local authorities.

Institutional and implementation challenges persist in Tajikistan. Acknowledging the lack of promotive social protection measures, shock-responsive safety nets and nutrition-sensitive social protection in the country is the first step towards providing adequate support.

Addressing these challenges requires addressing the following considerations:

- Policy dialogue on future strategies should be underpinned by a set of minimum standards for social protection, food security and nutrition, and health care.
- Improving policy design and policy implementation and ensuring sound public financial management are key to the future development of an effective social protection system in Tajikistan.
- Calculation of the minimum subsistence level, together with food basket, is required to align the amount of cash assistance and social pensions to provide safety nets and help poor families alleviate poverty.
- Tajikistan is highly vulnerable to natural disasters, climate-related shocks and external economic shocks. The social protection system in Tajikistan should be designed to be shock-responsive in that it is able to respond to and mitigate the negative impacts of these shocks.
- While the national social protection system in Tajikistan (besides the school feeding programme) focuses primarily on preventative and protective functions, measures that contribute to livelihoods and the promotion of infrastructure and assets are largely missing. These promotive measures would contribute to building the resilience of the population and promoting the long-term sustainability of livelihoods.

- Nutrition-sensitive programmes can enhance positive impacts on food security. Since 2010, the cost of food as a portion of total household consumption has been increasing as economic access to food becomes more constrained. The cost of a balanced diet was estimated at 58 percent of the average household consumption in 2010, and in 2015 it increased to 70 percent (Tajstat, 2017). Total calorie consumption has been slowly increasing. Due to poverty and people's resulting inability to afford diverse and nutrient adequate diets, micronutrient deficiencies emerge. The problem of food insecurity must then be tackled with comprehensive social protection systems that can help populations break the cycles of poverty and hunger with targeted nutrition-specific or nutrition-sensitive programmes. These programmes should acknowledge the vulnerabilities of certain groups – such as pregnant and lactating women, infants, children and the elderly, and including those with socio-economic and physiological vulnerabilities – in order to meet their needs for nutrition and support.

### Case Study: Social Protection and Safety Nets for Enhanced Food Security and Nutrition in Kyrgyzstan

*Source:* WFP and Maastricht University. 2018c.

After a difficult initial period of independence and transition, Kyrgyzstan has made remarkable progress in economic and social development. The economy is recovering from recent shocks, including financial crises in 2008 and 2014, political unrest and natural disasters, and food insecurity and poverty still affect much of the Kyrgyz population. Access to food, particularly economic access, is a major threat to household food security. According to the National Statistical Office, poor households spend 69 percent of their total monthly budgets on food items, on average. Micronutrient deficiencies resulting from food of inadequate quality and variability affect many of the country's children. In 2011, more than one-third of children younger than 5 were anaemic, and in 2014, more than one-tenth of children were

stunted, a condition associated with chronic undernutrition. Instability hinders the food security of households in rural areas and in areas affected by natural disasters and political unrest. Poverty and food insecurity are linked, as the lack of purchasing power prevents households from consuming enough nutritious food.

Social protection is relatively comprehensive in Kyrgyzstan, but social assistance and active labour market programmes are relatively small. As informal safety nets, remittances received from migrant workers play a major role in household incomes. The country's social insurance system includes pensions for vulnerable people and benefits for maternity, unemployment and funerals. These pensions play an important role in the national social protection scheme; significant poverty reduction of over 56 percent has been linked to pensions. Kyrgyzstan was one of the first CIS countries to reform its social assistance system, which consists of monthly benefits for vulnerable groups, cash compensations, and energy subsidies and compensation. Promotive social protection is strongly encouraged by international partners, particularly the World Food Programme, and is making its way towards the national social protection agenda. The growing scope of productive safety nets has the potential to break the cycle of poverty and food insecurity.

The Kyrgyz Government has been providing meals at school for children through an active school feeding programme, contributing significantly to children's food security. The programme has achieved substantial coverage and financial spending commitments; however, improving the nutritional value of the meals is needed.

Since 2010, the Government and its partners have demonstrated dedication to improving the well-being of the population and have made important advances in social policy. The last two decades have brought about several reforms, and there are ongoing efforts to expand and consolidate social protection. However, a number of gaps and challenges persist that must be addressed by a comprehensive reform process in order to ensure improved food security and nutrition outcomes.

Analysis of social protection programmes show that they have variable impacts on poverty, depending on coverage and the adequacy of benefits. In general, filling these gaps and challenges must consider promotive and transformative social protection measures, shock-responsive nets and nutrition objectives. Comprehensive social services have been identified as gaps in recent studies. Currently, active labour market policies, such as the government-run public works programme, are the only countrywide programmes with promotive measures. Promotive and transformative social protection programmes that apply community consultations are necessary to break the cycles of poverty and food insecurity. In parallel, underdeveloped promotive measures can build the resilience of the Kyrgyz population against shocks. Besides the school meals programme, national social protection programmes lack nutrition-sensitive or nutrition-specific objectives, which have been acknowledged for their role in addressing food security challenges by government and international partners.

Essential reforms to develop effective social protection systems include fostering policy dialogue, improving social protection programme design, improving standards, targeting approaches and implementation, ensuring sound public financing, and involving international development partners in support of the Government (WFP and Maastricht University, 2018c).

### Nutrition-sensitive social protection systems in Armenia

Social protection systems, labour market programmes, social safety nets and social services are effective tools to improve human welfare and well-being and accelerate economic development. The link between poverty and hunger has been an increasing focus in recent years, as an opportunity for social protection to achieve food security and enhance nutrition. With the inclusion of nutrition objectives into social protection, there is increasing potential to achieve nutrition outcomes (WFP and Maastricht University, 2018b).

Nutrition-sensitive social protection comprises national social protection strategies that incorporate food security and nutrition objectives into the design and implementation of their programmes. Currently, social protection systems in Armenia, Kyrgyzstan and Tajikistan address nutrition and food security challenges within school feeding programmes. However, in other programmes there is not adequate consideration of nutrition objectives in addressing relevant vulnerabilities to food security and nutrition. In particular, there is limited consideration of gender and of vulnerable populations' explicit vulnerabilities to food insecurity and malnutrition (WFP and Maastricht University, 2018b).

**School feeding programmes are recognized as a key platform to deliver nutrition-sensitive social protection to children and their families, as they are already rooted in the national policy structures and included in national social protection strategies.**

Policy-makers should advocate for the inclusion of explicit food security and nutrition objectives into national social protection programmes. Nutrition outcomes need to be considered when designing comprehensive programmes aimed at improving human welfare and enhancing food security. A recent study by the World Food Programme recognizes that nutrition-specific and nutrition-sensitive programmes are necessary to fully address challenges related to poverty, hunger and malnutrition (WFP and Maastricht University, 2018b). For example, while cash transfers raise the purchasing power of households, associating nutrition goals with social protection programmes instead targets enhanced food and nutrition security outcomes, focusing on behaviour and social norms that trigger poverty and malnutrition.

***Policy recommendations from three country case studies for enhanced food security and nutrition through social protection***

Policy recommendations developed as parts of specific country studies conducted on Armenia, Kyrgyzstan and Tajikistan promote strengthened social protection and safety nets. Despite the

rather well-developed and comprehensive social protection systems in these three countries, some gaps do remain.

These main gaps are shock-responsive and promotive safety nets, nutrition objectives and the use of a life-cycle approach. Policy and programme responses based on evidence suggest the following country-specific and regional recommendations to drive enhanced food security and nutrition in the region. The way forward in reducing poverty-linked malnutrition and hunger is being promoted through such complementary mechanisms as social protection systems, particularly enhanced with nutrition-sensitive and nutrition-specific approaches. While social protection systems in these countries contribute to the reduction of extreme poverty, the existing systems may be enhanced by the following recommendations:

- Supporting nutrition-sensitive social protection by investing in the capacity of social case managers to detect child malnutrition, introducing referral mechanisms between social and health services, and strengthening communication about nutrition.
- Strengthening governance and cooperation among line ministries to create synergies, particularly in rural areas, and contributing to the development of active labour market policies, public work programmes and productive safety net programmes.
- Improving policy design and implementation, including on coverage and adequacy of transfers, promotive social protection measures, shock-responsive safety nets, life-cycle approaches<sup>43</sup> and nutrition-sensitive<sup>44</sup> social protection.
- Promoting the expansion of food fortification programmes, not just for staple cereals but also for salt, cooking oils and dairy products (WFP, 2020d).
- Improving targeting efforts to reach the most vulnerable populations, referring to evidence suggesting that non-targeted subsidies contribute to increasing the triple burden of malnutrition, including overweight and obesity among children and adults (WFP, 2020d). ■



## BOX 6

## IMPACT EVALUATION: THE NUTRITION-SENSITIVE ASPECT OF THE “DEVELOPMENT OF SUSTAINABLE SCHOOL FEEDING” PROJECT IN ARMENIA 2018–2019

School feeding programmes are credited with improving food security and encouraging primary school enrolment. Yet the role of such programmes may be evolving given progress in primary school participation. In Armenia, primary enrolment is virtually saturated while the share of preschool children in the country has been growing. This provides a potential new role for school feeding programmes, since the effects of missing meals on cognitive performance are well documented for younger children. Global experience also indicates that the consequences of missing meals are generally larger for low-income and malnourished children. It is therefore plausible that the impact of providing a morning snack may be greater for these children.

As part of an exploration of the future role of school meals, the World Food Programme initiated a programme to provide children in three marzes – Gegharkunik, Lori and Shirak, selected on the basis of poverty and anaemia prevalence – with a small snack at the beginning of the school day. To rigorously test the impact of this programme, a randomized control trial was implemented. Schools were randomized into a treatment group and a control group, and the impact of the programme on both fluid intelligence (attention and processing speed) and crystallized intelligence (school readiness) was assessed.

**Key findings:** The study found that only 55 percent of the children aged 3 to 5 in the control group in received breakfast prior to attending school, implying that many arrive to school hungry and that the programme serves an apparent need.

Among children in preschool, the snack programme reduced and often eliminated the gap in cognitive measures between the general population and those who had the lowest weight for age, who were from families with the lowest expenditures, or who were from households with lower maternal education. While there was only a small overall difference in fluid intelligence, which was not statistically significant, the trial found that test scores did increase significantly

among children whose mothers had comparatively less education or who came from low-expenditure households. This implies that the provision of a morning snack can offset some of the pre-existing differences in cognitive skills. This, then, reinforces another role of school feeding: that of increasing equity.

Virtually all schools provided eggs, cheese and butter as part of the snack routine. Fresh fruits also were commonly provided. Overall, about half of all commodities were purchased locally, with the percentage higher for fruits and vegetables than for other foods.

Regression models explored the role of books in the household and the impact of family conflict (indexed according to the Pianta conflict scale). The former had a positive impact on test scores, while the latter played a negative role. This is in keeping with expectations and may also be considered an indication that the tests were able to capture relevant factors in child development.

However, poor performance on letters, shapes and numbers may be an indication that the preschool goals were more modest than assumed in the focus of the study on crystallized intelligence. As the role of snacks has been shown to interact with school organization, it is possible – but clearly unproven and not within the purview of the study – that such factors confounded the assessment of the snack pilot programme, *per se*.

**Conclusion:** The provision of morning snacks to preschool children proved popular with families and with school administrators. No logistical bottlenecks or difficulties with decentralized procurement were reported. As nearly half of children in the marzes are not in the custom of having breakfast prior to coming to school, the programme serves an apparent need. Moreover, the snack assisted in closing the gaps in processing speed, fluid reasoning and short-term memory between less-advantage children and their more affluent peers. This said, for reasons that are not readily apparent, there was no measurable cumulative effect on school readiness for the sample (WFP, 2019a).

BOX 6  
(CONTINUED)

## IMPACT STUDY: CONTRIBUTION OF SCHOOL MEALS TO POVERTY REDUCTION IN ARMENIA

Prompted in part by a 14.1 percent economic contraction in 2009 following the global economic crisis, Armenia initiated a primary school meals programme, for the first time in the modern period of independence, in September 2010. As of 2018, nearly 100 000 children in grades 0 to 4 receive school meals daily, with nearly two-thirds of these children in programmes supported by the World Food Programme (WFP) and the remainder administered by the Government. The handover from WFP administration to Government of Armenia provision began in 2014 and is proceeding according to plan, with the complete handover expected in 2023.

School enrolment in Armenia is nearly completely saturated, not only in the grades covered by the school meal programme, but in higher grades as well. While the school meal programme may assist in classroom attendance and reduce the inattention of hungry students, it is not a primary motivation for participation in the educational system. Thus, as a contribution to long-term planning of the role of the school meal programme in Armenia, a study was undertaken to assess whether the school meal programme – which had originated as a response to the global financial crisis of 2008 – serves as a wider safety net.

**Key findings:** The study measured the contribution of the value of the food received by students to poverty reduction and to overall social welfare, using data from the 2015 Integrated Living Conditions Survey undertaken by the National Statistical Service of Armenia.

Considering the transfers implicit in the school meals, the proportion of the population that are below the lower poverty line has declined by 0.23 percentage points. This positive yet limited impact reflects the modest size of any income support available in a school

lunch, as well as the low relative share of the poor who have primary school-aged children receiving a school meal. Many poor households do not have a child of school age.

However, households consistently claim that the school meal is worth more to them than the cost to the Government. A survey of 1 050 households indicated it would cost them nearly twice as much to provide a lunch to their child than the assumed value of the food in the school meal programme used in these estimates. Re-estimating the contribution to poverty reduction using this reported value to the household, the poverty reduction is 0.4 percentage points. Furthermore, at these values and under the additional assumption that the programme can be expanded to include Yerevan, the programme can reduce poverty by 0.6 percentage points.

In comparison, the Family Benefit Programme, with a budget of around USD 75 million in 2015, reduced poverty by 1.3 percent and remains the cornerstone of social protection in the country. However, given that its budget is approximately 15 times as large as the school meal programme, the latter achieved more reduction in poverty per AMD than the former.

**Conclusion:** These results on the cost effectiveness in terms of poverty reduction as well as the indication that households value the meal programme can assist in the challenge of transitioning the programme from one designed for crisis response and for a low functioning education system to the more robust current school environment.

Potential reforms on the transfer size and targeting criteria of the school meal programme are needed if the Government has to set poverty-reduction objectives for the programme (WFP, 2018a).

## 2.5 IMPACT OF COVID-19 ON FOOD SECURITY AND NUTRITION

### KEY MESSAGES

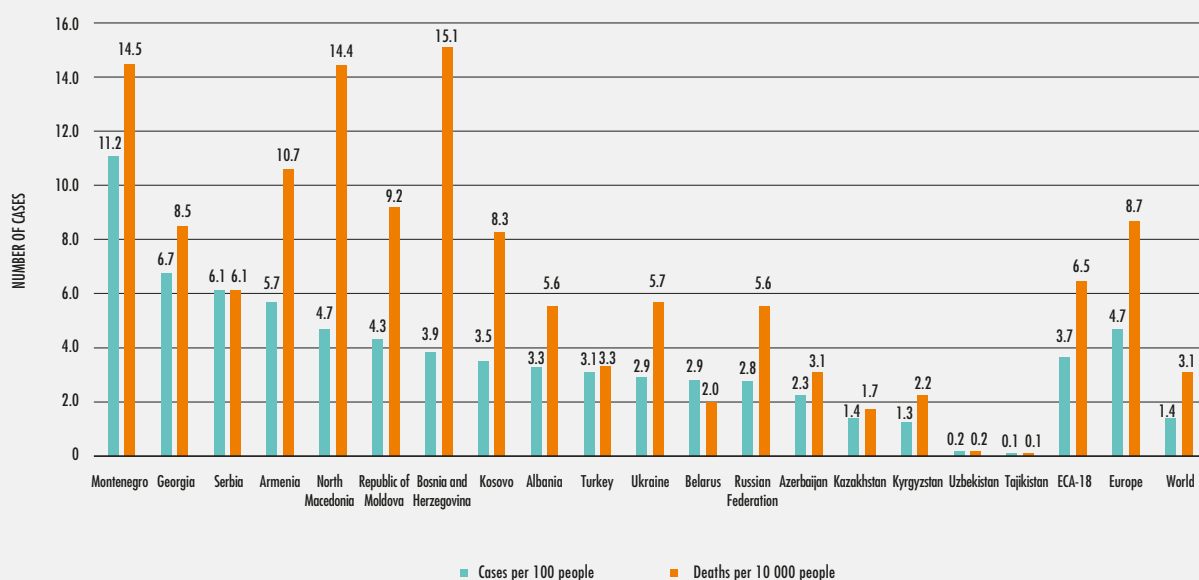
- The intensity of COVID-19 infections, implicit in that **3.7 percent of the population have had confirmed cases, is higher in the ECA-18 region than in the world**, where the average is 1.4 percent.
- The real gross domestic product of emerging market and developing economies in the ECA region in 2020 is estimated **by the World Bank (as of January 2021) to have declined by 2.9 percent**, less than the estimated 4.3 percent contraction on the global scale. However, the contraction in some ECA-18 countries was much higher (over six percent).
- However, early estimates of the **production of cereals (FAO, 2020g) suggest no measurable impact** on the aggregate global harvest of principal staple crops. The stock-to-use ratio of the main cereals is anticipated to reach a 20-year high worldwide.
- The impacts in individual countries in the ECA-18 region have been reported as a rise in the prices of staple food items, such as wheat and flour, and as a significant drop in the prices of perishable food commodities, such as vegetables, in local markets.
- A survey conducted by the FAO Regional Office for Europe and Central Asia (FAO, 2020) concluded that the disruptions in transportation, storage, output deliveries, input supplies and operational financing throughout the **food supply chains** continued to pose operational challenges affecting crop farmers, livestock farmers and traders/processors in most countries in the ECA region.
- The COVID-19 pandemic has impacted micro, small and medium enterprises in trade, business operations and income. A survey of Georgian micro, small and medium enterprises reveals that the efficiency gains generated by the Government's intensified trade facilitation

and relief measures were falling short of pre-empting an income fallout. Transport disruptions translated into supply shortages. For farmers and micro, small and medium enterprises operating in the food and beverages industries, these shortages were compounded by damaged goods under the weight of delayed deliveries. More than 52 percent of farmers were still unable to reverse their income declines. Among them, 23 percent reported income reduction of over 60 percent.

- To address the financial difficulties, most farmers have reported using their own savings – at the expense of their households' living conditions – to pay for operational costs (FAO, 2020). Farmers also have had to reduce labour costs by laying off staff, cutting salaries and putting workers on unpaid leave. The magnitude of the income fallout for farmers is reflected in the fact that around 85 percent have emphasized that their survival hinges on continued government support for covering running expenses.
- Malnutrition and other co-morbidities (for example, HIV and tuberculosis) are considered a risk factor for complications in people with COVID-19, due to their having a compromised immune system. Available evidence on COVID-19 infections indicates that children generally present milder symptoms than older groups. However, we do not know yet how COVID-19 will affect malnourished children. It is reasonable to assume that such children are at higher risk of complications related to COVID-19. Having said this, the secondary impacts of the pandemic, such as containment measures, have massively affected children's nutritional status and well-being.
- The pandemic also has resulted in mothers' fears of breastfeeding their newborns in the context of suspected infection. The separation of mothers from newborns for suspected cases has caused poor practices related to the early initiation of breastfeeding and its continuation.

Food security, nutrition and dietary patterns can change in a socio-economic crisis, negatively impacting the vulnerable and people with low incomes. The COVID-19 pandemic, which began

**FIGURE 33**  
**THE COVID-19 SITUATION IN SELECTED COUNTRIES OF THE ECA REGION – NUMBER OF CASES PER 100 PEOPLE AND DEATHS PER 10 000 PEOPLE**



NOTE: All references to Kosovo should be understood to be in the context of United Nations Security Council resolution 1244 (1999).  
 SOURCE: WHO Coronavirus Disease (COVID-19) Dashboard, as of 19 February 2021. <https://covid19.who.int/table>

in late February/early March in the ECA region, might have significantly worsened food security. This section outlines the evolution of the virus-induced crisis and explores its impact on the overall economy, food security, food supply chain, markets, prices and smallholder agriculturalists. Finally, some key policy response measures for the countries of the region are mentioned.

### Impact of COVID-19 on the economy and food security in the ECA region

In the ECA region, the first confirmed case of COVID-19 infection was reported in the Russian Federation on 31 January 2020, and the second and third were in Georgia and North Macedonia on 26 February 2020. As of 19 February 2021, there were more than 10.45 million confirmed cases in the 18 countries of the region, with a death toll that topped 171 526. The extent of the disease caused by the virus infection is demonstrated in that 3.7 percent of the

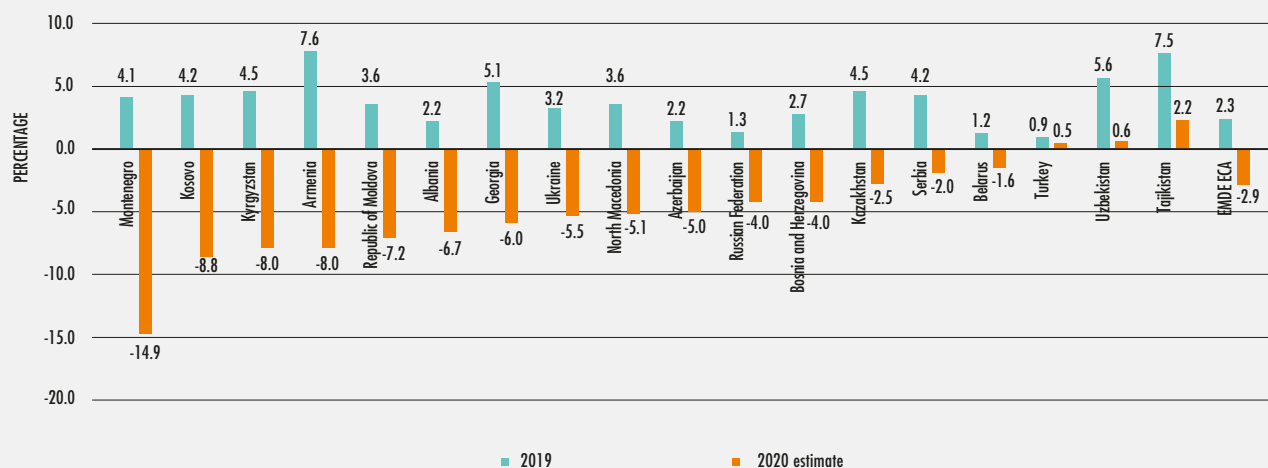
population have had confirmed cases – a figure higher than the global percentage, which stood at 1.4 percent, but lower than the figure for Europe of 4.7 percent (see Figure 33). The mortality rate for Europe, at 8.7 per 10 000 population, has been extremely high due to the staggering number of cases and mortality from France, Italy, Spain and the United Kingdom of Great Britain and Northern Ireland, among other countries.

Percentages of confirmed cases in the ECA-18 vary from 11.17 percent in Montenegro to 0.14 percent in Tajikistan. Fourteen of the 18 countries have surpassed the world average.

Moreover, with a second/third wave of COVID-19 in progress, the final situation is still evolving.

This viral disease has not only impacted the health of those who are affected but also has caused severe disruptions to and even stoppages of work, business and livelihood activities of entire populations in most countries due to lockdowns.

FIGURE 34  
IMPACT OF COVID-19 ON 2020 REAL GDP GROWTH AT MARKET PRICES (%), ECA-19



NOTES: GDP and expenditure components are measured in 2010 prices and market exchange rates for the selected ECA countries. EMDE = emerging market and developing economies aggregate. All references to Kosovo should be understood to be in the context of United Nations Security Council resolution 1244 (1999).  
SOURCE: World Bank. 2021.

All this has resulted in a loss of operations and production and disruptions in tourism and remittance incomes in many countries.

As seen in Figure 34, the real GDP of ECA emerging market and developing economies in 2020 is estimated by the World Bank (as of January 2021) to have declined by 2.9 percent, less than the 4.3 percent contraction estimated on the global scale. However, the pandemic's impact on some selected ECA countries has been severe. The pandemic will cause a deep recession. Income growth forecasts for all countries have been revised downwards as a direct result of the slowdown in economic activities. Among these, seven countries – Montenegro, Kosovo,<sup>45</sup> Kyrgyzstan, Armenia, Republic of Moldova, Albania and Georgia – have been the hardest hit, with a drop in GDP of more than six percent for 2020. Of course, with a second wave of the viral infection under way, the full impact is not over, and the impact in 2021 is worth being monitored closely.

Based on this small sample of 18 countries, a simple statistical correlation between COVID-19 infection case rates and GDP growth estimates is

low, implying that the impact of the infection on a given economy is based not only on the caseload but on the multiple ways in which the disruption of economic activity has occurred in each country.

To understand how this overall economic and social activity disruption translates into **food insecurity and nutrition**, one must observe how both the supply and demand sides of food commodities are affected immediately and in the medium-to-long term. The early estimates of the production of cereals published by FAO (2020g) indicate that, despite the impact of COVID-19, a record global harvest is expected in 2020. However, the world stock-to-use ratio is forecast to be below that in 2019. Total cereal production in Europe and Central Asia in 2020 is forecast to decline from the record high in 2019 but to remain close to the five-year average. However, in many parts of the region, local markets are bracing for the looming impacts of COVID-19 amidst uncertainties related to demand, logistics and access to food, especially for vulnerable groups.

As reported in *The State of Food Security and Nutrition in the World 2020* (p. 17), the COVID-19 pandemic is likely to generate new pockets of food insecurity



even in countries that had not previously experienced food insecurity. That report's preliminary assessment suggests that the COVID-19 pandemic may add between 83 million and 132 million people (or 12–19 percent) to the total number of hungry globally in 2020, depending on the economic growth scenario. However, no such specific estimates by country are available for the ECA region.

Lower-income countries will likely be the most affected by the virus-induced breakage in the supply chain, especially for the underconsumed nutritionally desirable commodities. Lower-income countries are not likely to have contingency mechanisms and funds to stimulate their economies and protect the most vulnerable. Consequently, as stated in *The State of Food Security and Nutrition in the World*, a pandemic-induced global economic crisis is likely to generate new pockets of food insecurity and nutrition-related problems even in countries that had not experienced them before the pandemic.

Especially for vulnerable and low-income populations, access to healthy food during the pandemic also could be compromised in specific sectors when the supply chain for food commodities is disrupted, resulting in the non-availability of that commodity or inflated prices in the local markets. These disruptions can lead to food shortages and reduce the diversity of food items.

Diversity is a necessary condition for a healthy diet. Furthermore, as stated in *The State of Food Security and Nutrition in the World* (p. 29), "Higher food prices, especially for nutritious foods, and reduced affordability of healthy diets can all negatively affect nutrient intake and diet quality, and consequently, increase the risk of **malnutrition**." Thus, impacts on diet quality, availability, costs and the affordability of healthy diets are cause for concern, especially in countries in the ECA region that already are identified as having a large population unable to afford healthy foods.

On the other hand, due to losses of employment and remittance income, the demand and therefore consumption of vegetables and fruits, for example, also could be reduced drastically in the face of COVID-19, especially for non-staple

products (as was observed in Tajikistan and other countries). The reduced purchasing power leads to the lowering of quality and **affordability** of healthy diets for low-income and other affected families. Additionally, the lowering of prices of such produce equates to losses or lower incomes for smallholder farmers, in turn adversely affecting their food security and welfare.

Finally, to maintain a healthy diet during the COVID-19 pandemic period, FAO (2020d) recommends the following three simple, practical rules: eating plenty of fruits and vegetables, fresh or canned; consuming a diet rich in whole grains, nuts and healthy fats, such as those found in olives, sesame and peanuts; and reducing the intake of fats, sugar and salt.

### Impact on food supply chains affecting the delivery of food to the final consumer<sup>46</sup>

In general, the shortfall directly related to the COVID-19 pandemic in the farm production of staple commodities is not an issue, unlike the global food crisis of 2007–2008. However, nationwide lockdowns in many affected countries are expected to hinder access to fresh and quality food for all. Disruptions of the agriculture sector caused by the COVID-19 pandemic have exacerbated weather impacts along the entire food supply chain, elevating levels of food insecurity, malnutrition and undernourishment (WMO, 2020b).

A survey conducted by the FAO Regional Office for Europe and Central Asia (FAO, 2020) concluded that the logistics and trade/market disruptions across and within countries continue to pose operational challenges for entities along the agrifood value chains in most countries in the ECA region. The challenges include disruptions in transportation, storage, output deliveries, input supplies and operational financing throughout the commodity chains.

*The State of Food Security and Nutrition in the World 2020* also concluded that there have been significant food losses during the pandemic, especially of perishables such as fruits and vegetables and those requiring cold storage, such as fish, meat and dairy products (FAO, 2020c).

According to the FAO survey, the countries reporting the most severe impacts of COVID-19 on the **transportation** of fruits and vegetables are Bosnia and Herzegovina, Kyrgyzstan, Turkey and Uzbekistan. In terms of the transport of livestock, Turkey has reported a high impact, followed by Kosovo, Ukraine and Bosnia and Herzegovina. The most affected agrifood sectors are fruits and vegetables, followed by livestock, milk and dairy, grains and pulses, and roots and tubers.

Overall, the impact on **storage** has been much smaller than the effect on transportation. Based on the latest survey, Uzbekistan has the highest reported negative and severe impacts for storage, followed by Turkey and Bosnia and Herzegovina.

The survey also reports that a significant concern among operators along food supply chains has been the slowing down of domestic and export **sales**. The countries with a large percentage of respondents reporting sale problems as a result of the COVID-19 pandemic in June were Uzbekistan, Turkey, Bosnia and Herzegovina, Kosovo and Kyrgyzstan.

Furthermore, the availability of and access to imported **farm inputs** was a primary concern voiced by input suppliers, who noted higher import prices due to currency devaluations, transport difficulties at the border, and rapid decreases in their inventories. The overall impact of COVID-19 on the **financial situation** across all sectors, operators and countries was reported as severe. A large share of livestock farmers (over 60 percent) reported problems in **accessing fuel** in Tajikistan and Turkey. More than 60 percent reported difficulties with **access to tools/materials** in Tajikistan and Bosnia and Herzegovina, and more than 60 percent reported problems with **technical assistance and advisory services** in Tajikistan and Turkey.

### Impact of COVID-19 on trade and agriculture business for micro, small and medium enterprises in Georgia

The agricultural sector's vulnerability to the complex new realities created by the COVID-19 pandemic is demonstrated in a survey-based assessment from UNECE titled "The impact of

COVID-19 on Trade and Structural Transformation in Georgia: Evidence from UNECE's survey of Micro, Small and Medium Enterprises (MSMEs)." The assessment, which includes the participation of 104 farmers involved in on-farm food processing, harvesting and animal husbandry,<sup>47</sup> shows that the pandemic has left Georgian farmers struggling to survive. Among those participating in trade, around 45 percent were particularly affected, with efficiency gains generated by the Government's intensified trade facilitation and relief measures falling short of pre-empting income fallout.

The farmers' income fallout comes even as the Government of Georgia has outperformed itself in its efforts to cushion the impact of supply chain disruptions. It limited trade restrictions to the minimum, was quick to expand the suite of trade facilitation measures available to enterprises to mitigate supply chain disruptions and contain the spread of the pandemic (**Box 7**), and launched sweeping relief measures – such as credit schemes, tax deferrals and one-time cash injections – to support the vulnerable segments of the population, particularly in rural areas and hardest-hit sectors.

The assessment shows that trade facilitation efficiency gains were effectively wiped out by the increased transport costs, particularly maritime costs, which forced micro, small and medium enterprises, including farmers, to shift towards road transport. This rendered the conditions of achieving connectivity with international supply chains like those prevailing in landlocked countries. Georgian micro, small and medium enterprises became increasingly isolated from mainstream transport routes by increased distance (as trucks had to make detours to circumvent border closures in partner countries) and high transport costs (as forwarders struggled to cover additional operating cost that were out of their control).

Transport disruptions also translated into supply shortages, given the closure of nonessential businesses in partner countries. For farmers and micro, small and medium enterprises operating in the food and beverages industries, these shortages were compounded by damaged goods under the weight of delayed deliveries. Waste in perishable goods became a norm rather than the exception, causing acute shortages in seedlings and animal feed, among others.

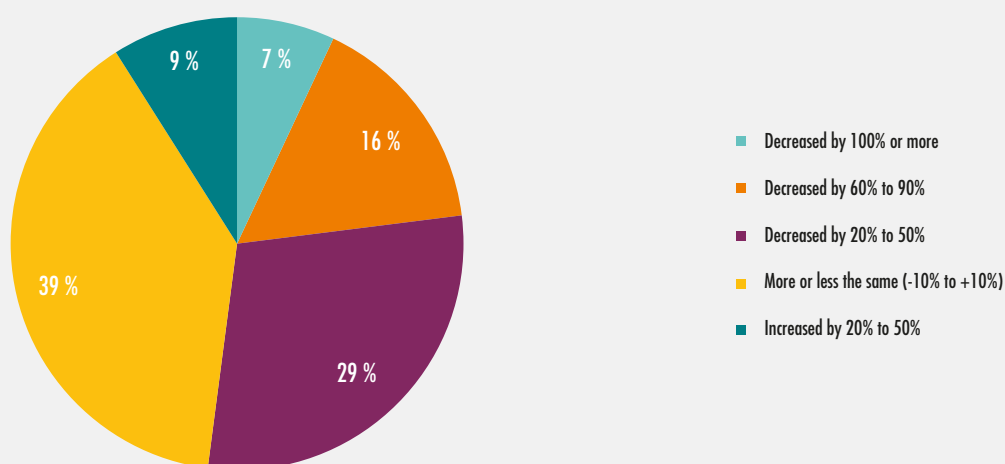
## BOX 7 TRADE FACILITATION MEASURES IN GEORGIA

- ▶ Transparency in trade continued to be ensured through the online publication of new regulatory and procedural measures, including health protection measures with direct bearing on trade activities, and the Revenue Service 24/7 call centre.
- ▶ Trade documents continued to be issued online through the national paperless trading system.
- ▶ State agencies stepped up efforts to ensure prompt response to requests from supply chain actors, such as agencies and companies involved in inspection, certification, clearance and similar processes.
- ▶ Border control proceeded within the context of the well-established integrated border management system and was risk-based.
- ▶ Physical inspection of cargo was reallocated from customs clearance points to customs clearance zones to pre-empt congestion at border crossing points.
- ▶ Customs and tax payments continued to be made online through the Revenue Customs Service Platform and were further streamlined through the introduction of simplified procedures for tax refunds.
- ▶ Transit traffic continued to be facilitated by cooperation arrangements anchored in regional agreements, UNECE international transport conventions and protocols, and electronic data exchange with neighbouring countries.

Rising transport costs caused farmers engaged in export activities to effectively suspend export activities. Thus, domestic markets became the main source of income generation for these micro, small and medium enterprises. As shown in [Figure 35](#), farmers fared slightly better than the

remaining surveyed MSMEs engaged in non-food manufacturing, with 39 percent regaining their pre-pandemic income levels and another 9 percent registering a slight increase in income over the period January–July 2020 compared to 2019.

**FIGURE 35**  
CHANGES IN FARMERS' TOTAL INCOME AS A RESULT OF COVID-19 (COMPARING JANUARY–JULY 2020 TO JANUARY–JULY 2019), % OF RESPONDENTS, GEORGIA



SOURCE: UNECE survey of Georgian MSMEs. 2020.

The remaining farmers (52 percent) have been unable to reverse their income decline due to the closure of small grocery shops and the severe downturn in the tourism industry. Among the farmers surveyed, 23 percent reported income reduction of more than 60 percent. Several reported experiencing difficulties in collecting payments, with buyers delaying their payments, and then often paying in the form of small instalments over several months. Farmers noted that advance payments could go a long way towards relieving their financial squeeze (UNECE, 2020).

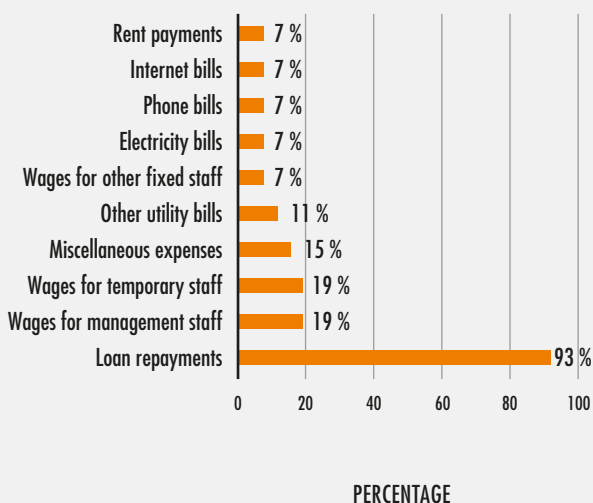
To address financial difficulties, roughly 73 percent of farmers reported using their own savings to cover operational costs, including electricity and gas bills, getting seasonal workers to and from farms, fertilizers, seedlings and machinery equipment.

This coping strategy helped farmers avoid having to defer business payments (Figure 36), with just 24 percent suspending such payments until their financial situation had improved (UNECE, 2020).

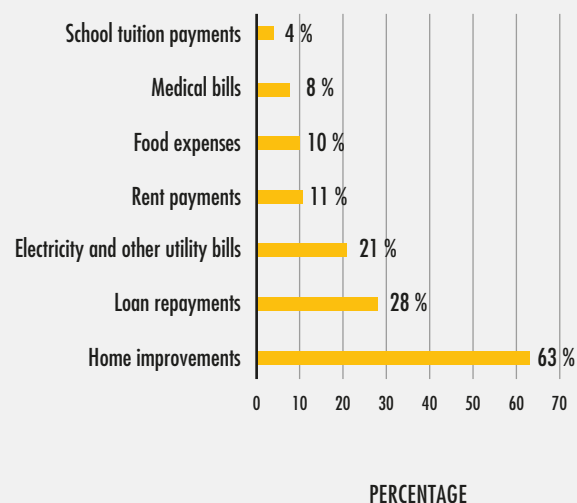
However, using their savings to cover operations costs came at the expense of their households' living conditions. As shown in Figure 36, farmers reported having to put home improvement (renovation and construction) on hold and delay the purchase of electrical appliances. The farmers, most of whom ran family-owned enterprises, also had to take on additional responsibilities to reduce labour costs, dispensing with administrative staff and seasonal workers. Around 7 percent had to lay off staff, and another 13 percent introduced salary cuts. Around 10 percent put workers on unpaid leave (UNECE, 2020).

**FIGURE 36**  
**BUSINESS AND HOUSEHOLD PAYMENTS DEFERRED BY FARMERS DUE TO COVID-19, % OF RESPONDENTS, GEORGIA**

Farmers' deferred business payments (% of respondents)



Farmers' deferred household payments (% of respondents)



SOURCE: UNECE survey of Georgian MSMEs. 2020.

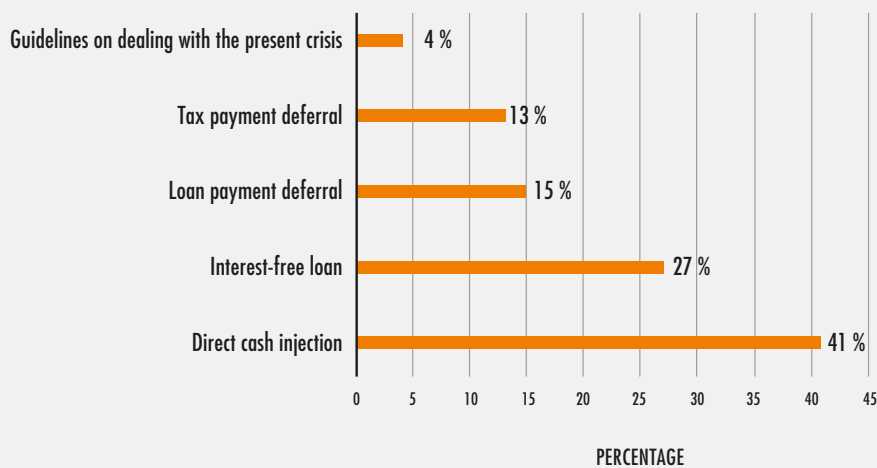
The magnitude of the farmers' income fallout is reflected in the fact that around 85 percent emphasized that their survival hinges on continued government support for covering running expenses (Figure 37). Of these, 81 percent noted that they need "a lot of support" (UNECE, 2020).

Just like with manufacturing micro, small and medium enterprises, the income loss for farmers could have been more severe had it not been for the Government's

relief measures. Around 42 percent reported that they had benefited from these measures. The remainder reported that they did not meet the eligibility criteria (in the case of low-interest loans) or found the application procedures too complicated. Some also noted that their businesses were beyond help.

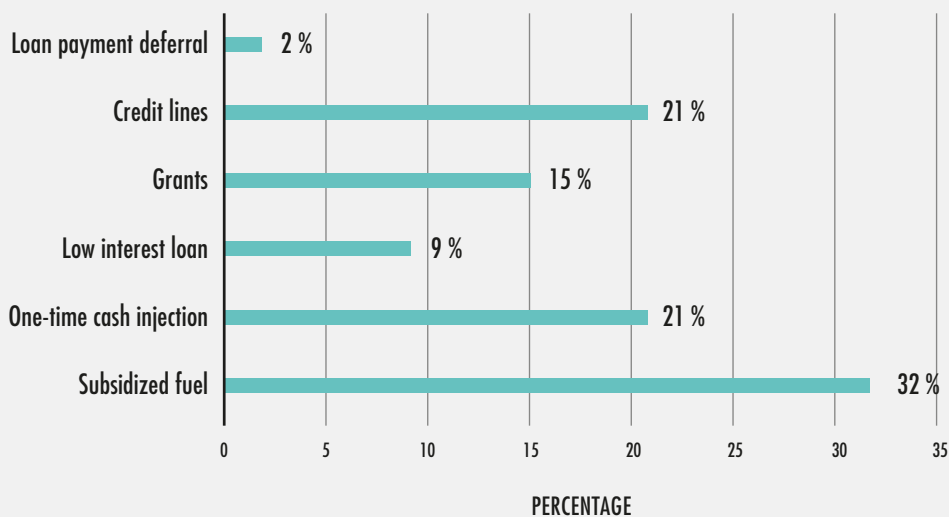
As shown in Figure 38, farmers received one-time cash injections from Enterprise Georgia in the amount of GEL 300, in addition to subsidized fuel, credit

**FIGURE 37**  
**FARMERS' URGENT NEEDS FOR MAINTAINING OPERATIONS IN RESPONSE TO COVID-19 IMPACT,**  
**% OF RESPONSES, GEORGIA**



SOURCE: UNECE survey of Georgian MSMEs. 2020.

**FIGURE 38**  
**BREAKDOWN OF GOVERNMENT ASSISTANCE RECEIVED BY FARMERS TO MITIGATE COVID-19 IMPACTS,**  
**% OF RESPONSES, GEORGIA**



SOURCE: UNECE survey of Georgian MSMEs. 2020.



lines for sourcing supplies (particularly fertilizers) and grants for upgrading their productive capacities. Farmers were appreciative of the assistance received, though they mentioned that the fuel subsidies programme could benefit from improvement. Several noted that they were assigned to petrol stations that were far away from their farms and that some of the stations provided low-quality fuel.

Roughly 23 percent of farmers received assistance from international organizations and national non-governmental organizations. As shown in **Figure 38**, the bulk of this assistance was in the form of grants, which were disbursed within the context of donor-funded initiatives to enable farmers to purchase raw material and machinery equipment. The non-governmental organizations offered free advisory services, moral support and promotional campaigns. In addition, 3 percent of farmers were granted the ability (by their commercial banks) to defer business loan payments.

### Impact on market prices and smallholder farmers

In several countries in the region (Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Tajikistan and Ukraine), more than 40 percent of each household budget, on average, is spent on food. Households in Tajikistan, for example, allocate 53 percent of their expenditures for food, on average. Vulnerable groups of the population spend even more; pensioners spent 62 percent of their budgets on food in 2019. The sharp increases in staple food prices as a result of COVID-19 have caused surges in food costs, with significant negative impacts on food security and nutrition.

#### International export prices in ECA

Wheat export prices in **Russian Federation** and **Ukraine** have varied only slightly. They remained relatively within the normal range during the first six months of 2020, despite export restrictions in response to the COVID-19 pandemic. Similarly, maize export prices in Ukraine, one of the world's vital maize exporters, were relatively stable over the first six months of 2020. In contrast, wheat export prices in **Kazakhstan** increased by 20 percent between January and May 2020, with a slight decline in June. Wheat export prices in 2020 were much higher than the corresponding months in 2019.

#### Impact of COVID-19 on domestic food prices in selected countries

In **Tajikistan**, during the second quarter of 2020, the retail prices of most key staple foods saw significant increases over the same period in 2019. In particular, the prices of the following staples saw significant increases: potatoes (84 percent), apples (43 percent), wheat flour (31 percent), mutton (20 percent), beef (18 percent) and milk (16 percent), implying significant increases in the cost of both basic and healthy diets. In contrast, in the corresponding period, prices of fresh vegetables such as cabbage (33 percent), carrots (38 percent) and tomatoes (29 percent) were significantly lower than a year before, potentially hurting farmers' incomes.

In **Kyrgyzstan**, during the first two quarters of 2020, the retail prices of most important staple foods saw significant increases over the same period in 2019 as a result of COVID-19. In particular, prices of potatoes increased by 45 percent in the first quarter and 73 percent in the second quarter, prices of wheat grain by 13 and 19 percent, prices of wheat flour by 15 and 31 percent, and prices of livestock products by 9 and 14 percent. The price differences were notably higher in the second quarter than in the first quarter.

The retail prices of most staples in **Georgia**, similar to Tajikistan and Kyrgyzstan, in the first six months of 2020 saw substantial increases over the corresponding period in 2019, due to COVID-19. The commodities with the most significant price increases in the first two quarters of 2020 were buckwheat, chicken legs and most fruits (apples in particular).

According to the FAO's 2020 response and recovery programme (FAO 2020e), vulnerable groups – including small-scale farmers, herders, fishers and forest-dependent communities and food workers in both rural and urban areas – are finding their livelihoods and resilience being eroded. The pandemic-induced disruptions in value chains pose challenges in accessing financial and other services and inputs, especially for smallholder producers.

The results of the FAO Regional Office for Europe and Central Asia survey in the 15 ECA countries also confirm that farmers have suffered financial losses due to supply chains and have experienced

difficulties in accessing affordable credit due to the COVID-19 pandemic (see details in FAO, 2020). The results also confirm that, in general, livestock farmers have reported financial problems due to COVID-19 at a higher percentage than crop farmers and traders/processors. By severity, most respondents reportedly have suffered at a moderate or severe level in Kyrgyzstan, Tajikistan and Turkey. At the same time, mostly mild problems were reported in Albania, Armenia, Bosnia and Herzegovina and Uzbekistan.

Finally, it should be emphasized that during the COVID-19 crisis, the lockdown procedures implemented in most countries have reduced smallholder farmers' access to critical inputs and services essential for the next growing season. Hence, to avoid further detrimental impact on their productivity, additional measures are required to ensure timely access to quality inputs for the upcoming season.

### National policy responses to mitigate the COVID-19 impact on food markets

Since the COVID-19 pandemic gripped the region in March 2020, several countries have implemented policy measures to:

1. ensure sufficient domestic supplies and avoid price increases of staple foods;
2. provide financial support to agriculture and businesses facing financial problems as a result of COVID-19; and
3. assist vulnerable sections of their population.

Following are some of the specific key policy response measures:

- **Kazakhstan**, the **Russian Federation** and **Ukraine**, the three leading exporters in the region, implemented export restriction policies on wheat and other major food items in March, April and May 2020; most were lifted by the end of June.
- The Government of **Ukraine**, on 17 August 2020, established a limit of wheat exports for the 2020/21 season at 17.5 million tonnes (about 17 percent below the volume exported in the previous year).

- The Government of **Georgia** launched targeted measures for supporting agro-industries within the context of the national programme "Caring for villages, agriculture, regional development." The programme involved one-time cash injections, credit schemes and rebates on gas and electricity, among other measures (UNECE, 2020).
- To facilitate regional agrifood trade, "green corridors" (a mechanism for customs clearance) have been strengthened in countries such as **North Macedonia, Uzbekistan** and **Turkey**.
- Digital solutions have been adopted in agricultural marketing, including the Digital Agriculture Marketplace Platform (DITAP) in **Turkey**.
- Market intervention policies – such as price control and price stabilization programmes, the mobilization of grain reserves, and transport subsidies – were in place in the **Russian Federation, Tajikistan, Ukraine** and **Uzbekistan**.
- On 22 April 2020, to avoid price increases, the Government of **Ukraine** introduced state regulations on prices of a range of food items, including wheat flour, buckwheat, pasta, bread, milk, eggs, poultry, mineral water, butter and sugar.
- Many countries – such as **Armenia, Azerbaijan, North Macedonia, Republic of Moldova, Montenegro, Turkey** and **Uzbekistan** – have implemented and extended financial initiatives, plans and programmes to address economic challenges related to COVID-19.
- Social support packages to provide food access to vulnerable populations have been implemented in **Armenia, Bosnia and Herzegovina, Kyrgyzstan, Montenegro** and **Tajikistan**.
- Global infant and young child feeding and nutrition guidance in the context of COVID-19 has been used and operationalized in **Bosnia and Herzegovina, Croatia, Kyrgyzstan, Tajikistan, Turkey** and **Turkmenistan**.

As can be seen from this list, most of the actions on trade restrict national goals policies. On the contrary, based on the lessons learned from the 2007–2008 food crisis, FAO (Torero Cullen, 2020) has advised: “Keeping the global food trade open is critical to keep the food markets functioning. Governments should eliminate existing export restrictions, including export bans ... Harmful import tariffs and non-tariff trade barriers should be eliminated. Lower import tariffs facilitate imports and therefore helps to address the immediate concern about low food supplies and rising food prices.” Hence, the national policy emphasis should be on providing safety nets, boosting smallholder resilience for recovery to maintain

food security, and sustaining nutritional standards for the vulnerable sections of the population.

Along these lines, FAO recommended a set of policies to counter the adverse effects of the COVID-19 pandemic on food systems to prevent significant increases in the cost of nutritious food and support the affordability of healthy diets (FAO, IFAD, UNICEF, WFP and WHO, 2020, p. 140). The critical areas of these policies involve providing emergency food assistance and social protection, removing key logistics bottlenecks in food value chains, helping smallholders enhance their productivity, and implementing economic stimulus measures primarily to provide employment, among others. ■

# ANNEX

**TABLE A1**  
**THE LOWER BOUNDS FOR THE PERCENTAGE AND NUMBER OF PEOPLE WHO CANNOT AFFORD THE THREE**  
**SELECTED DIETS (EVEN WHEN ALL INCOME IS SPENT ON FOOD) IN THE ECA REGION, 2017**

Country/Group	% of population			Number of people (millions)		
	Energy Sufficient Diet	Nutrient Adequate Diet	Healthy Diet	Energy Sufficient Diet	Nutrient Adequate Diet	Healthy Diet
<b>Central Asia</b>	<b>&lt;0.1</b>	<b>1.8</b>	<b>11.1</b>	<b>&lt;0.1</b>	<b>0.4</b>	<b>2.4</b>
Kazakhstan	<0.1	<0.1	0.2	<0.1	<0.1	<0.1
Kyrgyzstan	<0.1	1.8	20.4	<0.1	0.1	1.3
Tajikistan	0.1	3.7	12.8	<0.1	0.3	1.1
<b>European CIS</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>0.2</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>0.3</b>
Belarus	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Republic of Moldova	<0.1	<0.1	0.3	<0.1	<0.1	<0.1
Russian Federation	<0.1	<0.1	0.2	<0.1	<0.1	0.3
<b>The Caucasus</b>	<b>&lt;0.1</b>	<b>1.1</b>	<b>8.9</b>	<b>&lt;0.1</b>	<b>0.1</b>	<b>0.5</b>
Armenia	<0.1	2.2	17.7	<0.1	0.1	0.5
Azerbaijan	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<b>Western Balkans</b>	<b>0.2</b>	<b>2.3</b>	<b>7.5</b>	<b>&lt;0.1</b>	<b>0.3</b>	<b>0.9</b>
Albania	<0.1	3.0	17.3	<0.1	0.1	0.5
Bosnia and Herzegovina	<0.1	0.1	0.7	<0.1	<0.1	<0.1
North Macedonia	0.9	6.7	9.4	<0.1	0.1	0.2
Montenegro	<0.1	1.4	7.9	<0.1	<0.1	<0.1
Serbia	<0.1	0.2	1.9	<0.1	<0.1	0.1
<b>Western Balkans and Turkey</b>	<b>0.2</b>	<b>2.0</b>	<b>6.4</b>	<b>&lt;0.1</b>	<b>0.5</b>	<b>1.9</b>
Turkey	<0.1	0.3	1.2	<0.1	0.3	1.0
EFTA	0.1	0.1	0.1	<0.1	<0.1	<0.1
EU (EU-27 and the United Kingdom of Great Britain and Northern Ireland)	0.2	0.6	0.9	0.1	0.2	0.3
ECA-14	<0.1	1.4	6.4	<0.1	1.1	5.2
<b>WORLD</b>	<b>2.0</b>	<b>12.9</b>	<b>26.0</b>	<b>71.2</b>	<b>636.0</b>	<b>1864.3</b>

NOTES: Lower-bound estimates are calculated assuming that 100 percent of income is spent on food, as an extreme case alternative. See *The State of Food Security and Nutrition in the World 2020* for more details.

**TABLE A2**  
**THE UPPER BOUNDS FOR THE PERCENTAGE AND NUMBER OF PEOPLE WHO CANNOT AFFORD THE THREE**  
**SELECTED DIETS IN THE ECA REGION, 2017**

Country/Group	% of population			Number of people (millions)		
	Energy Sufficient Diet	Nutrient Adequate Diet	Healthy Diet	Energy Sufficient Diet	Nutrient Adequate Diet	Healthy Diet
<b>Central Asia</b>	<b>1.2</b>	<b>28.1</b>	<b>63.3</b>	<b>0.3</b>	<b>6.7</b>	<b>19.3</b>
Kazakhstan	<0.1	6.5	51.8	<0.1	1.2	9.3
Kyrgyzstan	1.6	52.7	85.5	0.1	3.3	5.3
Tajikistan	1.8	25.3	52.5	0.2	2.2	4.7
<b>European CIS</b>	<b>&lt;0.1</b>	<b>3.2</b>	<b>24.3</b>	<b>&lt;0.1</b>	<b>10.8</b>	<b>37.8</b>
Belarus	<0.1	1.0	25.1	<0.1	0.1	2.4
Republic of Moldova	<0.1	1.3	23.6	<0.1	<0.1	0.7
Russian Federation	<0.1	7.4	24.1	<0.1	10.7	34.8
<b>The Caucasus</b>	<b>7.3</b>	<b>33.4</b>	<b>48.0</b>	<b>0.4</b>	<b>2.0</b>	<b>3.1</b>
Armenia	14.5	67.5	92.6	0.4	2.0	2.7
Azerbaijan	<0.1	<0.1	3.3	<0.1	<0.1	0.3
<b>Western Balkans</b>	<b>2.0</b>	<b>33.9</b>	<b>56.9</b>	<b>0.2</b>	<b>5.1</b>	<b>9.5</b>
Albania	3.6	61.8	87.3	0.1	1.8	2.5
Bosnia and Herzegovina	0.1	12.1	26.1	<0.1	0.4	0.9
North Macedonia	5.7	42.9	57.0	0.1	0.9	1.2
Montenegro	0.7	26.0	48.8	<0.1	0.2	0.3
Serbia	0.1	26.8	65.5	<0.1	1.9	4.6
<b>Western Balkans and Turkey</b>	<b>0.7</b>	<b>21.4</b>	<b>39.6</b>	<b>0.6</b>	<b>20.8</b>	<b>38.4</b>
Turkey	1.8	31.5	53.4	0.4	15.6	29.0
EFTA	0.2	1.2	2.1	<0.1	0.1	0.2
EU (EU-27 and the United Kingdom of Great Britain and Northern Ireland)	0.7	9.9	20.9	0.2	2.2	4.9
ECA-14	2.1	25.0	48.5	1.4	40.2	98.6
<b>WORLD</b>	<b>9.5</b>	<b>40.0</b>	<b>59.5</b>	<b>516.4</b>	<b>2843.5</b>	<b>4575.0</b>

NOTES: Upper-bound estimates are calculated using average food expenditure shares based on the World Bank's classification of income. They are, on average, 28 percent, 42 percent and 50 percent of total expenditures in upper-middle-income, lower-middle-income and low-income countries, respectively. See *The State of Food Security and Nutrition in the World 2020* for more details.



# NOTES

**1** SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

**2** SDG 2.2: By 2030, end all forms of malnutrition, including achieving by 2025 the internationally agreed targets on stunting and wasting in children under five years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women, and older persons.

**3** 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. References to the ECA-18 in this document refer to this group of 15 countries plus three countries – the Russian Federation, Turkey and Ukraine – that together account for 70 percent of the total ECA-18 population.

**4** The 11 countries are Albania, Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkey and Ukraine.

**5** The odds ratio is calculated as follows: [prevalence of food insecurity for women / (1 - prevalence of food insecurity for women)] / [prevalence of food insecurity for men / (1 - prevalence of food insecurity for men)].

**6** No reference data are available for child wasting.

**7** The international poverty line is established at USD 1.90 purchasing power parity (PPP) per person per day.

**8** The 14 countries in Europe and Central Asia for which data are available are Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Kazakhstan, Kyrgyzstan, Montenegro, North Macedonia, Republic of Moldova, Russian Federation, Serbia, Tajikistan and Turkey.

**9** The following countries are included in various subregions of the Europe and Central Asia region used in this report: the Caucasus (3) – Armenia, Azerbaijan and Georgia; Central Asia (5) – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan; European Commonwealth of Independent States (CIS) (4) – Belarus, Republic of Moldova, Russian Federation and Ukraine; the Western Balkans and Turkey (6) – Albania, Bosnia and Herzegovina, Montenegro, Serbia, North Macedonia and Turkey; European Union countries (EU-27) – Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland,

France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden; European Free Trade Association (EFTA) countries (4) – Iceland, Liechtenstein, Norway and Switzerland; and the United Kingdom of Great Britain and Northern Ireland, which was a member of the European Union until 2019. The other FAO Member Countries in the region are Andorra, Israel, Monaco and San Marino.

**10** By United Nations Statistics Division classification (<https://unstats.un.org/unsd/methodology/m49/>): 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 Turkey are included in the Western Asia geographic grouping.

**11** Prevalence of undernourishment (PoU) also was the main indicator used to monitor the World Food Summit target and the Millennium Development Goal 1C target of eradicating extreme hunger and poverty.

**12** For specific information on how the projections were calculated, please see Box 2 and Annex 2 of The State of Food Security and Nutrition in the World (FAO, IFAD, UNICEF, WFP and WHO, 2020), available at <http://www.fao.org/publications/sofi/2020/en/>

**13** Number of cases updated as of 22 October 2020. Updates retrieved from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

**14** Estimates conducted by WFP VAM, in March 2020 using pre-COVID-19 baselines for total food insecure in each country, unpublished.

**15** Analysis uses the economic pillar of the Proteus food security index combined with the export dependency for primary commodities (fuels, ores and metals).

**16** At the national level, the anaemia rate in children younger than 5 is 35.8 percent. Although the rate has been decreasing, it also remains high for pregnant women, at 29.9 percent.

**17** No baseline data are available for child wasting.

**18** For more on this, see FAO, IFAD, UNICEF, WFP and WHO, 2018.

**19** The World Health Assembly adopted a Global Monitoring Framework for the prevention and control of non-communicable diseases in 2013 that includes a target to halt the rise in adult obesity, a nutritional risk factor for non-communicable diseases, by 2025.

**20** The following countries are included in the WHO Europe region: Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Turkmenistan, Ukraine, United Kingdom of Great Britain and Northern Ireland and Uzbekistan.

**21** The ECA-18 includes all countries in the ECA-15 plus Russian Federation, Turkey and Ukraine. These three countries together account for about 70 percent of the total population in the ECA-18.

**22** 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.

**23** FAO's website on food-based dietary guidelines is available at <http://www.fao.org/nutrition/education/food-dietary-guidelines/home/en/>

**24** All consumption statistics reported in this section refer to apparent consumption derived from FAO Food Balance Sheets as per May 2020 (FAO, 2020i). The Food Balance Sheets refer to "average food available for consumption" (or apparent consumption), which, for a number of reasons (such as waste and losses), 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.

**25** Country-level recommendations for consumption of various foods are based on national food-based dietary guidelines. They vary based on many regional factors, including cost and availability, and may differ from global and general recommendations. For example, some recommendations will include more animal-based foods and less plant-based foods than others, depending on regional needs. For more information, please see the discussion in Part 2 of this report.

**26** The data from FAOSTAT on the availability of pulses, especially for the earlier periods is not complete for several countries, hence overtime comparison may not be very accurate.

**27** The nine countries included in this review are: Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Kyrgyzstan, Republic of Macedonia, Montenegro, Tajikistan and Turkey.

**28** Sixty-three percent is the proportion of expenditures spent on food by the bottom consumer segment in low-income countries. This is the middle of three alternatives, between the lower-bound and upper-bound estimates. More details are in the text.

**29** The ECA-14 includes 14 selected countries of the ECA region that are not European Union Member States and for which the required data were available. These countries are Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Kazakhstan, Kyrgyzstan, Montenegro, North Macedonia, Republic of Moldova, Russian Federation, Serbia, Tajikistan and Turkey.

**30** Details of the three diets and their cost calculations are provided in the full methodology of FAO's *The State of Food Security and Nutrition in the World 2020* report. Similarly, the diet costs in that report uses 2017 retail price data based on the World Bank classification of income from 170 countries and the prices from the World Bank using purchasing power parity (PPP) (further details of the diet cost methodology and the data can be found in *The State of Food Security and Nutrition in the World 2020* report, Box 10 and Box 11, Annex 3 and Annex 5).

**31** For more on this methodology, see *The State of Food Security and Nutrition in the World 2020*, Box 11 and Annex 4, Table A4.1.

## NOTES

**32** Based on the unpublished study (Springmann, M., 2020) for The State of Food Security and Nutrition in the World 2020 (Box 12, p. 80).

**33** These 11 countries, referred to in the aggregate as ECA-11, are: Albania, Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkey and Ukraine.

**34** These cost estimates are projections to the year 2030 which is a target year for achieving the Sustainable Development Goals. Another reason to use projections is that the time from now until 2030 is assumed as a transition period to realize the full benefits of healthy diets.

**35** The background paper by Springmann uses 2030 as one of the projection years. Typically, it can take some 20 years for changes in greenhouse gas emissions to have their full impact on climate change. Therefore, there needs to be a sufficient gestation period for the transition to healthy dietary regimes. Furthermore, 2030 is the target year for achievement of the Sustainable Development Goals.

**36** Based on the evolution of food consumption patterns in the countries of ECA region (examined in Section 1.4), it was concluded that, in general, for the majority of the countries there is a less-than-optimum level of consumption of fish and plant-based foods (such as fruits, vegetables and pulses) and an overconsumption of animal-based products (red meats, poultry and milk). Thus, a structural change in agriculture is warranted in the region, to reduce health and environmental costs.

**37** One country from each of the subregions is selected as an example.

**38** 1 GtCO<sub>2</sub> (1 gigaton of CO<sub>2</sub>) is equivalent to 1 billion tons of CO<sub>2</sub>.

**39** Source: World Bank data and author calculations.

**40** According to the classifications by the World Bank updated on July 2020, for the current 2021 fiscal year, low-income economies are defined as those with a gross national income per capita (Atlas method) of USD 1 035 or less in 2019.

**41** This is based on the assumption that the household size includes an average of 6.9 people and the entire benefit is allocated to food consumption.

**42** The Systems Approach for Better Education Results (SABER) framework is an evidence-based approach aimed at five policy goals: policy framework, financial capacity, institutional capacity, design and implementation, and community goals. The approach is utilized by school feeding programmes in all Commonwealth of Independent States countries (WFP and Maastricht University, 2018a).

**43** A life-cycle approach considers the needs, risks and vulnerabilities that might differ along someone's lifetime.

**44** Nutrition-sensitive programmes such as supplementary feeding, take-home rations or nutrition awareness and education are examples of nutrition-sensitive approaches to incorporate into social protection programmes. Behaviour change communication for nutrition awareness is essential to shifting behavioural norms that contribute to malnutrition.

**45** All references to Kosovo should be understood to be in the context of United Nations Security Council resolution 1244 (1999).

**46** This and the market section are based on the FAO Regional Office for Europe and Central Asia Policy Brief No. 2 from 27 July 2020 and the field survey conducted by the FAO Regional Office for Europe and Central Asia between 27 May 2020 and 22 June 2020 involving a non-random sample of 601 crop farmers, 327 livestock farmers and 533 traders and processors from 14 countries.

**47** The UNECE assessment draws on a survey of 330 micro, small and medium enterprises (MSMEs) from across the country, including 226 manufacturing enterprises and 104 farmers involved in on-farm food processing, harvesting and animal husbandry. The assessment was carried out in May–July 2020 with the aim of capturing: the transmission channels of the pandemic effects and the influence of non-tariff measures governing trade in goods therein; supply chain disruptions and their impact on trade activities; coping strategies for MSMEs, understood in terms of the way they used their assets to maintain operations; and the ripple effects of the pandemic on the economy, particularly those generated by the coping strategies of the MSMEs. An advance copy of the assessment is available at: <https://www.unece.org/tradewelcome/studies-on-regulatory-and-procedural-barriers-to-trade.html>

# REFERENCES

- Abdulloev, I.** 2020. *Changes in the Forsaken Schooling and Migration Relationship in Tajikistan*. IZA Discussion Paper No. 13435. <https://ssrn.com/abstract=3643199>
- Ag-Incentives.** 2020. Nominal rate of protection. In: *Ag-Incentives* [online]. Washington, DC. [Cited 26 April 2020]. <http://ag-incentives.org/indicator/nominal-rate-protection>
- Asian Development Bank (ADB).** 2016. *National Climate Change Adaptation Strategy (NCCAS)*. Draft. Project Number: 45436-001. TA-8090: Building Capacity for Climate Resilience.
- Bagci Bosi, A., Eriksen, K., Sobko, T., Wijnhoven, T. & Breda, J.** 2016. Breastfeeding practices and policies in WHO European Region Member States. *Public Health Nutrition*, 19(4): 753–764. <https://doi.org/10.1017/S1368980015001767>
- Baltzer, K. & Hansen, H.** 2011/2012. *Agricultural input subsidies in Sub-Saharan Africa*. Copenhagen, DANIDA. (also available at: <https://www.oecd.org/derec/49231998.pdf>).
- Brotanek, J.M., Gosz, J., Weitzman, M. & Flores, G.** 2007. Iron deficiency in early childhood in the United States: risk factors and racial/ethnic disparities. *Pediatrics*, 120(3): 568–575. <https://doi.org/10.1542/peds.2007-0572>
- Christian, P., Lee, S.E., Donahue Angel, M., Adair, L.S., Arifeen, S.E., Ashorn, P., Barros, F.C., et al.** 2013. Risk of childhood undernutrition related to small-for-gestational age and preterm birth in low- and middle-income countries. *International Journal of Epidemiology*, 2013(42): 1340–55. <https://doi.org/10.1093/ije/dyt109>
- Development Initiatives.** 2018. *2018 Global Nutrition Report: Shining a light to spur action on nutrition*. Bristol, Development Initiatives Poverty Research Ltd. (also available at: <https://www.unscn.org/uploads/web/news/2018-Global-Nutrition-Report.pdf>).
- Drewnowski, A. & Specter, S.E.** 2004. Poverty and obesity: the role of energy density and energy costs. *The American Journal of Clinical Nutrition*, 79(1): 6–16. <https://doi.org/10.1093/ajcn/79.1.6>
- EAT-Lancet Commission.** 2019. Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems. *The Lancet Commissions*, 393(10170): 447–492. [http://dx.doi.org/10.1016/S0140-6736\(18\)31788-4](http://dx.doi.org/10.1016/S0140-6736(18)31788-4)
- European Commission.** 2019. European State of the Climate. In: *Copernicus Climate Change Service* [online]. <https://climate.copernicus.eu/european-state-of-the-climate>
- European Commission.** 2020. Copernicus: 2020 warmest year on record for Europe; globally, 2020 ties with 2016 for warmest year recorded. In: *Press releases* [online]. <https://climate.copernicus.eu/2020-warmest-year-record-europe-globally-2020-ties-2016-warmest-year-recorded>
- FAO.** 2013. *Climate-Smart Agriculture Sourcebook*. (also available at <http://www.fao.org/3/i3325e/i3325e.pdf>).
- FAO.** 2016. *Voices of the Hungry: Methods for estimating comparable prevalence rates of food insecurity experienced by adults throughout the world*. Technical report. Rome, FAO. 60 pp. (also available at <http://www.fao.org/3/a-i4830e.pdf>).
- FAO.** 2016a. *National Gender Profile of Agricultural and Rural Livelihoods – Kyrgyz Republic*. Country Gender Assessment Series. Ankara, FAO. 68 pp. (also available at: <http://www.fao.org/3/a-i5763e.pdf>).
- FAO.** 2016b. *National Gender Profile of Agricultural and Rural Livelihoods – Tajikistan*. Country Gender Assessment Series. Ankara, FAO. 56 pp. (also available at: <http://www.fao.org/3/a-i5766e.pdf>).
- FAO.** 2017a. *Gender, Agriculture, and Rural Development in Armenia*. Country Gender Assessment Series. Budapest, FAO. 56 pp. (also available at: <http://www.fao.org/3/a-i6737e.pdf>).
- FAO.** 2017b. Developing sustainable food systems and value chains for climate-smart agriculture. In: *Climate Smart Agriculture Sourcebook* [online]. <http://www.fao.org/climate-smart-agriculture-sourcebook/production-resources/module-b10-value-chains/chapter-b10-1/en/>
- FAO.** 2017c. *Regional Overview of Food Insecurity 2016: Europe and Central Asia. The Food Insecurity Transition*. Budapest, FAO. 56 pp. (also available at: <http://www.fao.org/3/a-i6877e.pdf>).
- FAO.** 2017d. *Climate-Smart Agriculture Sourcebook*. Summary. Second edition, 2017. Rome, FAO. (also available at <http://www.fao.org/3/i7994e/i7994e.pdf>).
- FAO.** 2019. *Regional Overview of Food Security and Nutrition in Europe and Central Asia 2019: Structural Transformations of*

## REFERENCES

- Agriculture for Improved Food Security, Nutrition and Environment*. Budapest, FAO. 104 pp. (also available at: <http://www.fao.org/3/ca7153en/ca7153en.pdf>).
- FAO**. 2020a. *Europe and Central Asia: Regional food market situation and policy bulletin in response to the COVID-19 pandemic*. Issue No. 2, 27 July 2020. Rome, FAO. 16 pp. (also available at: <https://doi.org/10.4060/cb0450en>).
- FAO**. 2020b. *COVID-19 and smallholder producers' access to markets*. 15 April 2020. Rome, FAO. 9 pp. (also available at: <https://doi.org/10.4060/ca8657en>).
- FAO**. 2020c. *Mitigating risks to food systems during COVID-19: Reducing food loss and waste*. 11 May 2020. Rome, FAO. 6 pp. (also available at: <https://doi.org/10.4060/ca9056en>).
- FAO**. 2020d. *Maintaining a healthy diet during the COVID-19 pandemic*. 27 March 2020. Rome, FAO. 3 pp. (also available at: <https://doi.org/10.4060/ca8380en>).
- FAO**. 2020e. *FAO COVID-19 Response and Recovery Programme*. In: *FAO Resource Mobilization* [online]. Rome. <http://www.fao.org/partnerships/resource-partners/covid-19/en/>
- FAO**. 2020f. *Smallholders and family farms in Tajikistan*. Country Study Report 2019. Regional TCP on Empowering Smallholders and Family Farms. Budapest, FAO. 160 pp. (also available at: <http://www.fao.org/documents/card/en/c/ca9844en>).
- FAO**. 2020g. *Crop Prospects and Food Situation*. Quarterly Global Report No. 2, July 2020. Rome, FAO. 48 pp. (also available at: <https://doi.org/10.4060/ca9803en>).
- FAO**. 2020h. *Smallholders and Family Farms in Europe and Central Asia*. Regional Synthesis Report 2019. Budapest, FAO. (also available at: <https://doi.org/10.4060/ca9586en>).
- FAO**. 2020i. *Food Balance Sheets*. In: *FAOSTAT* [online]. Rome. <http://www.fao.org> (cited 31 May 2020). <http://www.fao.org/faostat/en/#data/FBS>
- FAO & International Life Sciences Institute**. 1997. *Magnitude, causes and consequences of micronutrient malnutrition*. In *Preventing micronutrient malnutrition: A guide to food-based approaches*. Washington, D.C., ILSI PRESS. (also available at [http://www.fao.org/docrep/x0245e/x0245e01.htm#P38\\_2721](http://www.fao.org/docrep/x0245e/x0245e01.htm#P38_2721)).
- FAO, IFAD, UNICEF, WFP & WHO**. 2018. *The State of Food Security and Nutrition in the World 2018: Building climate resilience for food security and nutrition*. Rome, FAO. 202 pp. (also available at: <http://www.fao.org/3/I9553EN/i9553en.pdf>).
- FAO, IFAD, UNICEF, WFP & WHO**. 2019. *The State of Food Security and Nutrition in the World 2019: Safeguarding against economic slowdowns and downturns*. Rome, FAO. 239 pp. (also available at: <http://www.fao.org/3/ca5162en/ca5162en.pdf>).
- FAO, IFAD, UNICEF, WFP & WHO**. 2020. *The State of Food Security and Nutrition in the World 2020: Transforming food systems for affordable healthy diets*. Rome, FAO. 320 pp. (also available at: <https://doi.org/10.4060/ca9692en>).
- FAO and WHO**. 2014. *Conference Outcome Document: Rome Declaration on Nutrition*. Second International Conference on Nutrition. Rome, FAO. 6 pp. (also available at: <http://www.fao.org/3/a-ml542e.pdf>).
- FAO and WHO**. 2019. *Sustainable Healthy Diets: Guiding principles*. Rome, FAO. 44 pp. (also available at: <http://www.fao.org/documents/card/en/c/ca6640en/>).
- Fitzpatrick, I., Young, R., Barbour, R., Perry, M., Rose, E. & Marshall, A.** 2019. *The Hidden Cost of UK Food*. Revised Edition 2019. Bristol, Sustainable Food Trust. 49 pp. (also available at: <https://sustainablefoodtrust.org/wp-content/uploads/2013/04/Website-Version-The-Hidden-Cost-of-UK-Food.pdf>).
- GBD-2017 Diet Collaborators**. 2019. *Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017*. *The Lancet*, 3 April 2019. [https://doi.org/10.1016/S0140-6736\(19\)30041-8](https://doi.org/10.1016/S0140-6736(19)30041-8)
- German Watch**. 2019. *Global Climate Risk Index*. In: *German Watch* [online]. <https://germanwatch.org/en/crisis>
- Global Carbon Project**. 2020. *The Global Carbon Project* [online]. <https://www.globalcarbonproject.org/>
- Gonzalez Fischer, C. & Garnett, T.** 2016. *Plates, pyramids and planets*. Developments in national healthy and sustainable dietary guidelines: a state of play assessment. FAO and the University of Oxford. 80 pp. (also available at <http://www.fao.org/3/a-i5640e.pdf>).



**Government of the Republic of Tajikistan.** 2008. *The Second National Communication of the Republic of Tajikistan under the United Nations Framework Convention on Climate Change*. (also available at: <https://unfccc.int/resource/docs/natc/tainc2.pdf>).

**Government of the Republic of Tajikistan.** 2018. *The First Biennial Report of the Republic Of Tajikistan on Inventory of Greenhouse Gases under the UN Framework Convention on Climate Change*. Dushanbe. (also available at: [https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/4973651\\_Tajikistan-BUR1-1-FBUR%20Tajikistan\\_eng.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/4973651_Tajikistan-BUR1-1-FBUR%20Tajikistan_eng.pdf)).

**Gray, S.C., Edwards, S.E., Schultz, B.D. & Miranda, M.L.** 2014. Assessing the impact of race, social factors and air pollution on birth outcomes: a population based study. *Environmental Health*, 13 (4). (also available at: <https://ehjournal.biomedcentral.com/articles/10.1186/1476-069X-13-4>).

**Intergovernmental Panel on Climate Change (IPCC).** 2019. *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*. Pörtner, H.-O., Roberts, D.C., Masson-Delmotte, V., Zhai, P., Tignor, M., Poloczanska, E., Minterbeck, K., Alegria, A., Nicolai, M., Okem, A., Petzold, J., Rama, B. & Weyer, N.M. (eds). In press. (also available at [https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC\\_FullReport\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/sites/3/2019/12/SROCC_FullReport_FINAL.pdf)).

**Jornayvaz, F.R., Vollenweider P., Bochud, M., Mooser, V., Waeber, G. & Marques-Vidal, P.** 2016. Low birth weight leads to obesity, diabetes and increased leptin levels in adults: the CoLaus study. *Cardiovascular Diabetology*, 15 (73). <https://doi.org/10.1186/s12933-016-0389-2>

**Kelahan, H.** 2018. *Achieving SDG 2 – Recommendations for WFP Tajikistan Country Strategic Plan Nutrition Programme*. Background Paper.

**Levin, H.** 1986. A benefit-cost analysis of nutritional programs for anemia reduction. *World Bank Res. Observer* 1: 219–246.

**Mates, E. et al.** 2020. *A review of the nutrition status of adolescent and school-aged children in Europe and Central Asia region*. UNICEF ECARO.

**Mehrens, M.C.** 2020. *What does food cost, considering social and environmental costs? A contribution to the true costs in the German food market*. Master's thesis. University of Augsburg, Augsburg. Institute of Materials Resource Management. May 2020.

**Morris, M., Kelly, V.A., Kopicki, R.J. & Byerlee, D.** 2007. *Fertilizer Use in African Agriculture: Lessons Learned and Good Practice Guidelines*. Directions in Development: Agriculture and Rural Development. Washington, DC, World Bank. (also available at: <http://hdl.handle.net/10986/6650>).

**National Oceanic and Atmospheric Administration (NOAA).** 2020. Billion-Dollar Weather and Climate Disasters. In: *National Centers for Environmental Information* [online]. <https://www.ncdc.noaa.gov/billions/>

**National Statistical Committee of the Kyrgyz Republic.** 2019. *Brief Statistical Handbook*. Bishkek. (also available at: <http://www.stat.kg/media/publicationarchive/40d3dbd4-2455-41b1-a2f2-aaecf5f887f0.pdf>).

**National Statistical Committee of the Kyrgyz Republic.** 2020a. Employment rate – female Kyrgyz Republic. In: *National Statistical Committee of the Kyrgyz Republic* [online]. <http://www.stat.kg/en/opendata/category/3259/>

**National Statistical Committee of the Kyrgyz Republic.** 2020b. Employment rate – male Kyrgyz Republic. In: *National Statistical Committee of the Kyrgyz Republic* [online]. <http://www.stat.kg/en/opendata/category/3258/>

**National Statistical Committee of the Kyrgyz Republic.** 2020c. The ratio of women's wages to wages of men on territory. In: *National Statistical Committee of the Kyrgyz Republic* [online]. <http://www.stat.kg/en/opendata/category/332/>

**National Statistical Service of the Republic of Armenia (NSSRA).** 2009. *Report On Time Use Sample Survey in the Republic of Armenia*. Yerevan. (also available at: [https://www.armstat.am/file/article/time\\_use\\_09e.pdf](https://www.armstat.am/file/article/time_use_09e.pdf)).

**NSSRA.** 2016. *Women and Men in Armenia 2016*. (also available at: <https://www.armstat.am/en/?nid=82&id=1846>).

**National Statistical Service of the Republic of Armenia (NSSRA), Ministry of Health of the Republic of Armenia & ICF.** 2017. *Armenia Demographic and Health Survey 2015–16*. Rockville, Maryland, USA, National Statistical Service, Ministry of Health and ICF. (also available at: <https://dhsprogram.com/pubs/pdf/FR325/FR325.pdf>).

## REFERENCES

- National Strategic Review of Food Security and Nutrition in Armenia.** 2018. *6 steps to End hunger, achieve food security and improved nutrition, and promote sustainable agriculture in ARMENIA by 2030*. Reflections and recommendations of the 2017 National Strategic Review of Food Security and Nutrition. (also available at: [https://www.un.am/up/library/NSR\\_ExSum\\_2018-01-11-ENG.pdf](https://www.un.am/up/library/NSR_ExSum_2018-01-11-ENG.pdf)).
- Ritchie, H. & Roser, M.** 2018. Mental Health. In: *Our World in Data* [online]. <https://ourworldindata.org/mental-health>
- Springmann, M.** 2020. *The health and climate-change costs of unhealthy diets*. Background paper for The State of Food Security and Nutrition in the World 2020. Rome, FAO.
- Statistical Agency under President of the Republic of Tajikistan.** 2020a. Food Security and Poverty No. 4 - 2019. Dushanbe. (also available at: [https://stat.ww.tj/files/4-2019\\_\\_angl..pdf](https://stat.ww.tj/files/4-2019__angl..pdf)).
- Statistical Agency under President of the Republic of Tajikistan.** 2020b. *Gender Indicators of Dehkan Farms Productive*. [In Russian]. (also available at: <https://stat.ww.tj/files/%D0%93%D0%95%D0%9D%D0%94%D0%95%D0%A0-2020.pdf>).
- Statistical Agency under President of the Republic of Tajikistan.** 2020c. *Food Security and Poverty*. (also available at: [https://stat.ww.tj/publications/july2020/english\\_1\\_2020.pdf](https://stat.ww.tj/publications/july2020/english_1_2020.pdf)).
- Statistical Agency under President of the Republic of Tajikistan, Ministry of Economic Development and Trade of the Republic of Tajikistan & World Bank.** 2015. *Poverty Measurement in Tajikistan: A Methodological Note*. (also available at: [https://stat.ww.tj/files/metodologia\\_bednosti\\_anglisi.pdf](https://stat.ww.tj/files/metodologia_bednosti_anglisi.pdf)).
- Statistical Agency under President of the Republic of Tajikistan, Ministry of Health and Social Protection of Population of the Republic of Tajikistan & ICF.** 2018. *Tajikistan Demographic and Health Survey 2017*. Dushanbe, Republic of Tajikistan, and Rockville, Maryland, USA, Statistical Agency under the President of the Republic of Tajikistan (SA), Ministry of Health and Social Protection of Population of the Republic of Tajikistan (MOHSP), and ICF. (also available at: <https://dhsprogram.com/pubs/pdf/FR341/FR341.pdf>).
- Strauss, J.** 1986. *Does better nutrition raise farm productivity?* J. Polit. Econ. 94:297–320.
- Tajstat.** 2017. *Socio-economic situation in Tajikistan for 2016*. Dushanbe.
- Themen, D.** 2014. *Reduction of food losses and waste in Europe and Central Asia for improved food security and agri-food chain efficiency*. Budapest, FAO. 85 pp. (also available at <http://www.fao.org/3/a-au844e.pdf>).
- Torero Cullen, Maximo.** 2020. *COVID-19 and the risk to food supply chains: How to respond?* Rome, FAO. 29 March 2020. 7 pp. (also available at: <http://www.fao.org/3/ca8388en/CA8388EN.pdf>).
- Traill, B. W., Mazzocchi, M., Shankar, B., & Hallam, D.** 2014. Importance of government policies and other influences in transforming global diets. *Nutrition Reviews* 72 (9): 591–604.
- UNECE.** 2020. *The impact of COVID-19 on trade and structural transformation in Georgia. Evidence from UNECE's survey of micro, small and medium enterprises*. Geneva, UNECE. September 2020. (also available at: [https://www.unece.org/fileadmin/DAM/trade/StudiesRegulatoryProceduralBarriersTrade/ThematicPublications/Impact\\_COVID-19\\_Georgia.pdf](https://www.unece.org/fileadmin/DAM/trade/StudiesRegulatoryProceduralBarriersTrade/ThematicPublications/Impact_COVID-19_Georgia.pdf)).
- UNICEF, WHO & World Bank.** 2020. *UNICEF-WHO World Bank: Joint malnutrition expanded country dataset, May 2020*. [online]. [Cited 27 May 2020]. <https://datatopics.worldbank.org/child-malnutrition/>
- United Nations.** 2019. The UN welcomes the adoption of the Food Security and Nutrition Programme in Kyrgyzstan for 2019-2023. In: *United Nations Kyrgyz Republic* [online]. 25 July 2019. <https://kyrgyzstan.un.org/en/14121-un-welcomes-adoption-food-security-and-nutrition-programme-kyrgyzstan-2019-2023>
- United Nations.** 2020. *The impact of COVID-19 on children*. United Nations Policy Brief, April 2020. (also available at: [https://www.un.org/sites/un2.un.org/files/policy\\_brief\\_on\\_covid\\_impact\\_on\\_children\\_16\\_april\\_2020.pdf](https://www.un.org/sites/un2.un.org/files/policy_brief_on_covid_impact_on_children_16_april_2020.pdf)).
- United Nations Development Programme.** 2019. Human Development Report 2019. Beyond income, beyond averages, beyond today: Inequalities in human development

in the 21st century. New York. <http://hdr.undp.org/en/content/human-development-report-2019>

**UN Women.** 2020. Tajikistan. In: *UN Women* [online]. <http://eca.unwomen.org/en/where-we-are/tajikistan>

**World Economic Forum.** 2017. *The Global Gender Gap Report 2017*. (also available at: [http://www3.weforum.org/docs/WEF\\_GGGR\\_2017.pdf](http://www3.weforum.org/docs/WEF_GGGR_2017.pdf)).

**World Food Programme (WFP).** 2014. *Kyrgyz Republic: An overview of climate trends and the impact on food security*. <https://www.wfp.org/publications/kyrgyz-republic-overview-climate-trends-and-impact-food-security-june-2014>

**WFP.** 2016. *Tajikistan Food Security Through Cash Transfers*. Concept Note under 2016–2020 Country Programme. Rome.

**WFP.** 2017a. *Climate Risks & Food Security in Tajikistan: A Review of Evidence and Priorities for Adaptation Strategies*. 26 pp. (also available at: <https://docs.wfp.org/api/documents/WFP-0000015482/download/?ga=2.4100720.1310105820.1563973849-1472480630.1563973849>).

**WFP.** 2017b. *Armenia Cost of the Diet (CoD)*. Yerevan and Cairo. (also available at: <https://docs.wfp.org/api/documents/WFP-0000062242/download/>).

**WFP.** 2017c. *WFP Gender Analysis in Food Security Areas Report*. September 2017.

**WFP.** 2018a. *Contribution of School Meals to Poverty Reduction in Armenia*. (also available at: [https://www.un.am/up/library/Contribution\\_of\\_School\\_Meals\\_to\\_Poverty\\_Reduction\\_in\\_Armenia\\_Review\\_ENG.pdf](https://www.un.am/up/library/Contribution_of_School_Meals_to_Poverty_Reduction_in_Armenia_Review_ENG.pdf)).

**WFP.** 2018b. *Tajikistan Fill the Nutrient Gap Summary Report*. Rome.

**WFP.** 2018c. *Scoping Study on Social Protection and Safety Nets for Enhanced Food Security and Nutrition in Tajikistan*. (also available at: <https://docs.wfp.org/api/documents/WFP-0000104536/download/>).

**WFP.** 2019a. *Armenia, Impact evaluation of The Nutrition-sensitive Aspect of the "Development of Sustainable School Feeding" Project*. (also available at: <https://www.wfp.org/publications/evaluation-nutrition-sensitive-aspect-development-sustainable-school-feeding%E2%80%9D-project-armeni>).

**WFP.** 2019b. *Tajikistan country strategic plan (2019–2024)*. (also available at: <https://docs.wfp.org/api/documents/WFP-0000104708/download/>).

**WFP.** 2020a. *COVID-19: Potential impact on the world's poorest people. A WFP analysis of the economic and food security implications of the pandemic*. Rome, WFP. (also available at: <https://www.wfp.org/publications/covid-19-potential-impact-worlds-poorest-people>).

**WFP.** 2020b. *Impact of COVID-19 on Market Prices in the RBC region*. VAM Food Security Analysis. March 2020. Cairo.

**WFP.** 2020c. *Kyrgyz Republic: Launch of the FNG Results*. Bishkek.

**WFP.** 2020d. *Regional Advocacy Brief: Nutrition Sensitive Social Protection*. Cairo.

**WFP.** 2020e. *Kyrgyz Republic Country Strategic Plan (2018–2022)*. (also available at: <https://www.wfp.org/operations/kg01-kyrgyz-republic-country-strategic-plan-2018-2022>).

**WFP.** 2020f. *Food Security and Vulnerability Assessment in Armenia*. (also available at: <https://docs.wfp.org/api/documents/WFP-0000121217/download/?ga=2.107773639.415755098.1616168965-1506660594.1550245289>).

**WFP & Maastricht University.** 2018a. *Scoping Study on Social Protection and Safety Nets for Enhanced Food Security and Nutrition in Tajikistan*. WFP. <https://www.wfp.org/publications/Study-Social-Protection-Safety-Nets-Tajikistan>

**WFP & Maastricht University.** 2018b. *Scoping Study on Social Protection and Safety Nets for Enhanced Food Security and Nutrition in the Central Asia Region*. WFP. (also available at: <https://www.wfp.org/publications/Study-Social-Protection-Safety-Nets-Central-Asia>).

**WFP & Maastricht University.** 2018c. *Scoping Study on Social Protection and Safety Nets for Enhanced Food Security and Nutrition in the Kyrgyz Republic*. WFP. (also available at: <https://www.wfp.org/publications/Study-Social-Protection-Safety-Nets-Kyrgyz-Republic>).

## REFERENCES

- WFP, Maastricht University & CRRC-Armenia.** 2018. *Scoping Study on Social Protection and Safety Nets for Enhanced Food Security and Nutrition in Armenia*. WFP. (also available at: <https://www.wfp.org/publications/Study-Social-Protection-Safety-Nets-Armenia>).
- World Bank.** 2009. *Adapting to climate change in Europe and Central Asia*. Washington, DC, The World Bank Group. (also available at: <http://documents.worldbank.org/curated/en/127181468024643244/Adapting-to-climate-change-in-Europe-and-Central-Asia>).
- World Bank.** 2017. ASPIRE Database. Atlas of Social Protection – Indicators of Resilience and Equity. In: *The World Bank* [online]. <http://datatopics.worldbank.org/aspire/>
- World Bank.** 2020. *Economic and Social Impacts of COVID-19: Update from Listening to Tajikistan*. (also available at: <http://pubdocs.worldbank.org/en/951371594625339530/Tajikistan-L2T-COVID-19-Update.pdf>).
- World Bank.** 2021a. Global Economic Prospects. In: *The World Bank* [online]. 20 February 2021. <https://www.worldbank.org/en/publication/global-economic-prospects>
- World Bank.** 2021b. The Global Economic Outlook During the COVID-19 Pandemic: A Changed World. In: *The World Bank* [online]. 8 June 2020. <https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world>
- World Health Organization (WHO).** 2015. *Healthy diet*. Fact sheet No. 394. May 2015. Geneva, WHO. (also available at: [https://www.who.int/nutrition/publications/nutrientrequirements/healthydiet\\_factsheet394.pdf](https://www.who.int/nutrition/publications/nutrientrequirements/healthydiet_factsheet394.pdf)).
- WHO.** 2018. Micronutrient deficiencies: Vitamin A deficiency. In: *WHO Nutrition* [online]. <http://www.who.int/nutrition/topics/vad/en/>
- WHO.** 2020. Noncommunicable diseases. In: *WHO Regional Office for Europe* [online]. <https://www.euro.who.int/en/health-topics/noncommunicable-diseases/noncommunicable-diseases>
- World Health Organization (WHO) & United Nations Children’s Fund (UNICEF).** 2018. The extension of the 2025 Maternal, Infant and Young Child nutrition targets to 2030. Discussion paper. <https://www.who.int/nutrition/global-target-2025/discussion-paper-extension-targets-2030.pdf?ua=1>
- World Meteorological Organization (WMO).** 2018. *WMO Reactive Gases Bulletin*. Highlights from the Global Atmosphere Watch Programme. No. 2, October 2018. (also available at [https://library.wmo.int/doc\\_num.php?explnum\\_id=5244](https://library.wmo.int/doc_num.php?explnum_id=5244)).
- World Meteorological Organization (WMO).** 2019. *2019 State of Climate Services: Agriculture and Food Security*. WMO-No.1242. (Also available at [https://library.wmo.int/doc\\_num.php?explnum\\_id=10089](https://library.wmo.int/doc_num.php?explnum_id=10089)).
- World Meteorological Organization (WMO).** 2020a. *State of the Climate in Africa 2019*. Geneva, WMO. (also available at [https://library.wmo.int/doc\\_num.php?explnum\\_id=10421](https://library.wmo.int/doc_num.php?explnum_id=10421)).
- World Meteorological Organization (WMO).** 2020b. *State of the Global Climate 2020*. Provisional Report. (also available at [https://library.wmo.int/doc\\_num.php?explnum\\_id=10444](https://library.wmo.int/doc_num.php?explnum_id=10444)).
- World Meteorological Organization (WMO).** 2020c. *United in Science 2020*. A multi-organization high-level compilation of the latest climate science information. (also available at [https://library.wmo.int/doc\\_num.php?explnum\\_id=10361](https://library.wmo.int/doc_num.php?explnum_id=10361)).
- World Resources Institute.** 2020. Animal-based Foods are More Resource-Intensive than Plant-Based Foods. In: *World Resources Institute* [online]. <https://www.wri.org/resources/charts-graphs/animal-based-foods-are-more-resource-intensive-plant-based-foods>





# 2020

# EUROPE AND CENTRAL ASIA

# REGIONAL

# OVERVIEW OF

# FOOD SECURITY

# AND NUTRITION

## AFFORDABLE HEALTHY DIETS TO ADDRESS ALL FORMS OF MALNUTRITION FOR BETTER HEALTH

The *Regional Overview of Food Security and Nutrition in Europe and Central Asia 2020* consists of two main sections: 1) an in-depth situation analysis of Sustainable Development Goal 2 Target 2.1 (to end hunger and ensure access to food by all) and Target 2.2 (to end all forms of malnutrition), as well as analyses of current food consumption patterns relative to dietary guidelines and diets of children; and 2) a special look at the cost and affordability of healthy diets 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 ECA is making progress overall and is on track to achieve 2030 targets in most countries concerning child stunting, child wasting and low birth weight, but it is not on track regarding childhood overweight, adult obesity, anaemia and exclusive breastfeeding. In addition, the COVID-19 pandemic continues to add people to the ranks of the food insecure. Healthy diets that contain balanced, diverse and appropriately selected foods protect against the effects of malnutrition in all its forms and against non-communicable diseases.

This report uses the data available in the ECA region for in-depth, country-level cost and affordability analyses in 14 countries, with additional subnational analyses in three countries. The results show that healthy diets cost, on average, five times more than diets that meet only dietary energy needs, making them unaffordable for many people throughout the region. To increase the affordability of healthy diets, the costs of nutritious foods must be lowered, including through such cost drivers as supply, demand and other domestic and international factors. The COVID-19 pandemic poses serious threats to food security and nutrition and has resulted in increased challenges in access to healthy diets, especially for low-income and vulnerable people.

This report also shows that hidden costs due to negative externalities are much lower with healthy diets than with current consumption patterns, meaning that adopting healthy diet alternatives could lead to large cost savings.



ISBN 978-92-5-134139-1



9 789251 341391

CB3849EN/1/05.21