



Food and Agriculture  
Organization of the  
United Nations

**2017**

**THE STATE  
OF FOOD  
SECURITY AND  
NUTRITION IN  
EUROPE AND  
CENTRAL ASIA**

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) 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 in preference to others of a similar nature that are not mentioned.

**ISBN 978-92-5-130046-6**

**© FAO, 2017**

FAO encourages the use, reproduction and dissemination of material in this information product. Except where otherwise indicated, material may be copied, downloaded and printed for private study, research and teaching purposes, or for use in non-commercial products or services, provided that appropriate acknowledgement of FAO as the source and copyright holder is given and that FAO's endorsement of users' views, products or services is not implied in any way.

All requests for translation and adaptation rights, and for resale and other commercial use rights should be made via [www.fao.org/contact-us/licence-request](http://www.fao.org/contact-us/licence-request) or addressed to [copyright@fao.org](mailto:copyright@fao.org).

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).

**COVER PHOTOGRAPH** ©FAO/Robert Atanasovski

---

**ROSOMAN, THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA**

Preparing ajvar, a traditional vegetable preserve.

**2017**

**THE STATE OF  
FOOD SECURITY  
AND NUTRITION  
IN EUROPE AND  
CENTRAL ASIA**



Food and Agriculture Organization of the United Nations  
**Budapest, 2017**



# TABLES AND FIGURES

## TABLES

1. Prevalence of undernourishment in the ECA countries between 2005-07 and 2014-16	6
2. Selected micronutrient deficiencies for countries in the ECA region	12
3. Main current national food security policy documents in the selected ECA countries	17
4. Population and urbanization projections for the ECA region	32
5. Agricultural labour force projections in 2005-07, 2030 and 2050	34
6. Agricultural land in the ECA region, 2014	35
7. Costs of land degradation in Central Asia through land use and cover change	40
8. Overview of total renewable water resources per capita (m <sup>3</sup> per year) in EU-28 and EFTA countries in 2016	42
9. Projections of water stress levels for agriculture in the ECA region	44
10. The number of natural disasters, total people affected and economic loss in the ECA region (1990-2017)	48
11. Natural hazard risk in the Europe and Central Asia region, except EU-28 and EFTA countries	49

## FIGURES

1. Prevalence of severe food insecurity in the adult population, computed using the FIES, 2014-2016	7
2. Comparison of the prevalence of undernourishment and prevalence of severe food insecurity based on FIES	7
3. Prevalence of stunting among children under age five in selected ECA countries, %	9
4. Prevalence of wasting and overweight among children under the age of five, 2016	10
5. Prevalence of obesity and obesity growth rates in adults, 2014	11
6. Prevalence of anaemia among women of reproductive age, %	13
7. GDP per capita average growth rate	19
8. Percentage change in state budgetary allocations for agricultural programmes between 2014 and 2015 (in USD equivalent)	19
9. Dynamics of state support for agriculture in selected ECA countries, million USD	20
10. Public spending on social assistance programmes, % of GDP	20
11. Coverage and adequacy of social protection and labour programmes for populations in the poorest quintile	22
12. Agriculture, value added to GDP in the ECA region (Y: 2015, %)	33
13. Agricultural employment as part of total employment and by sex in the ECA countries, 2015 and 2021, %	34
14. Population living on degraded land, % of total population (Y: 2010)	37
15. Mean soil erosion rates at NUTS 3 level for arable lands (tonnes per ha per year), 2010, EU-28	39
16. Hot spots of land degradation in Central Asia	39
17. Overview of total renewable water resources per capita (m <sup>3</sup> per year) in ECA region	43
18. Water withdrawal for agricultural use in the ECA countries (percent of total withdrawal)	43
19. Food losses across ECA sub-regions, percent, Y: 2013	53

# FOREWORD

With the adoption of the 2030 Agenda for Sustainable Development and its ambitious goals for a more sustainable and equitable world, countries and their international partners committed themselves to regular monitoring and reporting on progress.

To this end, a comprehensive framework of targets and indicators was developed for the 17 Sustainable Development Goals (SDGs). FAO was designated as the custodian UN agency for 21 SDG indicators. Of these, nine relate to Goal no. 2: *End hunger, achieve food security and improved nutrition and promote sustainable agriculture*, by 2030.

*The State of Food Security and Nutrition in Europe and Central Asia* for 2017 offers an initial review of the current situation vis-à-vis SDG 2 in countries of the Europe and Central Asia (ECA) region.<sup>1</sup> More specifically, it focuses on the countries' status in relation to SDG Target 2.1: to ensure access to food for all, and Target 2.2: to end all forms of malnutrition.

This year, for the first time, *The State of Food Security and Nutrition in Europe and Central Asia* presents results on the prevalence of

severe food insecurity in ECA countries, based on food insecurity experience scale (FIES) surveys. The prevalence of severe food insecurity is a new, experience-based, metric that helps determine the severity with which people may have experienced food insecurity in terms of food access. It complements the Prevalence of Undernourishment (PoU) indicator, traditionally used by FAO to analyse the extent of hunger.

The heavier emphasis on nutrition in the 2030 Agenda constitutes a major opportunity for the ECA region to address malnutrition and related issues, stepping up efforts in line with the Rome Declaration on Nutrition and the Framework for Action of the Second International Conference on Nutrition (2014).

Interlinkages between these developmental challenges and actions taken to address them are examined in *The State of Food Security and Nutrition in Europe and Central Asia*, providing an in-depth situation analysis of SDG Targets 2.1 and 2.2, the state of micronutrient deficiencies in the ECA region, and an initial analysis of results on the prevalence of severe food insecurity based on the FIES surveys. Furthermore, the publication provides an overview of policy initiatives that governments are currently undertaking – as well as policies already in place – to achieve SDG 2 targets for all dimensions of food security. It also draws attention to the interlinkages between SDG 2 and other SDGs.

The theme of special focus this year is the state of the ECA region's natural resources, the current impacts of climate change processes and related trends, and the risks

<sup>1</sup> The following sub-regions of the ECA region and their corresponding countries are included in the report: *Caucasus* (3) - Armenia, Azerbaijan, Georgia; *Central Asia* (5) - Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan; *European CIS* (4) - Belarus, Republic of Moldova, the Russian Federation and Ukraine; *Southeastern Europe (SEE)* (7) - Albania, Bosnia and Herzegovina, Kosovo (under UNSCR 1244), Montenegro, Serbia, The former Yugoslav Republic of Macedonia, and Turkey; *EU countries* (28) - Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom of Great Britain and Northern Ireland; and *European Free Trade Association (EFTA) countries* (4) - Iceland, Liechtenstein, Norway and Switzerland.

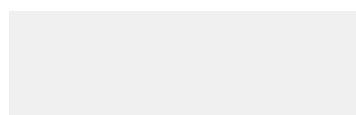
posed by different combinations of these factors. *The State of Food Security and Nutrition in Europe and Central Asia* examines intrinsic linkages between progress on food security and nutrition, and progress on other SDGs.

The relevance of assessing food losses and waste is stressed, along with initial measures to reduce losses and waste. Reductions in food losses and waste are a recognized means of minimizing environmental and economic costs, reducing greenhouse gas (GHG) emissions, and boosting the efficiency of agricultural and food systems.

*The State of Food Security and Nutrition in Europe and Central Asia* outlines steps taken by countries towards national and international

action plans to combat climate change and adapt to its effects, in response to the Paris Climate Agreement adopted in 2015.

As the countries of Europe and Central Asia fully embark upon the 2030 Agenda and embrace the Sustainable Development Goals at national level, they are building on improvements in food and nutrition security achieved in recent decades. The complexity of the SDGs and the many interlinkages among them call for continued and coordinated efforts. This work needs to be supported by more evidence and analysis, and by a better understanding of underlying causes. In this way, important policy decisions will be well informed, and the comprehensive monitoring of progress at all levels will take place on common ground.



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

# ACKNOWLEDGEMENTS

This third edition of *The State of Food Security and Nutrition in Europe and Central Asia* (formerly entitled, *Regional Overview of Food Insecurity: Europe and Central Asia*) has been prepared by Ariella Glinni, Senior Policy Officer of FAO's Regional Office for Europe and Central Asia (REU), in close collaboration with the Organization's Statistics Division (ESS) and Agricultural Development Economics Division (ESA).

The report was made possible by the expert support provided by Kateryna Schroeder (Research Scientist, Food and Agricultural Policy Research Institute) and an interdisciplinary team of FAO experts including Giorgi Kvinikadze, Eleonora Dupouy, Keigo Obara and Dono Abdurazakova. Thematic section III was coordinated by Reuben Sessa with contributions from Dai Yamawaki, Tamara van't Wout and Robert VanOtterdijk (REU) and Oleg Guchgeldiyev (SEC). Peer review was provided by staff at the Regional Office for Europe and Central Asia and the Office of the Director-General, as well as by the Economic and Social Development Department teams at FAO headquarters. Important peer reviews were received from Rob Vos (Director, ESA) as well as Cindy Holleman, Areej Jafari and Luca Renzi of the Food and Agriculture Policy Decision Analysis (FAPDA) team in ESA, Carlo Cafiero, Filippo Gheri, Chiamaka Nwosu, Meghan Miller, Sara Viviani, Nathalie Troubat and Anne Kepple of ESS, Boitshepo Giyose and Rosa Rolle of the Nutrition and Food Systems Division (ESN), and Alejandro Grinspun and Ana Ocampo of the Social Policies and Rural Institutions Division (ESP), under the overall supervision of Kostas Stamoulis, FAO Assistant Director-General for the Economic and Social Development Department (ES). Special thanks go to Laurence Grummer-Strawn, Diana Estevez and Lisa Rogers of WHO for assisting with malnutrition data.

Many thanks to Sharon Lee Cowan and her team who coordinated layout, translation and production of the document, under the supervision and guidance of Vladimir Rakhmanin, Assistant Director-General and Regional Representative for Europe and Central Asia.



# INTRODUCTION

The 2030 Sustainable Development Agenda, adopted in September 2015, builds upon the achievements of the Millennium Development Goals (MDGs) and sets out ambitious goals to build more sustainable and equitable societies around the world. Accepted by all countries, it consists of 17 Sustainable Development Goals (SDGs), 169 targets and 230 indicators to monitor the progress towards meeting these targets. Their core aim of “leaving no one behind” indicates that no goal will be met unless it is met for everyone in society, emphasizing the need to reach out to the most disadvantaged groups in all countries (UNECE, 2016). This means addressing the needs of rural people, as nearly 80 percent of the extreme poor worldwide live in rural areas.

FAO was assigned as the custodian UN agency for 21 of the SDG indicators, including for SDGs 2, 5, 6, 12, 14 and 15<sup>2</sup>, and as a contributing agency for four more (FAO, 2017c). Nine of these indicators relate to SDG 2, which aims to “end hunger, achieve food security and improved nutrition and promote sustainable agri-culture” by 2030. SDG 2 brings under its umbrella the issues of food access, nutrition and sustainable agricultural development, reinforcing the close interlinkages between them (FAO, 2017a).

The fact that the 2030 Agenda has a strong emphasis on nutrition is an important change in global development priorities and an opportunity for nutrition action in the ECA region, where malnutrition remains an important problem. The MDG framework offered less of a focus on nutrition, resulting in limited efforts being made towards overcoming nutrition related challenges. It also meant that synergies between nutrition and other sectors were underexploited (UNSCN, 2014). Instead, coinciding with the start of the United Nations Decade of Action on Nutrition (2016-2025) and the endorsement of the Rome Declaration on Nutrition and the Framework for Action of the Second International Conference on Nutrition (FAO/WHO, 2014), the 2030 Agenda has brought nutrition to the forefront of development challenges. Such an explicit focus on nutrition is warranted by SDGs 1, 2, 3, 4, 5, 6, 12 and 17.

The adoption of the 2030 Sustainable Development Agenda also coincided with the Paris Climate Agreement in December 2015 (UN Framework Convention on Climate Change, 2016), which sets a framework for

concerted national and international action plans to combat climate change and adapt to its effects. Implementation of the Paris Agreement is essential for achieving the Sustainable Development Goals. It also provides a roadmap for climate action that will reduce emissions and build climate resilience.

FAO, together with IFAD and WFP, has already agreed to broaden and enhance the scope of the annual report on food insecurity. Starting with the 2017 edition, the report covers food security and nutrition outcomes and bears the new title, *The State of Food Security and Nutrition in the World*. This will provide monitoring of the progress made towards achieving Targets 2.1 and 2.2, and how these outcomes relate to progress towards other relevant SDG targets. The partnership responsible for producing this flagship publication is also being expanded beyond the three Rome-based agencies to include WHO and UNICEF, which have primary responsibility for monitoring malnutrition globally. FAO also aims to enhance *The State of Food Security and Nutrition in Europe and Central Asia* and closely align it with the global State of Food Security and Nutrition 2017, to report on the state of food security and nutrition within the framework of the SDGs.

*The State of Food Security and Nutrition in Europe and Central Asia* is composed of three main sections. The first section provides an in-depth situation analysis of SDG 2 Targets 2.1 and 2.2, as well as an overview of the state of micronutrient deficiencies in the ECA region. The second section describes some of the initial policy developments that ECA country governments are taking to achieve SDG 2 targets in all dimensions of food security, and relevant policies already in place, while drawing attention towards the interlinkages between SDG 2 and other SDGs. The third section focuses on analysing the state of the region’s natural resources and the current impacts of climate change processes. Degradation, depletion and over-exploitation of regional natural resources in conjunction with the increased number of natural hazards serve as key risk factors for the ECA region that may hamper the achievement of SDG 2 and related Goals by 2030. In addition, in the context of fragile and scarce natural resources, the assessment and reduction of food losses and waste in the region is very important in minimizing environmental and economic costs, reducing GHG emissions and augmenting the efficiency of agricultural and food systems.

<sup>2</sup> See Annex for the description of SDGs



**VALJEVO, SERBIA**  
Fruit and vegetables  
at a produce market.  
©FAO/Oliver Bunic



**PART 1**  
**ASSESSMENT**  
**OF THE FOOD**  
**SECURITY AND**  
**NUTRITION**  
**SITUATION IN**  
**EUROPE AND**  
**CENTRAL ASIA**

# ASSESSMENT OF THE FOOD SECURITY AND NUTRITION SITUATION IN EUROPE AND CENTRAL ASIA

The Europe and Central Asia region encompasses a great deal of natural, economic and social diversity. As a result, the nature and extent of food insecurity problems vary throughout the region. In general, with regards to the prevalent types of malnutrition; namely, undernutrition, overnutrition and micronutrient deficiencies ECA countries can be divided into four broad categories: (1) those primarily affected by undernutrition and micronutrient deficiencies, but with relatively low prevalence of overnutrition<sup>3</sup>; (2) countries with the triple burden of malnutrition, characterized by residual undernutrition, persisting micronutrient deficiencies and rapidly growing rates of obesity and overweight<sup>4</sup>; (3) countries primarily affected by overnutrition<sup>5</sup>; and (4) countries where food security concerns are relatively low<sup>6</sup> (FAO, 2016d, Mazzocchi et al, 2014).

Malnutrition, in all its forms, as well as diet-related non-communicable diseases create heavy social and economic burdens for ECA societies by affecting people's health, wellbeing and productivity, presenting a significant impediment to the successful achievement of the SDG targets.

This section tracks the progress ECA countries have made in improving the food security and nutrition status of their populations, based on the indicators endorsed by the UN Statistical Commission for global monitoring of SDG 2 Targets, 2.1 (*to end hunger and ensure access to*

*food by all*) and 2.2 (*to end all forms of malnutrition*) of the 2030 Agenda for Sustainable Development. The last sub-section provides an overview of the status and trends in micronutrient deficiencies (or 'hidden hunger') in the region. ■

## FOOD INSECURITY AND HUNGER IN THE ECA REGION

SDG Target 2.1 aims to “*end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round*” by 2030 and is measured using the following two indicators:

- Indicator 2.1.1: Prevalence of undernourishment (PoU),
- Indicator 2.1.2: Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES).

Prevalence of undernourishment is an indicator that has been used by FAO since 1974 to measure hunger and food insecurity. Calculated using national-level food balance sheets and information on the distribution of food consumption from surveys, this indicator estimates the number of people whose food consumption is insufficient to meet dietary energy needs for an active and healthy life. While it has been an important metric for tracking national and regional trends in the proportion of people suffering from hunger, it does not offer details on the access to food at the household or individual levels (Ballard et al., 2013). Neither does it provide information about the nutritional value of available food or the quality of diets.

<sup>3</sup> Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

<sup>4</sup> Albania, Armenia, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Kazakhstan, The former Yugoslav Republic of Macedonia, Republic of Moldova, Montenegro, Romania, Serbia, and Ukraine.

<sup>5</sup> Belarus, Czechia, Germany, Hungary, Ireland, Israel, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, the Russian Federation, Slovakia, Slovenia, Spain, Turkey, and the United Kingdom of Great Britain and Northern Ireland.

<sup>6</sup> Austria, Belgium, Denmark, Estonia, Finland, France, Greece, Iceland, Italy, the Netherlands, Norway, Sweden, and Switzerland.

The prevalence of moderate or severe food insecurity based on the Food Insecurity Experience Scale, on the other hand, is a new indicator that FAO recently introduced to complement information provided by the PoU. This metric allows for food access to be directly measured at individual and household levels. As a result it can help identify population groups within countries that are affected by varying degrees of food insecurity, and not only by hunger, which is the most severe form of food insecurity.

More specifically, estimates on the prevalence of moderate or severe food insecurity are derived from responses to a standard set of questions that focus on the respondents' (or their households') access to an adequate quantity of good quality food and, as such, are based on the evidence of actual food insecurity experiences, as reported by the people interviewed. Respondents were asked whether in the past 12 months they had been worried about not being able to obtain enough food, had had to reduce the quantity or quality of food, or had gone for entire days without food due to the lack of money or other resources. All of these conditions directly relate to the overall ability to access food, which is the trait measured by the tool (FAO, 2017a). Based on their answers to the FIES questionnaire, individuals and households can be classified in terms of the level of severity of food insecurity they have experienced.<sup>7</sup> Moderate food insecurity is typically associated with compromised diet quality and a limited variety of types of food consumed. As a result, a state of moderate food insecurity can be expected to be a good predictor of various forms of diet-related health conditions, such as micronutrient deficiency or obesity. Severe food insecurity, on the other hand, is associated

with cutting the quantity of food consumed, including reducing portions, skipping meals, or going full days without eating, which can lead to more severe forms of undernutrition, including hunger (FAO, 2016f; Ballard et al., 2013). Another advantage of the estimates based on FIES is that they can be more up-to-date than the PoU estimates, as the data can be collected and reported much more quickly. In fact, the latest estimates for FIES are available for 2016. The time lag on the PoU estimates, on the other hand is typically several years (FAO, 2017a), and the reported values for 2016 are projections, subject to revision when actual information of food availability and consumption at country levels becomes available. ■

## Prevalence of undernourishment in the ECA region

When it comes to the prevalence of undernourishment, ECA countries are in good shape. Between the 1990s and 2015, the region as a whole achieved tremendous success in reducing its share, and the absolute number of hungry people. Nevertheless, despite such significant progress in fighting hunger across the subregions, several ECA countries still have a comparatively high prevalence of undernourishment (see [Table 1](#)). Tajikistan has the highest prevalence of undernutrition in the region. In 2014-2016 it is estimated that 30.1 percent of the population of Tajikistan (or 2.6 million people) were undernourished. The prevalence of undernourishment still remains an issue of concern in the Republic of Moldova (8.5 percent), Georgia (7 percent), Kyrgyzstan (6.4 percent), Uzbekistan (6.3 percent), Serbia (5.6 percent) and Turkmenistan (5.5 percent). ■

<sup>7</sup> Only the estimates of the severe food insecurity are presented in the 2017 *Regional Overview of Food Security and Nutrition in Europe and Central Asia*.

**TABLE 1**  
**PREVALENCE OF UNDERNOURISHMENT IN THE ECA COUNTRIES BETWEEN 2005-07 AND 2014-16<sup>8</sup>**

	Per capita GDP, constant 2010, USD	Prevalence of Undernourishment, %			Number of undernourished, million
	2015	2005-2007	2010-2012	2014-2016	2014-2016
Armenia	3 797	6.3	5.7	4.4	0.1
Azerbaijan	6 117	3.8	<2.5	<2.5	n.s.
Georgia	3 969	7.2	8.4	7.0	0.3
<b>Caucasus</b>	-	<b>5.2</b>	<b>4.4</b>	<b>3.2</b>	<b>0.5</b>
Kazakhstan	10 617	5.2	2.7	<2.5	n.s.
Kyrgyzstan	1 017	10.0	7.7	6.4	0.4
Tajikistan	933	40.2	36.8	30.1	2.6
Turkmenistan	6 933	4.6	5.1	5.5	0.3
Uzbekistan	1 857	12.4	7.9	6.3	1.9
<b>Central Asia</b>	-	<b>12.9</b>	<b>9.9</b>	<b>8.3</b>	<b>5.6</b>
Belarus	6 174	<2.5	<2.5	<2.5	n.s.
Republic of Moldova	1 978	23.5	11.0	8.5	0.3
Russian Federation	11 144	<2.5	<2.5	<2.5	n.s.
Ukraine	2 826	<2.5	<2.5	<2.5	n.s.
<b>European CIS</b>	-	<b>&lt;2.5</b>	<b>&lt;2.5</b>	<b>&lt;2.5</b>	<b>n.s.</b>
Albania	4 543	11.0	6.7	4.9	0.1
Bosnia and Herzegovina	4 802	3.1	2.5	<2.5	n.s.
The former Yugoslav Republic of Macedonia	5 094	5.3	4.5	3.9	<0.1
Montenegro	7 263	<2.5	<2.5	<2.5	n.s.
Serbia	5 663	6.0	6.0	5.6	0.5
Turkey	11 523	<2.5	<2.5	<2.5	n.s.
<b>SEE countries</b>	-		<b>&lt;2.5</b>	<b>&lt;2.5</b>	<b>n.s.</b>
<b>EU-28 countries</b>	-	<b>&lt;2.5</b>	<b>&lt;2.5</b>	<b>&lt;2.5</b>	<b>n.s.</b>
<b>EFTA countries</b>	-	<b>&lt;2.5</b>	<b>&lt;2.5</b>	<b>&lt;2.5</b>	<b>n.s.</b>

SOURCE: Source for the per capita GDP data is World Bank (2017a); source for prevalence of undernourishment and number of undernourished is FAO (2017)

## Prevalence of severe food insecurity in the ECA region measured with the Food Insecurity Experience Scale

In accordance with the FIES data collected by FAO in 2014, 2015 and 2016, 14.3 million adults

in the ECA region suffered from severe food insecurity (Figure 1). At the sub-regional level, the highest prevalence of severe food insecurity during the 2014-2016 period was recorded in the Caucasus<sup>9</sup> (5.4 percent) and Southeastern Europe (5.2 percent) sub-regions (Figure 1) with unequal distribution across countries.

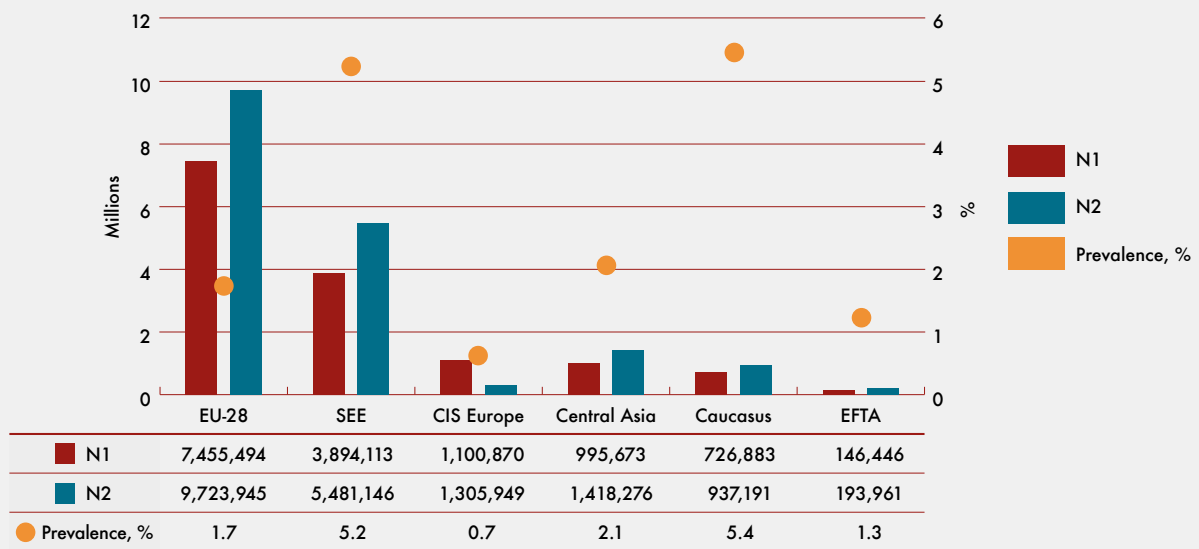
The prevalence of severe food insecurity in the Central Asian<sup>10</sup> countries was recorded at 2.1

<sup>8</sup> n.s = not significant

<sup>9</sup> FIES estimates are not available for Azerbaijan

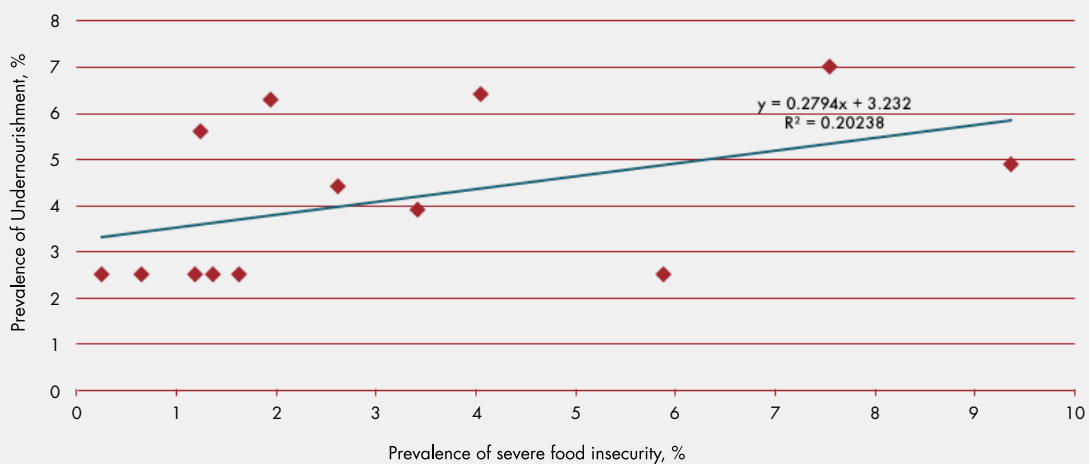
<sup>10</sup> FIES estimates are not available for Turkmenistan

**FIGURE 1**  
PREVALENCE OF SEVERE FOOD INSECURITY IN THE ADULT POPULATION, COMPUTED USING THE FIES, 2014-2016



NOTE: **The prevalence of food insecurity:** measured as a percent of adult individuals (15 years or older) that are found to be food insecure;  
**N1:** the estimated number of adult individuals (15 years or older) who are food insecure;  
**N2:** the estimated number of individuals in the total population living in households where at least one adult is food insecure.  
 SOURCE: FAO

**FIGURE 2**  
COMPARISON OF THE PREVALENCE OF UNDERNOURISHMENT AND PREVALENCE OF SEVERE FOOD INSECURITY BASED ON FIES



SOURCE: FAO, 2017.

percent, accounting for close to 1 million people. The prevalence of severe food insecurity in the EU-28, EFTA and European CIS sub-regions<sup>11</sup> were among the lowest in the region, at 1.7, 1.3 and 0.7 percent, respectively.

If we exclude Tajikistan, for which the estimated prevalence of food insecurity is a clear outlier, a comparison between the estimates of prevalence of undernourishment and prevalence of severe food insecurity based on the FIES scale suggests a significant correlation between the two measures (Figure 2).

While both metrics measure the extent of severe food deprivation, they are based on very different data collection and estimation methods, as previously described. Consequently, the two measures can complement each other in identifying countries in which current data problems may be leading to skewed estimates for either metric, as may be the case for Tajikistan. (FAO, 2017a).

For example, a lower prevalence of severe food insecurity as measured by FIES, relative to the PoU estimates, could be a sign of reluctance to report food hardship in some cultures. At the same time, FIES estimates on the prevalence of severe food insecurity may better reflect short-term fluctuations in countries' economic and social conditions, which are not immediately reflected in the national balance sheets that contribute to calculate PoU estimates (FAO, 2017a). ■

## THE TRIPLE BURDEN OF MALNUTRITION

SDG Target 2.2 is “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”. Within the SDG framework, the progress to this target is set to be measured by two indicators:

### Indicator 2.2.1 Prevalence of stunting among children under five years of age

Childhood stunting, or low height-for-age, reflects a chronic state of undernutrition in children as a result of suboptimal health and/or nutritional conditions. High levels of stunting are usually associated with poor socioeconomic conditions and increased risk of frequent and early exposure to adverse conditions such as illness and/or inappropriate feeding practices (WHO, 2017a). Stunting constitutes an enormous drain on economic productivity and national development.

### Indicator 2.2.2 Prevalence of malnutrition among children under five years of age, by type (wasting and overweight)

Childhood wasting, or low weight to height ratio, is often associated with infections, inadequate diet, and poor care practices that lead to insufficient weight gain. This is critical because of the heightened risk of disease and death (FAO, 2017a).

Childhood overweight, or high weight to height ratio, is caused by a chronic process of excessive weight gain. Overweight children are at higher risk of developing serious health problems, including type 2 diabetes and cardiovascular diseases. Childhood overweight also increases the risk of obesity, premature death and disability in adulthood (FAO, 2017a).

SDG Target 2.2 makes explicit reference to three out of six targets adopted by the World Health Assembly (2017b), the governing body of the World Health Organization, including:

- to reduce the number of children under age five who are stunted by 40 percent;
- to reduce and maintain childhood wasting below five percent;
- to achieve no increase in childhood overweight among children under age five.

SDG 2 does not have a separate target to measure countries' progress towards reducing micronutrient deficiencies, defined as a lack of essential vitamins and minerals required for proper growth and development. Nevertheless, SDG Target 2.2

<sup>11</sup> FIES estimates are not available for the Republic of Moldova

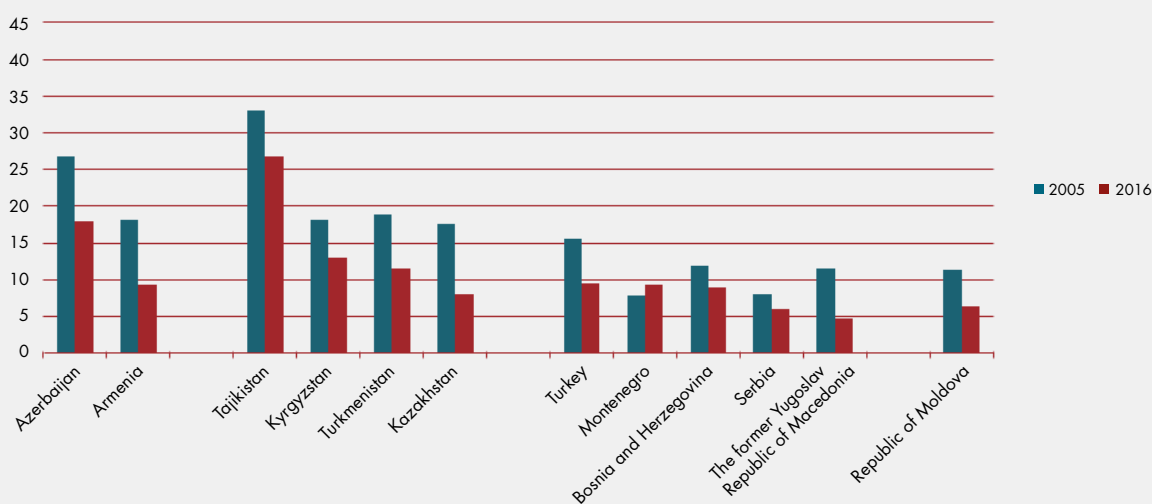


specifically calls for the nutritional needs of adolescent girls and pregnant and lactating women to be addressed. In light of this, tracking the prevalence of anaemia is an important marker of progress on this target. Given the importance of healthy diets that include appropriate amounts of both macro- and micronutrients, *The State of Food Security and Nutrition in Europe and Central Asia* aims to highlight the status and trends in micronutrient deficiencies in addition to monitoring trends on child stunting, wasting and overweight. ■

## Prevalence of stunting in the ECA region

The prevalence of stunting decreased in all ECA countries between 2000 and 2016, except for Montenegro, where it grew by 1.5 percentage points (Figure 3). Tajikistan is the only ECA country, for which data is available, that has a medium prevalence<sup>12</sup> of childhood stunting. In 2016 it was recorded at 26.8 percent (equivalent to 300 000 children under age five). In all other countries, the prevalence of stunting is considered low in accordance with the WHO cut-off values (WHO, 2010). ■

FIGURE 3  
PREVALENCE OF STUNTING AMONG CHILDREN UNDER AGE FIVE IN SELECTED ECA COUNTRIES, %



SOURCE: WHO (2017)<sup>13</sup>

<sup>12</sup> Stunting prevalence cut-off values for public health significance are the following: <20% - low, 20-29% - medium, 30-39% - high, and ≥40% - severe (WHO, 2010).

<sup>13</sup> The sources of data and the latest year for which it is available are as follows: **Armenia** (National Statistical Service Armenia, Yerevan; Ministry of Health Armenia, Yerevan; The DHS Programme ICF International Rockville Maryland, 2016), **Azerbaijan** (Ministry of Health, State Statistical Committee and UNICEF, 2013), **Bosnia and Herzegovina** (Institute for Public Health, 2012), **Kazakhstan** (The Statistics Committee of the Ministry of National Economy of the

Republic of Kazakhstan, 2015), **Kyrgyzstan** (National Statistical Committee of the Kyrgyzstan and UNICEF, 2014), **Serbia** (Statistical Office of the Republic of Serbia and UNICEF, 2014), **Tajikistan** (Statistical Agency under the President of the Republic of Tajikistan (SA), Ministry of Health, and ICF International, 2012), **The former Yugoslav Republic of Macedonia** (Ministry of Health, Ministry of Education and Science, Ministry of Labour and Social Policy, 2011), **Turkey** (Hacettepe University Institute of Population Studies, 2013), and **Turkmenistan** (The State Committee of Statistics of Turkmenistan and UNICEF, 2015-2016). The summary of the data is available at <http://www.who.int/nutgrowthdb/estimates2016/en/>.

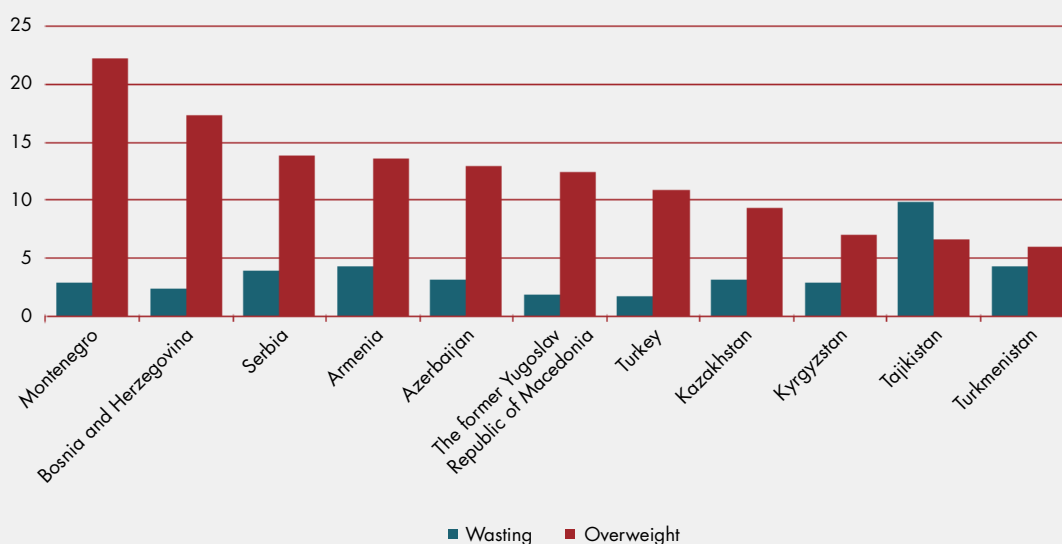
## The prevalence of wasting and overweight among children under the age of five in the ECA region

The region as a whole has relatively low prevalence of wasting<sup>14</sup> among children under five (Figure 4). According to the WHO (2017c), the average prevalence of wasting across Central Asia, the Caucasus and SEE sub-regions, for which data is available, was 3 percent<sup>15</sup> (down from 4.1 percent in 2000). However, at country level, just as with childhood stunting, childhood wasting constitutes an important public health problem in Tajikistan. Currently recorded at 9.9 percent with 100 000 children under five being affected, this is very close to being severe in accordance with the WHO (Figure 4). All other

ECA countries, for which data is available, have relatively low prevalence of wasting among children under the age of five (WHO, 2017c).

While childhood stunting and wasting remain a problem in some ECA countries, it is the rapid increase in the prevalence of overweight and obesity among children and adults that has become the major nutritional challenge across many of the ECA countries in the last 15 years. As a result, in the four sub-regions<sup>16</sup> for which data is available, the number of overweight children greatly outweighs the number of children who are stunted or suffer from wasting (see Figure 4). The only exception is Tajikistan, where child undernourishment remains a more severe problem, and the prevalence of both underweight and wasting are higher than the prevalence of overweight. ■

FIGURE 4  
PREVALENCE OF WASTING AND OVERWEIGHT AMONG CHILDREN UNDER THE AGE OF FIVE, 2016<sup>17</sup>



SOURCE: WHO (2017c)

<sup>14</sup> Wasting prevalence cut-off values for public health significance are the following: <5% - acceptable, 5-9% - poor, 10-14% - serious, and ≥15% - critical (WHO, 2010).

<sup>15</sup> Prevalence of wasting for Albania, Georgia and Uzbekistan are not included in the calculations due to the lack of data.

<sup>16</sup> Caucasus, Central Asia, European CIS and SEE.

<sup>17</sup> See Figure 3 for the sources of the data and the latest year for which it is available.

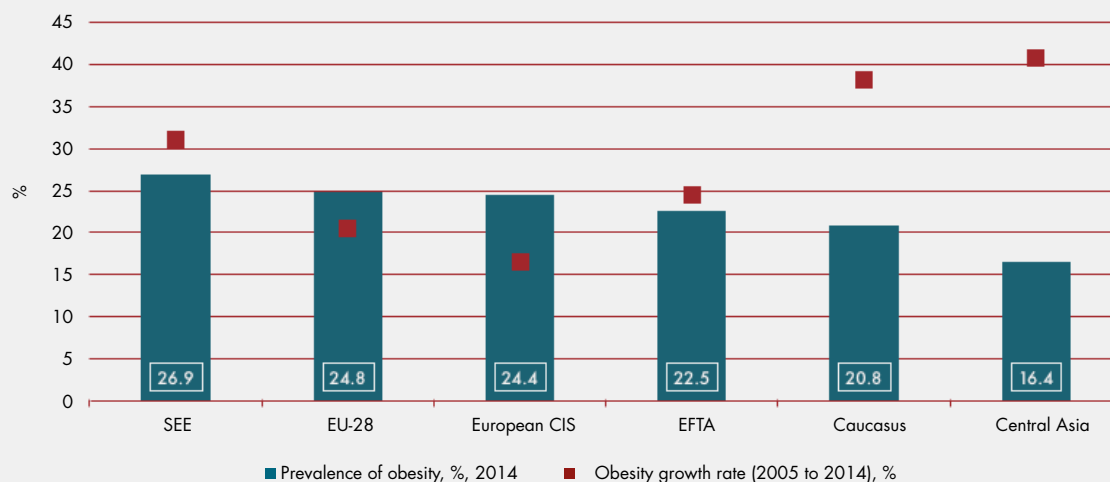
## Prevalence of obesity among adults in the ECA region

Overnutrition among the adult<sup>18</sup> population in ECA countries is also an important problem. In 2014, the number of obese adults (measured by the WHO (2017c) as the number of people whose body mass index exceeds 30) reached 171.8 million people, a 30 percent increase from 2000. As a result, every fourth adult in the ECA region was considered obese in 2014. The highest prevalence was observed in the SEE countries where 26.9 percent of all adults were classified as obese (Figure 5). However, other sub-regions did not fall much behind. The prevalence of obesity was recorded at 24.8 percent in the EU countries, 24.4 percent in the European CIS countries, 22.5 percent across the EFTA countries and 20.8 percent in the Caucasus. Central Asian countries had the lowest prevalence of obesity at 16.4 percent in 2014. Nevertheless, they had the fastest growth (41 percent) in the prevalence of obesity between 2000 and 2014. As a result, the number of obese adults in Central

Asia reached 7 million people in 2014 (an increase of almost 3 million people).

At the country level, the highest prevalence of obesity in 2014 was recorded in Malta (29.6 percent), Turkey (29.3 percent) and the United Kingdom of Great Britain and Northern Ireland (29.1 percent). Countries with the lowest obesity prevalence were Tajikistan (10.9 percent), Kyrgyzstan (13 percent) and Uzbekistan (14.4 percent). According to FAO (2016c), male obesity is more prevalent in most of the SEE countries, and female obesity is mostly prevalent in the Caucasus, Central Asia and European CIS countries. Growing rates of obesity in the region closely correlate with per capita incomes that allow for consumption of higher caloric value products coupled with increasingly sedentary lifestyles. (FAO, 2016d). To a lesser extent, obesity, as a form of malnutrition, can be also a result of low incomes and associated with the consumption of cheaper foods with high levels of total fat, sugar and other refined carbohydrates. A lack of awareness about healthy diets also contributes to the increasing prevalence of overweight and obesity across the various income groups in the region. ■

FIGURE 5  
PREVALENCE OF OBESITY AND OBESITY GROWTH RATES IN ADULTS, 2014



SOURCE: WHO (2017)

<sup>18</sup> Adult includes people of the age of 18 and older.

## MICRONUTRIENT DEFICIENCIES

According to FAO (2015b), inadequacy in vitamin A, iron, vitamin D, folic acid, iodine and calcium intakes are the primary causes of micronutrient deficiencies for all age groups in the ECA region. For example, in Central Asia 32.2 percent of children and 33 percent of adults had a vitamin A deficiency. The highest levels of iodine deficiency among children were found in Belarus (81 percent), and Georgia (80 percent) (FAO 2016d) (Table 2).

One of the consequences of diets with low micronutrient content is the development of anaemia (iron-deficiency) in women and children, a condition characterized by a low number, and small size, of red blood cells, or haemoglobin concentration, which affects the ability of the blood to transport oxygen around the body. In accordance with WHO data, 20 percent (or 44.6 million) of women of reproductive age in the ECA region were anaemic in 2016. EU-28 and European CIS countries accounted for almost half of women with anaemia (25.9 million women), followed by the SEE countries

(7.7 million women). The Caucasus and Central Asia together had 7.7 million anaemic women in the region.

Absolute numbers, however, tell only part of the story. The prevalence of anaemia among women of child-bearing age is measured based on the share of anaemic women in the total female population of reproductive age. From this standpoint, in the EU-28 (net Eastern European economies<sup>19</sup>) and EFTA countries anaemia was not very prevalent<sup>20</sup> among women of reproductive age in 2016. All other sub-regions in the ECA region could be classified as having a moderate prevalence of anaemia (Figure 6). The Caucasus countries had the highest share of anaemic women with 34.4 percent of the total female population of reproductive age being anaemic.

In addition, the prevalence of anaemia increased across all the sub-regions between 2005 and 2016, except for the Central Asian countries (Figure 6). In both the EU-28 (not including Eastern Europe) and EFTA countries the increase in the prevalence of anaemia was greatest, at 4.1 and 4.2 percentage points, respectively (a total of 3.1 million women). Overall, the most vulnerable, poorest, and least educated groups of women tend to be disproportionately affected by iron-deficiency anaemia (WHO, 2010). ■

TABLE 2  
SELECTED MICRONUTRIENT DEFICIENCIES FOR COUNTRIES IN THE ECA REGION<sup>21</sup>

	Vitamin A deficiency, % children	Vitamin A deficiency, % adult	Zinc deficiency, % adult
Armenia	n.a	n.a	49.4
Azerbaijan	32.1	30.7	47.5
Belarus	17.4	n.a	5.8
The former Yugoslav Republic of Macedonia	29.7	n.a	n.a
Georgia	30.9	n.a	47.3
Kazakhstan	27.1	27	9.6
Kyrgyzstan	26.3	37.8	13.8
Republic of Moldova	25.6	29	30.8
Montenegro	17.2	27.9	n.a
Russian Federation	14.1	n.a	11.7
Serbia	17.2	26.8	n.a
Tajikistan	26.8	31.3	66.8
Turkey	n.a	28.1	n.a
Turkmenistan	28	30.5	24.2
Ukraine	23.8	n.a	15.8
Uzbekistan	53.1	38.4	24.4

SOURCE: FAO (2015b); FAO (2016d)

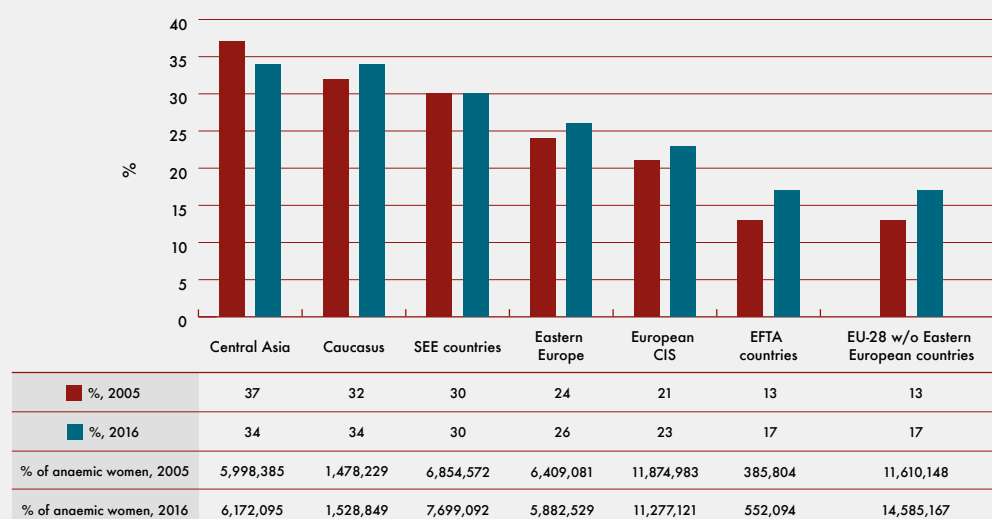
<sup>19</sup> Eastern European countries include Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia.

<sup>20</sup> Anaemia prevalence cut-off values for public health significance are the

following: =<4.9% - low, 5.0 – 19.9% - mild, 20.0-39.9% - moderate, and >= 40% - severe (WHO, 2010).

<sup>21</sup> Latest available data.

**FIGURE 6**  
**PREVALENCE OF ANAEMIA AMONG WOMEN OF REPRODUCTIVE AGE, %**



SOURCE: WHO (2017)

## CONCLUSIONS

Analysis of food security statistics confirms the findings of the 2015 and 2016 FAO *Regional Overview of Food Insecurity: Europe and Central Asia* reports for the ECA region, indicating that the nature of food insecurity in the region has changed substantially in recent decades. While the majority of countries have made significant progress in reducing the proportion of their populations affected by hunger, issues related to food security and nutrition remain relevant in the region. The new FIES data reveals that 14.3 million adults in the ECA region still consider themselves to be severely affected by food insecurity.

In addition, micronutrient deficiencies and overnutrition in children and adults have become two major food security and nutrition concerns across the region, both of which result in reduced human capacity, and productivity losses. Lower household incomes tend to be associated with lower dietary quality and diversity, resulting in micronutrient deficiencies. Low-income groups are more likely to have diets higher in fat and sugar and lower nutrient diversity, which may put these population groups at risk of micronutrient malnutrition, but also overweight and obesity.

While the prevalence of overweight and obesity is not uncommon across low-income groups, these increases are more commonly associated with higher incomes, which allow for consumption of higher caloric value products, often coupled with increasingly sedentary lifestyles. Consequently, policy responses need to focus on the underlying causes of each type of malnutrition. Lack of knowledge about what constitutes a healthy diet is another main reason for the prevalence of both micronutrient deficiencies and overweight/obesity across the different income groups in the region.

The SDGs provide a timely opportunity to strengthen ECA countries' responses to their malnutrition challenges, offering a coherent framework for analysis of the underlying factors affecting nutrition in the region. A wide range of underlying causes need to be addressed, including deterioration of rural livelihoods, persisting poverty, distress migration, unsustainable use of natural resources and threats posed by climate change processes, as well as changing dietary patterns. In such circumstances, a policy response needs to coherently address the key economic, social and environmental challenges of food security. This coherence across policy domains is crucial for capitalizing on interlinkages between SDG 2 and other SDGs, between different sectoral policies, and between diverse policy actions at national and local levels. ■



**HISSAR, TAJIKISTAN**  
Villagers harvesting onions.  
©FAO/Nozim Kalandarov



**PART 2**  
**NATIONAL AND**  
**REGIONAL**  
**POLICY**  
**DRIVERS TO**  
**HELP ACHIEVE**  
**SDG 2 TARGETS**

# NATIONAL AND REGIONAL POLICY DRIVERS TO HELP ACHIEVE SDG 2 TARGETS

The task of achieving food security and improved nutrition in the ECA region is complex and crosses many sectors and policy areas.

Monitoring policy change progress that recognizes the cross-cutting nature of the SDGs is an important precondition for advancing the 2030 Agenda. The goal of this section is to examine selected regional, sub-regional and country policy efforts introduced during the 2015-2017 period to achieve better outcomes for SDG 2 and related SDG targets in the ECA region. Structured around four pillars of food security, the policy coverage is not meant to be comprehensive, but rather aims to highlight the most important changes that have taken place in the period, while stressing some good practices in the region.

The ECA countries<sup>22</sup> have embarked upon the 2030 Agenda recognizing the importance of food security, which is reflected in their national security policies, programmes and strategies (Table 3). Five countries in the region; namely, Armenia, Azerbaijan, Kyrgyzstan, Tajikistan and Turkmenistan, have stand-alone laws on food security. Albania, Belarus, Kyrgyzstan, the Russian Federation, Tajikistan and Turkey have adopted concepts or strategy documents defining the role of food security in their countries. In other countries, food security concepts are presented either as part of the national security programmes (Kazakhstan, Republic of Moldova and Uzbekistan), or as part of agricultural and rural development

policy documents. At the same time, wider regional and multi-country dialogue has led to the formation of new entities focusing on food security, such as the creation of the Islamic Organization for Food Security, based in Astana, Kazakhstan, in 2016 (OCI, 2017), and the establishment of the Economic Cooperation Organization Regional Coordination Centre for Food Security, based in Turkey, in 2012 (ECO-RCC, 2017). The Regional United Nations Development Group for Europe and Central Asia (ECA R-UNDG) provides a platform for inter-agency SDG coordination and guidance to the UN Country teams supporting governments in the SDG nationalization process, and advocacy platform (ECA R-UNDG, 2017). In this context, the Mainstreaming, Acceleration and Policy Support (MAPS) missions have been carried out since 2016 in Tajikistan and Azerbaijan, whereas Belarus, Kosovo, Republic of Moldova, Serbia and Turkmenistan have engaged in preparatory discussions for these missions in 2017 (UNDP, 2017). Belarus, Azerbaijan and Tajikistan have engaged in the Voluntary National Review processes for the SDGs.

Nevertheless, examples of countries that are addressing food security in their policy frameworks in a coherent cross-sectoral approach are very limited. One such example is the *Albanian National Action Plan for Food and Nutrition for 2013-2020*, which brings together all four pillars of food security (i.e. availability, access, utilization and stability) in one document and explicitly identifies institutions responsible for its implementation. Another positive example is the Food Security and Nutrition Programme that was adopted in Kyrgyzstan in September 2015.<sup>23</sup> Drafted with the

<sup>22</sup> FAO's work encompasses as a wide range of activities across the entire ECA region and given the scope of the Regional Overview report it does not allow for a full overview of all policy developments in all ECA countries; therefore, this section only focuses on the main policy changes during 2015-2017 in the Caucasus, Central Asia, European CIS and SEE sub-regions, where food security challenges under all four pillars are more widespread than in the EU-28 and EFTA sub-regions. As such, and for the purpose of the overview presented in this section, 'ECA' denotes only the four above sub-regions, unless otherwise specified.

<sup>23</sup> The Government of the Kyrgyzstan Decree #618 "On Approval of the Food Security and Nutrition Programme in the Kyrgyzstan", 4 September 2015.



**TABLE 3**  
**MAIN CURRENT NATIONAL FOOD SECURITY POLICY DOCUMENTS IN THE SELECTED ECA COUNTRIES**

Name of the policy document(s) (year adopted)	
Albania	National Action Plan for Food and Nutrition for 2013-2020 (2012)
Armenia	Law "On Ensuring Food Security" (2002); Food Security Concept of Republic of Armenia (2011)
Azerbaijan	Law of the Azerbaijan Republic On Food Stuffs (2013)
Belarus	The Concept of National Food Security (2004)
Kyrgyzstan	Food Security Law (2008); Food Security and Nutrition Programme (2015); The Concept of Food Security of the Kyrgyzstan for 2009-2019 (2009)
Russian Federation	Russian Federation Food Security Doctrine (2010)
Tajikistan	Law "On Food Security" (2010)
Turkmenistan	Law "On Food Security" (2016)

SOURCES: Albania (<https://www.unicef.org/albania/Health-NationalActionPlan2013.pdf>); Armenia (<http://cis-legislation.com/document.fwx?rgn=22406>), Azerbaijan (<http://www.consumer.gov.az>); Belarus (<http://www.pravo.by/document/?guid=3871&p0=C20400252>); Kyrgyzstan (<http://cbd.minjust.gov.kg/act/view/ru-ru/202397?cl=ru-ru>; <http://cbd.minjust.gov.kg/act/view/ru-ru/98137>); the Russian Federation (<http://kremlin.ru/events/president/news/6752>; [http://www.gafspfund.org/sites/gafspfund.org/files/Documents/%24Food%20Security%20Concept%20for%202009-2019\\_0.pdf](http://www.gafspfund.org/sites/gafspfund.org/files/Documents/%24Food%20Security%20Concept%20for%202009-2019_0.pdf)), Tajikistan ([http://www.adlia.tj/show\\_doc.fwx?rgn=16054](http://www.adlia.tj/show_doc.fwx?rgn=16054)); Turkmenistan (<http://www.parahat.info/law/parahat-info-law-01xj>)

support of international donors, this Programme ties together all four pillars of food security in the context of sustainable development. In addition, in 2017 the government of Kyrgyzstan amended the law "On Food Security" to include the concept of "healthy diet" amid increasing concern about malnutrition and food safety in the country.

For most other ECA countries, however, a coherent policy approach to food insecurity remains a challenge. In a number of countries, including Azerbaijan, Belarus, Kazakhstan, the Russian Federation, Tajikistan, Turkmenistan and Uzbekistan, the concept of food security is still primarily viewed as 'food independence' or 'food self-sufficiency' (FAO, 2015a). Such a view of food security is also reflected in the Commonwealth of Independent States (CIS) Concept of Food Security, which was adopted by CIS member countries in 2010. This states that "food security is the state of

the economy of the countries in which their own production has to ensure food independence for not less than 80 percent of the annual demand in food production in accordance with physiological nutrition standards".<sup>24</sup>

The overview of contemporary policy changes needs to be placed in the context of recent macro-economic changes. In 2015, all the countries in the Caucasus, Central Asia and European CIS sub-regions experienced a slowdown in their economic growth compared to 2014. The highest real GDP contraction in 2016 was observed in Ukraine (-9.9 percent), Belarus (-3.9 percent), and the Russian Federation (-3.7 percent) (IMF, 2017).

<sup>24</sup> Decision of Heads of Governments of CIS "About the Complex of joint efforts on increase in food security of the State Parties of the CIS", 19 November 2011 (available at <http://pravo.levonevsky.org/bazaby11/repUBLIC04/text081.htm>)

For many of the same countries the decline continued into 2016 (Figure 7). In addition, the processes of depreciation of all the national currencies against the US dollar and the euro, which began in 2014, persisted into 2015 and 2016 (IMF, 2017). A number of countries in the region that are heavily dependent on commodity exports have suffered dramatically from reduced exports and lower fiscal revenues in recent years. This has impacted both food availability through reduced import capacity and food access through reduced fiscal potential to protect poor households against rising domestic food prices (FAO, 2017a). ■

## POLICY DEVELOPMENTS TO ACHIEVE AVAILABILITY OF FOOD IN 2015-2017

Food availability can be improved both at the supply and demand level (OECD, 2013). On the supply side it can be increased by increasing agricultural production, creating a favourable environment for trade, efficiently using natural resources, adapting to climate change processes and reducing food waste. On the demand side, reducing overconsumption of food and cutting food waste can help to increase food availability.

In this sub-section, we focus on the policies that address the food supply side, and specifically agricultural production. Trade policies are discussed in the food stability sub-section, while a separate chapter (Part 3) is dedicated to the efficient use of natural resources, mitigation of and adaptation to climate change processes and reduction in food waste and losses to achieve more sustainable and efficient food systems in the region.

Recent macroeconomic shocks have resulted in less money being allocated to agricultural policy programmes across all three sub-regions. State support for agriculture in both national currencies and USD equivalents has decreased in all countries, except for Armenia and Tajikistan (Figures 8 and 9). The most drastic relative reductions to budgetary allocations have been observed in Republic of Moldova and Ukraine,

by 81 percent and 54 percent in USD equivalent and 192 percent and 62 percent in national currencies, respectively (FAO, 2017d).

At the same time, agricultural policy mechanisms across all three sub-regions in 2015-2017 remained largely unchanged and continued to focus strongly on agricultural production, remaining in line with the dynamics of previous years. They included investment support and preferential loans for agricultural producers, mechanisms for reducing expenses to purchase fixed and working assets, preferential taxation, and agricultural insurance programmes (FAO, 2017d). In addition, in 2015-2016 a number of Central Asian countries saw the continuation of the strategy of moving away from monoculture-oriented agriculture towards more diversified agricultural production (IFPRI, 2017).

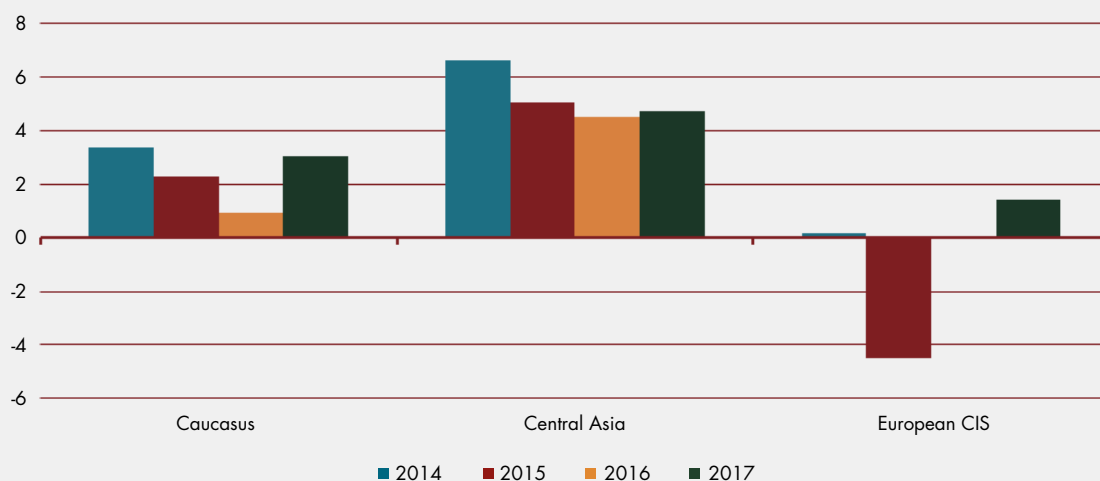
In relative terms, Belarus allocates the largest share of its state budget to agriculture (7.6 percent in 2015), while in absolute terms the largest spender on agriculture is the Russian Federation, which allocated USD 3.7 billion. On 31 March 2017, the Russian government adopted a new version of the *State Programme for the Development of Agriculture and Regulation of Agricultural Commodities Markets in 2013-2020*, with a shift in support to agriculture from subsidized interest rates toward direct income support for farmers and an emphasis on import substitution in food supply and enhancement of Russian agricultural exports (GAIN, 2017).

One country that has experienced a significant change in the instruments for agricultural sector support is Kazakhstan. Due to its accession to the WTO in 2015, Kazakhstan reduced the level of support for its agricultural producers through Amber Box measures<sup>25</sup> (from 81.4 percent of total support in 2014 to 63.4 percent in 2015) but increased financing of Green Box<sup>26</sup> measures (FAO, 2017d). In particular, in 2016, Kazakhstan canceled direct payments to agricultural

<sup>25</sup> For agriculture, Amber Box support measures include all domestic support measures (with some exceptions) considered to distort production and trade (WTO, 2017)

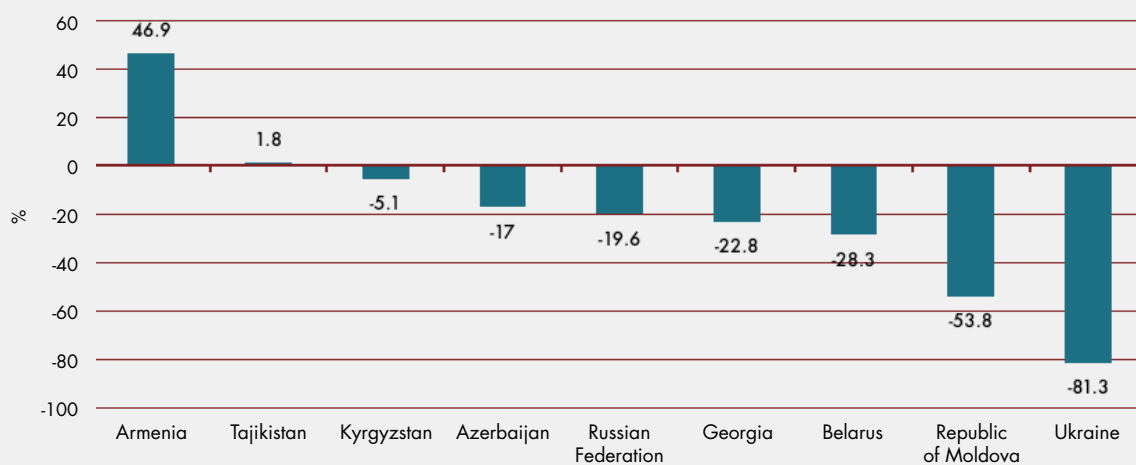
<sup>26</sup> In order to qualify for the Green Box, a support measure must not distort trade, or at most cause minimal distortion (WTO, 2017)

**FIGURE 7**  
GDP PER CAPITA AVERAGE GROWTH RATE<sup>27</sup>



SOURCE: IMF, 2017

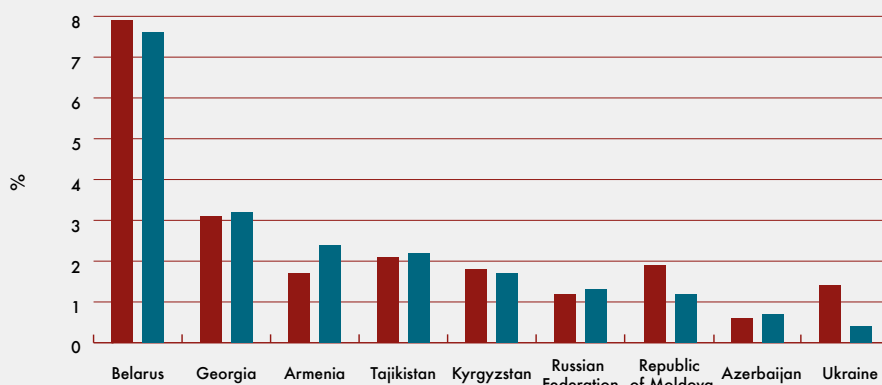
**FIGURE 8**  
PERCENTAGE CHANGE IN STATE BUDGETARY ALLOCATIONS FOR AGRICULTURAL PROGRAMMES BETWEEN 2014 AND 2015 (IN USD EQUIVALENT)



SOURCE: FAO, 2017d

<sup>27</sup> Average growth rate is calculated as simple average.

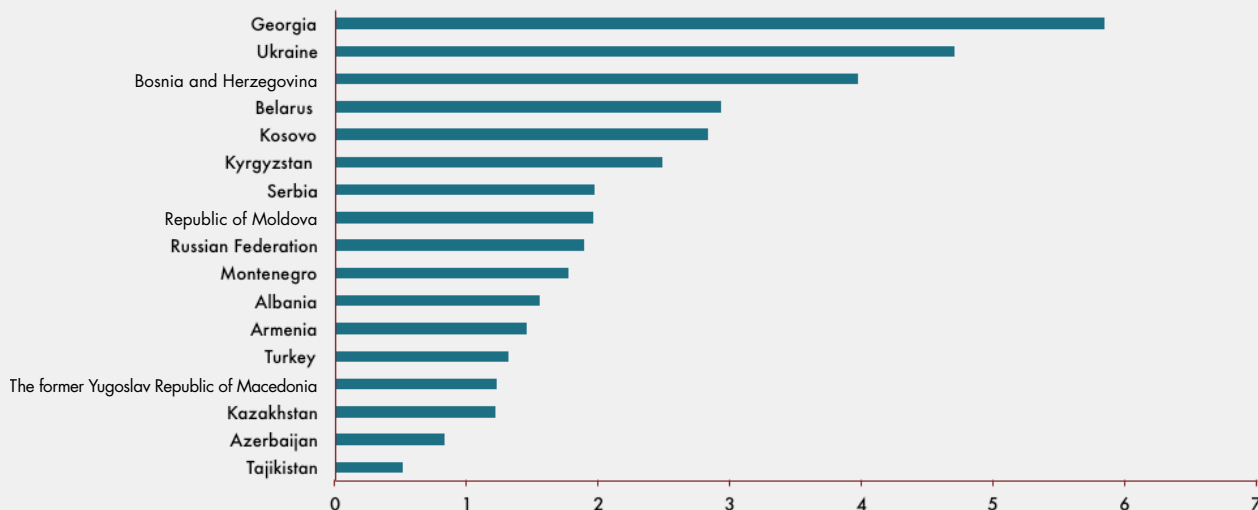
**FIGURE 9**  
DYNAMICS OF STATE SUPPORT FOR AGRICULTURE  
IN SELECTED ECA COUNTRIES, MILLION USD



<span style="color: red;">■</span> % of the state budget, 2014	7.9	3.1	1.7	2.1	1.8	1.2	1.9	0.6	1.4
<span style="color: teal;">■</span> % of the state budget, 2015	7.6	3.2	2.4	2.2	1.7	1.3	1.2	0.7	0.4
Amount of state support for agriculture, 2014	2,361	92	49	56	39	4,600	39	135	534
Amount of state support for agriculture, 2015	1,694	71	72	57	37	3,700	18	112	100

SOURCE: FAO, 2017d

**FIGURE 10**  
PUBLIC SPENDING ON SOCIAL ASSISTANCE PROGRAMMES, % OF GDP



SOURCE: World Bank (2017b)

producers used for plant and animal production, which formerly constituted the primary agricultural support mechanism. Instead, the government increased budgetary allocation for preferential loans for agricultural producers, insurance programmes and compensation of direct expenditures for capital investments.

As for the SEE countries, except for Turkey, in 2015-2017, they have continued to implement their national strategic frameworks for agricultural and rural development.<sup>28</sup> In 2015 Bosnia and Herzegovina adopted the *Medium-Term Development Strategy of the Agricultural Sector in the Federation of Bosnia and Herzegovina for the Period 2015-2019*, the *Programme of Rural Development of the Federation of Bosnia and Herzegovina for the Period 2015-2020*, and the *Strategic Plan of Development of Agriculture and Rural Areas of the Republika Srpska for 2015-2020*. In the same year, Montenegro adopted its *New Strategy for the Development of Agricultural and Rural Areas for 2015-2020* and the accompanying action plan for its implementation. The objectives of the agricultural and rural development strategies in these SEE countries remain largely in line with the EU's legislation framework, the *acquis*, on agriculture and focus on strengthening three core dimensions of sustainable agricultural systems; namely, economic, environmental and social. However, it is the direct producer support measures that receive the largest budgetary outlays when compared to measures focused on rural development or environmental sustainability (Bajramović et al., 2016). ■

<sup>28</sup> Albania – *Inter-sectoral Strategy for Agriculture and Rural Development 2014-2020*; Bosnia and Herzegovina - *Medium Term Development Strategy of the agricultural sector in Federation of Bosnia and Herzegovina for the period 2015-2019*, *Programme of Rural Development of Federation of Bosnia and Herzegovina for the period 2015-2020* and *The Strategic Plan of Development of Agriculture and Rural Areas of the Republika Srpska for 2015-2020*; Kosovo – *Agriculture and Rural Development Programme 2014-2020*; Montenegro – *New Strategy for the Development of Agricultural and Rural Areas for 2015-2020*; The former Yugoslav Republic of Macedonia – *National Agricultural and Rural Development Strategy 2014-2020*; Serbia – *Agricultural and Rural Development Strategy for 2014-2024*.

## POLICY DEVELOPMENTS IMPROVING ACCESS TO FOOD IN 2015-2017

Poverty is the principal obstacle to people accessing food in the ECA region. At national level, poverty and the resulting lack of economic access to food remain an issue, particularly in a small number of countries in the Caucasus and Central Asian sub-regions, which is reflected in the Prevalence of Undernourishment indicator (FAO, 2016d). Nevertheless, in each country of the region, there are certain population groups that are excluded from the benefits of the region's economic growth and are at a greater risk of extreme poverty. In general, rural areas in the region are marked by more severe and persistent forms of poverty than urban ones. Those living in rural areas experience a higher prevalence and intensity of poverty relative to urban dwellers. Inequality between rural and urban people is seen not only in terms of lower incomes in rural areas, but also in terms of available services and existing opportunities. Rural women constitute a particularly disadvantaged group in terms of access to decent jobs and stable income, as despite relatively high economic activity rates, they are more likely to concentrate in low-paid, seasonal or part-time jobs that tend to be poorly protected by labour and social security legislation, such as domestic work or agriculture. (FAO, 2014a; FAO, 2016d; Abdurazakova, D.). Social norms that restrict rural women's access to own and control productive resources such as land and other assets, and widespread public perceptions that housework and care-giving for children and other dependents are women's primary responsibility, further limit their economic prospects and opportunities.

Over the past two decades, poverty reduction in the region has primarily been driven by general economic growth (FAO, 2016d, Abdurazakova, 2016), although social safety nets have also had a visible impact (14 percent reduction) in Europe and Central Asia (World Bank, 2015). Globally, well-designed social protection policies and programmes are considered to be an important instruments for improving the well-being of the poorest people and now have a significant role to play in the implementation of the 2030 Agenda, which is reflected in SDG Target 1.3, which calls

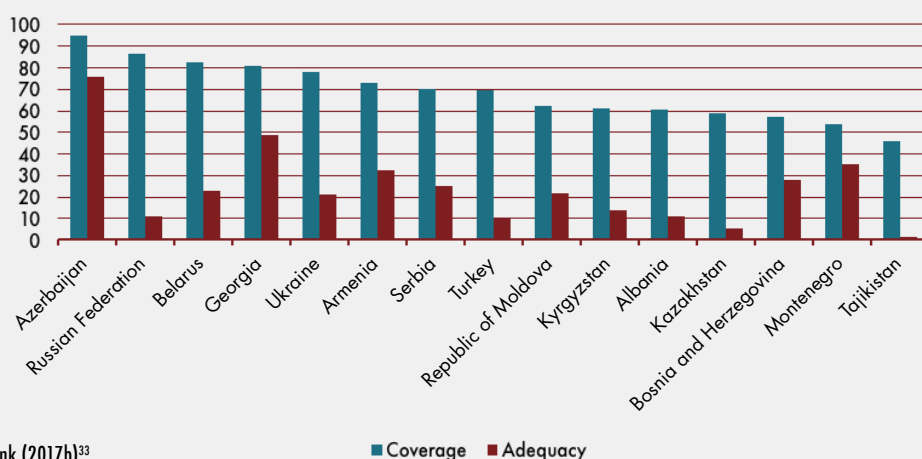
to “implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable”.

Many ECA countries (excluding EU-28 and EFTA sub-regions) used to have well-developed and comprehensive social protection systems during the Soviet period which could not be sustained in the transition from the centrally planned to market economies. Countries of the region are going through a historic transition from relatively high coverage of social insurance to more targeted and mostly categorical social assistance programmes.<sup>29</sup> However, the region continues to have a significant social protection coverage<sup>30</sup> (World Bank, 2015). ECA countries spend an average of 2.3 percent of

their GDP on social assistance programmes<sup>31</sup> alone (Figure 10) (World Bank, 2017b). Georgia and Ukraine spend the largest share of their GDP on social assistance programmes, at 5.9 and 4.7 percent, respectively. In Georgia, 4.1 percent of GDP goes towards social pensions, while in Ukraine more than half of funds allocated to social assistance programmes (2.6 percent of GDP) are channeled to the population via unconditional cash transfers. Tajikistan’s and Azerbaijan’s shares are the lowest in the region at 0.5 and 0.8 percent, respectively.

Most social assistance is distributed in the form of social pensions, family and child allowances, poverty-targeted cash transfers (since mid-1990s) and other social benefits, accounting for an average of 84 percent of total expenditures on

FIGURE 11  
**COVERAGE AND ADEQUACY OF SOCIAL PROTECTION AND LABOUR PROGRAMMES FOR POPULATIONS IN THE POOREST QUINTILE<sup>32</sup>**



SOURCE: World Bank (2017b)<sup>33</sup>

<sup>29</sup> REU (forthcoming). Social protection and rural population: the case of the post-soviet countries.

<sup>30</sup> Social protection system in the region encompasses three components: social insurance and labour market policy, social assistance (or social safety nets) and social services.

<sup>31</sup> Social assistance measures include unconditional and conditional cash transfers, fee waivers, in-kind transfers, public works, school feeding and social pensions (World Bank, 2017b).

<sup>32</sup> Coverage is a percentage of population participating in social protection and labour programmes (includes direct and indirect beneficiaries). It is calculated as

(number of individuals in the quintile who live in a household where at least one member receives the transfer)/(number of individuals in that quintile); Adequacy of benefits is the total transfer amount received by all beneficiaries in a quintile as a share of the total welfare of beneficiaries in that quintile. It is calculated as (amount of transfers received by a quintile)/(total income or consumption of beneficiaries in that quintile).

<sup>33</sup> The latest years for which it is available are as follows: Albania (2015), Armenia (2013), Azerbaijan (2014), Bosnia and Herzegovina (2014), Belarus (2014), Georgia (2011), Kazakhstan (2010), Kyrgyzstan (2013), Republic of Moldova (2010), Montenegro (2013), the Russian Federation (2013), Serbia (2014), Tajikistan (2014), Turkey (2014), and Ukraine (2015).

social assistance programmes. The majority of this assistance comes in the form of unconditional cash transfer programmes. At the same time, poverty targeted schemes are less widespread and many programmes have limited coverage for the poor, especially in rural areas, and low benefit levels. This is illustrated in [Figure 11](#), which shows the disparity between the coverage of the population and the adequacy of the coverage in the poorest quintile (that is, transfers received by the beneficiaries in the bottom quintile as a percentage of beneficiaries' total consumption). In the ECA region, the average adequacy of social protection and labour programmes in the poorest quintile is 24 percent. The adequacy is lowest in Tajikistan, where only 1.3 percent of consumption of the beneficiaries in the poorest quintile comes from social transfers ([Figure 11](#)). The economic pressure on the poor in the region has further increased due to the deterioration of the macroeconomic situation in 2015-2016, which reduced the purchasing power of the population and increased the incidence of poverty, primarily in the Caucasus, Central Asia and European CIS sub-regions.

In 2015-2017, several new social protection policy initiatives were adopted in the region in line with the 2030 Agenda, which commits countries to expanding coverage of nationally appropriate social protection systems and measures for all, to achieve substantial coverage of the poor and the vulnerable by 2030. In 2015, the Kyrgyz government adopted the *National Social Protection Programme for 2015-2017*,<sup>34</sup> which aims to shift up to 45 percent of social assistance spending toward the *Monthly Benefit for Poor Families with Children Programme*.<sup>35</sup> Administered by the Ministry of Labour and Social Development, it is the only social assistance transfer in the country focused on families with children in extreme poverty. Entitlement to the transfer is determined by the presence of children in the household and is combined with income and asset tests.

In 2016, the Cabinet of Ministers of Ukraine endorsed the Action Plan for 2016-2017 to implement the Strategy for overcoming poverty. By the end of 2017 complex measures aimed primarily at increasing the size of incomes from labour activity, engaging citizens in the labour market, providing targeted assistance and improving the effectiveness of social support programmes will have been implemented.<sup>36</sup> One of the most important tasks outlined in the plan is to minimize the risk of social exclusion among the rural population, to minimize the risk of poverty for the most vulnerable categories of the population, and to prevent poverty and social exclusion among internally displaced persons.

In Turkey, in response to the needs of the increasing number of refugees from Syria (as of April 2017 totaling more than 2.9 million people, with women and children representing over 70 percent of this total) (UNHCR, 2017), the government has taken various measures to provide access to food and basic services through coordinated in-kind and cash based, food, agriculture and nutrition programmes, jointly with partner organizations (3RP, 2017).

School feeding programmes are also common across the ECA region. Thirteen out of 20 countries in the Caucasus, Central Asia, European CIS and SEE sub-regions have some kind of school feeding programme in place (World Bank, 2015). In 2015-2017, several developments in school feeding programmes have taken place across the region. For example, through its collaboration with the World Food Programme, in 2016, the government of Tajikistan committed itself to implementing a high-quality nationwide school feeding programme to be integrated with the national social protection system (WFP, 2016). In Bishkek, Kyrgyzstan, a pilot project was run in January 2017 to introduce hot meals in one school so as to test the model and expand it to other schools.<sup>37</sup>

<sup>34</sup> Government Decree of Kyrgyzstan #85. National Social Protection Programme for 2015-2017 (27 February 2015). (Available at <http://cbd.minjust.gov.kg/act/view/ru-ru/97348>).

<sup>35</sup> Law of Kyrgyzstan #318 "On Government Benefits" (29 December 2009)

<sup>36</sup> Ordinance by the Cabinet of Ministers of Ukraine #161-R "On approval of the Strategy for overcoming poverty" (16 March 2016).

<sup>37</sup> Project is implemented by WFP in collaboration with the Ministry of Education and Science and the Ministry of Health, with support from SIFI and local NGOs, including the Agency of Development Initiatives, Centre for Activation and Development of Village Initiatives, and the Roza Otunbaeva Initiative Foundation.

While hot school meals had previously been introduced in Kyrgyzstan, due to insufficient financing and administrative and organizational gaps, the process was replaced with a school breakfast model, under which children received a drink and a bakery product in the morning. However, as this model was shown to fall short of nutrition standards, it was decided to reintroduce hot meals in schools with an additional contribution from parents (Social and Industrial Foodservice Institute, 2016).

Besides social assistance measures, in order to improve economic access to food for economically vulnerable households, some countries in the ECA region are employing market management instruments, such as price controls and value-added tax (VAT) exemptions. For example, in 2016 the Government of Azerbaijan exempted wheat, flour and bread from VAT with the aim of reducing the prices of these commodities. The governments of Belarus, Kyrgyzstan, the Russian Federation, Tajikistan, Uzbekistan and Turkmenistan regulate prices for a set of basic food items (FAO, 2015a). Since 1996 the Ukrainian government also controlled prices for a range of “social food products”<sup>38</sup> covering baby food, bread, flour, sugar, cereals, meat and dairy products, eggs, oil and other social food products. However, in October 2016, the Ukrainian government adopted a country-wide pilot project aimed at temporarily removing price controls for social food products by the end of 2017. Permanent removal of the price controls was to be conditional on the success of the pilot project. In January 2016 Kazakhstan cancelled its “social bread” subsidies, which had allowed bakeries to purchase flour at below the market price. Instead, from 1 January 2018, in accordance with the Law of the Republic of Kazakhstan “On amendments and additions to some legislative acts of Kazakhstan on the issues of social protection of the population” the Kazakh government will increase the income threshold for the provision of targeted social assistance (TSA) for families (from

40 to 50 percent of the subsistence level).<sup>39</sup> Under the new design, the TSA will provide both unconditional and conditional cash assistance. The unconditional cash assistance will be provided to families without able-bodied members, or families in which able-bodied members are not employed for valid reasons (for example, a single mother with children of preschool age). The conditional cash assistance will be provided to families that have at least one able-bodied member and will be a subject to mandatory participation in employment promotion measures.

Despite considerable progress in reducing severe forms of poverty and the incidence of hunger across all the ECA countries, poverty often remains endemic to populations in rural areas (FAO, 2016d). Rural economies across the ECA region are characterized by limited non-farm employment opportunities and income diversification sources as well as stagnant entrepreneurial activity, leading to outmigration from rural areas (FAO, 2016d). In addition, families living in remote rural areas might not fully benefit from social assistance programmes offered by their governments. There are various reasons for this, including a lack of access to relevant information, the effort needed to provide necessary documentation and the costs and time involved in the application process (Abdurazakova, 2016). In such circumstances, investments in rural development programmes and rural populations become particularly important, in addition to improved social protection measures. Nevertheless, across the Caucasus, Central Asia and European CIS sub-regions rural development policies have continued to take lower priority in the agricultural strategies and total budgetary outlays compared to agricultural production measures, which largely include investment support and preferential loans for agricultural producers, mechanisms for reducing expenses to purchase fixed and working assets, preferential taxation, and agricultural insurance programmes (Volk et al., 2015). ■

<sup>38</sup> The Tax Code of the Republic of Azerbaijan (Approved by the Law No. 905-IG of the Republic of Azerbaijan, 11 July, 2000). Cabinet's resolutions #1548 of 25 December 1996 (“On authorization of local executive bodies on price making” (25 December 1996)) and #1222 of 17 November 2007 (“On establishment of the reporting order of changes of food pricing (17 November 2007)). Considering the changes made into the legislation since the date of their issuance, the resolutions of the Cabinet require revision.

<sup>39</sup> Law of the Republic of Kazakhstan “On amendments and additions to some legislative acts of Kazakhstan on the issues of social protection of the population”, 20 June 2017 (available at [https://online.zakon.kz/Document/?doc\\_id=35664814#pos=1;-153](https://online.zakon.kz/Document/?doc_id=35664814#pos=1;-153)) FAPDA Database



## POLICY DEVELOPMENTS TO IMPROVE NUTRITION AND FOOD UTILIZATION IN 2015-2017

Micronutrient deficiencies and overnutrition in children and adults remain major food security and nutrition concerns across the ECA countries, resulting in health issues, reduced human capacity, and productivity losses. Micronutrient deficiencies primarily stem from low incomes and low education levels (FAO, 2015c; FAO, 2016d), which are conditions often observed in rural areas across the ECA. Growing rates of obesity correlate closely with higher incomes, which allow people to consume products of higher caloric value, coupled with reduced physical activity, and compounded by low levels of awareness about healthy diets. This correlation, however, holds only up to a certain income level. Once per capita income grows above USD 30 000-40 000 (in 2010 international dollars) the correlation between per capita income and the prevalence of overweight and obesity decreases (FAO, 2016d). Consequently, policy responses need to focus on the underlying causes of each type of malnutrition. In addition, a prerequisite for developing effective nutrition policies is to recognize that the causes of malnutrition are multi-faceted. For example, of the 17 Sustainable Goals, 12 include indicators that are relevant to nutrition (United Nations, 2017). This means that achieving better nutrition requires cross-sectoral solutions and bringing on board key ministries (health, agriculture, education, social affairs, economic development and infrastructure), the private sector, as well as leading governmental and non-governmental organizations (IFPRI, 2017).

Many countries in the region are already recognizing the importance of addressing key nutrition issues, such as undernutrition, vitamin and mineral malnutrition, obesity and diet-related non-communicable diseases. In 2015-2017 nearly every ECA country had a nutrition programme or policy in place, often as a part of a more general health strategy. The most recent ones were adopted in Armenia and Uzbekistan. In September 2015, with the support from UNICEF, Armenia

adopted a National strategy for improving child nutrition for 2015-2020<sup>40</sup> with the goal of bringing together the government, international and local partners to improve the nutrition status of children in the country. In the same year the government of Uzbekistan adopted Resolution No. 251 “Approving the Concept and Action Plan on Healthy Nutrition of the Population for the 2015-2020 Period”.<sup>41</sup>

However, despite the noted progress, implementation of nutrition policies and programmes across the ECA countries has been characterized by varying degrees of success and with different levels of cross-sectoral coordination. So far, concerted efforts to tackle nutrition problems in most ECA countries have been limited to national ministries of health. However, several recent examples show that this trend is slowly changing. An important recent development at regional level has been the WHO Regional Committee for Europe<sup>42</sup> adopting the WHO European Food and Nutrition Action Plan 2015-2020 (WHO Regional Office for Europe, 2014), which is closely aligned with the Vienna Declaration on Nutrition and Non-communicable Diseases (WHO Regional Office for Europe, 2013) in the context of Health 2020, the new European health policy framework adopted in 2012 (WHO Regional Office for Europe, 2017). The plan is intended to support the governments of the member countries to adopt cross-sectoral nutritional strategies, policies and programmes with the goal of minimizing nutritional risk factors and reducing the prevalence of diet-related non-communicable diseases.

In 2016, the government of Kazakhstan adopted new “National Programme for Development of the Health Sector of Kazakhstan ‘Densaulik’ for 2016-2019”, which introduces cross-sectoral coordination for tackling nutritional challenges in the

<sup>40</sup> Protocol of the Government of the Republic of Armenia from 25 September 2014 #40 “On national strategy for improving child nutrition for 2015-2020” (available in Armenian at [http://www.edrc.am/images/National\\_Strategies/Industrial/children\\_nutrition\\_2015-2020.pdf](http://www.edrc.am/images/National_Strategies/Industrial/children_nutrition_2015-2020.pdf))

<sup>41</sup> Resolution of the Cabinet of Ministers of Republic Uzbekistan #251 “Approving the Concept and Action Plan on Healthy Nutrition of the Population for the 2015-2020 Period”, 29 August 2015 (available at [http://www.lex.uz/pages/getpage.aspx?lact\\_id=2739757](http://www.lex.uz/pages/getpage.aspx?lact_id=2739757))

<sup>42</sup> All ECA countries considered in this section are members of the WHO Regional Committee for Europe.

country.<sup>43</sup> Kyrgyzstan and Tajikistan are two countries in the region that have been a part of the “Scaling up Nutrition (SUN)” initiative, since 2011 and 2013, respectively (SUN, 2015). As part of the SUN initiative Tajikistan established the Food Security Council of the Republic of Tajikistan with the goal of coordinating food security policy work in the country (SUN, 2015). In 2015 Kyrgyzstan adopted the Food Security and Nutrition Programme for the period 2015-2017, proposing a set of multi-dimensional implementation tasks to address food security problems using a multi-sectoral approach. Recently, the Kyrgyz government launched the planning process for the 2018-2022 Food Security and Nutrition Programme, which is to be aligned with the SUN Movement Strategy and Roadmap for 2016-2020 (SUN, 2015).

As the ECA region starts on the path towards reaching the SDG targets (and particularly targets 2.1 and 2.2), the Central Asian countries can offer an important lesson for tackling iron deficiencies in children and women. Since the early 2000s, the countries in this sub-region have introduced effective campaigns to reduce the severity of iron and iodine deficiency among their population through flour and salt fortification measures (FAO, 2016d; ADB, 2010). As a result, the Central Asian region has seen a significant decrease in the prevalence of anaemia among both children and women of childbearing age (FAO, 2016d).

According to the 2015 Global Nutrition Report (IFPRI, 2015; USAID and GAIN, 2015), five countries in the ECA region (excluding EU-28 and EFTA sub-regions) had mandatory wheat flour fortification measures in place in 2015. They included all the Central Asian economies (except for Tajikistan), and the Republic of Moldova. In the Caucasus countries, as well as most SEE countries (except for Serbia and Bosnia and Herzegovina), governments were in the process of discussing wheat flour fortification measures (IFPRI, 2015). The most recent development took place in Tajikistan where in 2016 the Government prepared a legislative proposal “On wheat flour fortification” (FAO, 2017d). ■

## POLICY DEVELOPMENTS AFFECTING FOOD STABILITY IN 2015-2017

Within the SDG framework,<sup>44</sup> food stability lies at the cross-section of multiple SDG targets, including, but not limited to, SDG 2.4 (making food systems resilient to climate change), SDG 2.b (correcting and preventing trade restrictions), SDG 2.a, SDG 9.a, and SDG 11.a (improving infrastructure), SDG 12 (responsible production and consumption), SDG 13 (combating climate change), SDG 15 (conserving and using land responsibly and halting biodiversity loss), SDG 16 (promoting peace) and SDG 17 (enhancing finance, trade and global macroeconomic stability). Consequently, policy agendas to achieve food stability in the region are tightly interlinked with the policy frameworks for the three other pillars of food security.

Specific threats to food stability related to environmental degradation, climate change processes and food losses and waste are discussed in Part 3.

There are further risks related to food stability in the Caucasus, Central Asia and European CIS subregions. One of them is the dependency some of the countries have on food imports, and the dependency of others on exports of energy and agricultural commodities. Such dependencies create vulnerability to external shocks on international food and energy markets, which have consequences for commodity prices and the affordability of food. In such circumstances, achieving SDG target 2.b<sup>45</sup> becomes an important priority for the ECA countries.

In 2015-2016, the agricultural trade policy environment in the non-EU countries was mixed. From one perspective, it was marked by continuing trade integration processes that took place across all ECA sub-regions (FAO, 2017d). In particular,

<sup>44</sup> Description of the relevant SDG goals is provided in the Annex.

<sup>45</sup> SDG target 2.b is to “correct and prevent trade restrictions and distortions in world agricultural markets including by the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round”.

<sup>43</sup> Available at <http://www.npzdavr.kz/index.php/health-c/112-2>

Kazakhstan acceded to the WTO (30 November 2015), Kyrgyzstan became a member of the Eurasian Economic Union (12 August 2015), the Deep and Comprehensive Free Trade Agreements entered into full force and effect between the EU and Ukraine (1 January 2016), between the EU and Georgia (1 July 2016), and between the EU and Republic of Moldova (1 July 2016), and selected SEE countries continued the EU accession process. Within the Central European Free Trade Area (CEFTA), tariffs and quotas for agricultural products have been eliminated between the EU and the SEE countries (except Turkey) (FAO, 2017d).

In addition, in many countries across the Caucasus, Central Asian and European CIS sub-regions export promotion measures remained key export policy instruments in 2015 and 2016. During that period, Azerbaijan, Belarus, Kyrgyzstan, and Turkmenistan adopted export support and development programmes, including for agrifood exports. In Tajikistan, Regulations on the Standing Commission for the Stimulation of Domestic Production and Development of Export were approved on 30 December 2015 (FAO, 2017d).

In 2015, Kyrgyzstan developed a new Export Development Plan (EDP) for the 2015-2017 period. The main goal of the EDP is to develop the competitive export potential for sustainable economic growth. This is expected to be realized by creating basic conditions for achieving a more attractive foreign trade regime and improving the competitiveness of Kyrgyz goods (FAO, 2017f). In Uzbekistan, Uzpakhtasanoatexport Holding Company for Acceptance, Processing and Export of Cotton Fiber, and Uzagroexport Specialized Foreign Trade Company for Export of Fresh and Processed Fruits and Vegetables were established in 2015-2016. The aim of establishing these companies was to improve the competitiveness and export capacity of Uzbek-made products (FAO, 2017d).

From the other side, political considerations motivate some countries to introduce trade restrictions which create some distortions in agricultural markets. ■

## CONCLUSIONS

The 2030 Agenda and SDGs have created momentum for the ECA countries to set a clearer and sharper target for achieving policy coherence in food security. For many ECA countries a coherent policy approach to food insecurity still remains a challenge. In some countries, a disconnect between agricultural policies and contemporary nutritional challenges has been noted, and the concept of food security is still primarily viewed as 'food independence' or 'food self-sufficiency' and often remains a prerogative of the ministries of agriculture. Similarly, concerted efforts to tackle nutrition problems in most ECA countries have been limited to national ministries of health and would be stronger if they were considered within the broader context of food security. In this context, gender-sensitive analysis, policies and interventions acquire particular importance.

Food security policies need to tie together all four pillars of food security in one framework and explicitly identify the institutions responsible for their implementation. This requires cross-sectoral solutions and bringing on board key ministries (health, agriculture, education, social affairs, economic development and infrastructure), the private sector, as well as leading governmental and non-governmental organizations to focus on exploring policy interlinkages across economic, environmental and social aspects of food security. This also requires consistent monitoring of policy changes and identifying best policy practices that recognize the cross-cutting nature of the SDGs. ■



**MUKHRANI, GEORGIA**

Tending the plants  
in a tomato greenhouse.

©FAO/Vano Shlamov





**PART 3**  
**ENSURING**  
**FOOD SECURITY**  
**THROUGH**  
**BETTER**  
**MANAGEMENT**  
**OF SCARCE AND**  
**FRAGILE**  
**NATURAL**  
**RESOURCES IN**  
**THE CONTEXT OF**  
**CLIMATE CHANGE**

# ENSURING FOOD SECURITY THROUGH BETTER MANAGEMENT OF SCARCE AND FRAGILE NATURAL RESOURCES IN THE CONTEXT OF CLIMATE CHANGE

As the population in the ECA region is expected to have increased by 9.7 million (UN DESA, 2017) by 2050, with over 80 percent residing in urban areas, the demand for food and feed will increase. Changes in lifestyles and income growth will change consumption patterns, altering the demand for certain types of products and commodities. In order to meet the SDG 2 goal, agricultural production will need to keep up with this growing demand across the ECA region. This will, in turn, put additional stress on existing natural resources, including land and water, which are already facing various environmental challenges, such as deforestation, land degradation, desertification and salinization due to unsustainable natural resource use.

Climate change will further exacerbate the fragility of natural resources through the increased frequency and severity of extreme weather events, affecting food production and value chains. In the ECA region, an average increase 0.5 °C in the South and 1.6 °C in the North have already been observed since the early 1990s (FAO, 2016g). Extreme weather events, such as droughts and floods, have caused considerable damage and production losses in the crop, livestock, fishery and forestry sectors. Many small-scale farmers are and will be among the hardest hit as they often have limited assets and access to resources, knowledge, use of technologies and financial services required to adapt their production systems to climate change processes.

Meeting SDG 2 in the ECA region thus requires the development of sustainable food and agricultural systems that are resilient to natural hazards and climate change (FAO, 2016c). Future food demand needs to be met on existing agricultural land, through sustainable intensification and improved use of natural resources. In this regard, reducing food losses and waste (FLW) from production to consumption will

also be essential in ensuring sustainability, as the food wastage recorded in Europe<sup>46</sup> is among the highest in the world.<sup>47</sup> Moreover, it is estimated that the ECA region's carbon footprint per capita of food wastage ranges from around 500 kg to nearly 700 kg CO<sub>2</sub> equivalent per capita per year, which exacerbates climate change risks.

Within the context of the 2030 Agenda, the development of food and agricultural systems that are environmentally sustainable lies at the cross section of a number of the SDG goals. SDG 2 targets 2.4 (sustainable and resilient food production systems) and 2.a (in rural infrastructure and agriculture investments) become particularly relevant. However, other SDGs and related targets are also relevant, including SDG 6 (clean water and sanitation), particularly targets 6.4 (water-use efficiency), 6.5 (integrated water management) and 6.6 (protect and restore water-related ecosystems); SDG 12 (sustainable consumption and production systems), particularly targets 12.2 (sustainable management of natural resources) and 12.3 (reduce food losses and waste); SDG 13 (climate change), particularly targets 13.1 (resilience and adaptive capacity), 13.2 (integrate policies) and 13.3 (improved education and awareness raising); as well as most of the targets in SDG 15 (sustainable use of ecosystems), including targets (15.1 conservation and restoration of ecosystems), 15.3 (combat desertification) and 15.5 (reduce habitat degradation), among others.<sup>48</sup>

<sup>46</sup> It includes EU-28 and EFTA countries, Southeastern Europe and European CIS.

<sup>47</sup> An estimated figure for the Europe and Central Asia region does not exist. An aggregated figure is instead used, which combines the estimated figures for the two regions of 'Europe' (nearly 700 kg CO<sub>2</sub> per capita per year) and 'North Africa, Western Asia & Central Asia' (nearly 500 kg CO<sub>2</sub> per capita per year) (FAO, 2013).

<sup>48</sup> Details on the SDGs and their related targets are presented in the Annex.

This section provides an overview of the major challenges related to ensuring the sustainability of agricultural and food systems in the region with a specific focus on natural resource management and climate change processes. In particular, it includes the scale of land degradation, water scarcity, and natural hazards that are affecting the ECA countries. Food losses and waste are then discussed within the context of enhancing resource efficiency along the food chain and ensuring sustainability of agricultural and food systems. ■

## Demographic trends in the ECA region

Demographic trends will, to a large extent, drive the demand for food in the ECA region, which in turn will shape the development of agricultural and food systems across the region. The UN projects that by 2050 the total population of the ECA region will increase by 9.7 million people (UN DESA, 2017). The dynamics of this population change will, however, vary across the subregions and individual countries (Table 4). It is projected that Turkey will experience the largest absolute population increase, of 17 million (or 21.8 percent). However, in relative terms, countries in Central Asia, such as Tajikistan and Kyrgyzstan expect their populations to expand by 68.5 percent (or 5.8 million) and 38.9 percent (or 2.3 million) respectively by 2050. At the same time, the populations in the European CIS and the Western Balkan countries are projected to decrease by 26.7 million and 2.6 million respectively (UN, 2015).

The number of people residing in urban areas is expected to increase across the region. By 2050, more than half the population of all ECA countries, except for Tajikistan (43.3 percent) and Kyrgyzstan (49.1 percent), will live in urban areas. These countries, together with Uzbekistan, are the largest sources of labour migration in the region, as well as the largest receivers of the remittances, mainly from the Russian Federation and Kazakhstan. At subregional level, the highest urbanization rates are projected for the EU-28 (84.8 percent of the total population will reside in cities) and EFTA countries (87.6 percent). At country level the largest urban populations are expected in Turkey (82.6 percent) and Albania (86.5 percent).

Several countries in the region; namely, Belarus, Georgia, the Republic of Moldova, the Russian Federation, Ukraine, and to a lesser extent, Armenia and Kazakhstan, have above global average shares of their population aged 60 years and over (12 percent). In all these countries, women form a significant portion of the pension age population (in the Russian Federation this share is more than 72 percent).

Alongside the overall increase in population in the ECA region, people's incomes are also expected to rise (Table 4). Turkmenistan, which is rich in natural gas and oil reserves, is among the countries that are projected to experience a substantial increase in per capita GDP, from USD 6,990 in 2015 to USD 12,028 in 2022, which is among the highest in the region when the EU-28 and EFTA countries are excluded. This estimation is based on the expected gradual rise in energy commodity prices. Growth in incomes is projected to lead to a higher demand for food and certain types of food products, as consumption patterns change. ■

**TABLE 4  
POPULATION AND URBANIZATION PROJECTIONS FOR THE ECA REGION**

	Population (million)	Population increase/decrease (%)	Urban population as a share of total (%)	GDP per capita (USD, current prices)	
	[2015 – 2050]	2015-2050 period	[2015 – 2050]	2015	2022
<b>Caucasus</b>					
Armenia	[3.0 – 2.7]	-9.6	[62.1 – 71.8]	3 520	4 631
Azerbaijan	[9.7 – 10.9]	12.4	[53.8 – 65.1]	5 396	5 870
Georgia	[4.0 – 3.4]	-13.0	[57.7 – 67.5]	3 761	5 550
<b>Central Asia</b>					
Kazakhstan	[17.6 – 22.4]	27.3	[50.7 – 58.1]	10 427	11 869
Kyrgyzstan	[5.9 - 8.2]	38.9	[34.3 – 49.1]	1 109	1 344
Tajikistan	[8.4 – 14.2]	68.5	[27.2 – 43.3]	926	1 073
Turkmenistan	[5.3 – 6.5]	21.9	[50.0 – 65.6]	6 690	12 028
Uzbekistan	[29.8 – 37.1]	24.2	[36.1 – 50.8]	2 111	2 611
<b>European CIS</b>					
Belarus	[9.5 - 8.1]	-14.5	[74.8 – 77.2]	5 941	7 061
Republic of Moldova	[4.0 - 3.2]	-20.4	[38.0 – 45.1]	1 828	2 653
Russian Federation	[143.4 – 128.6]	-10.4	[73.3 – 76.2]	9 521	12 931
Ukraine	[44.8 – 35.1]	-21.6	[69.4 – 75.7]	2 135	3 528
<b>Southeastern Europe</b>					
Albania	[2.9 - 2.7]	-6.6	[63.4 – 86.5]	3 943	5 997
Bosnia and Herzegovina	[3.8 - 3.0]	-19.4	[39.9 – 59.9]	4 206	5 782
The former Yugoslav Republic of Macedonia	[0.6 – 0.5]	-9.5	[57.9 – 67.4]	4 854	6 881
Montenegro	[8.8 – 7.3]	-17.2	[63.6 – 70.1]	6 464	8 320
Serbia	[2.0 – 1.9]	- 6.7	[59.2 – 64.6]	5 244	7 561
Turkey	[78.6 - 95.8]	21.8	[71.6 – 82.6]	10 909	12 193
EU-28	[505.1 – 499.8]	-0.9	[75.6 – 84.8]	27 784	33 025
EFTA	[13.8 – 17.1]	23.4	[76.0 – 87.6]	68 715	81 952

SOURCE: Population - United Nations (2015) Probabilistic Population Projections based on the World Population Prospects: The 2015 Revision. Population Division (<http://esa.un.org/unpd/ppp/>), Percentage of Population at Mid-Year Residing in Urban Areas by Major Area, Region and Country, 1950-2050 - United Nations, Department of Economic and Social Affairs, Population Division (2014). World Urbanization Prospects: The 2014 Revision, CD-ROM Edition (<https://esa.un.org/unpd/wup/CD-ROM/>); GDP per capita - IMF (2017), World Economic Outlook Database (<https://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx>).

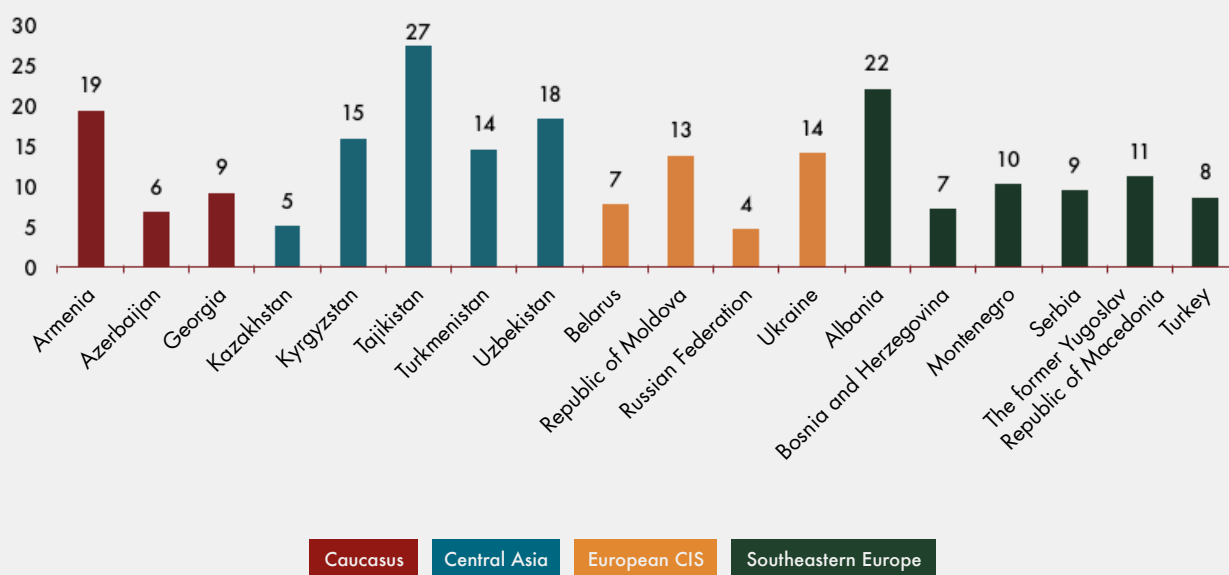


## Overview of the agricultural sector

The agricultural sector is an integral part (Figure 12) of many of the ECA countries' economies. The share of GDP that agriculture creates varies from approximately 4 percent in the Russian Federation to 27 percent in Tajikistan (FAO, 2015c). However, this does not include the EU-28 and EFTA countries, where the agricultural sector of almost all the countries contributes less than 5 percent of GDP with variations ranging from 0.1 percent in Luxembourg to 5.1 percent in Bulgaria (FAO, 2015c).

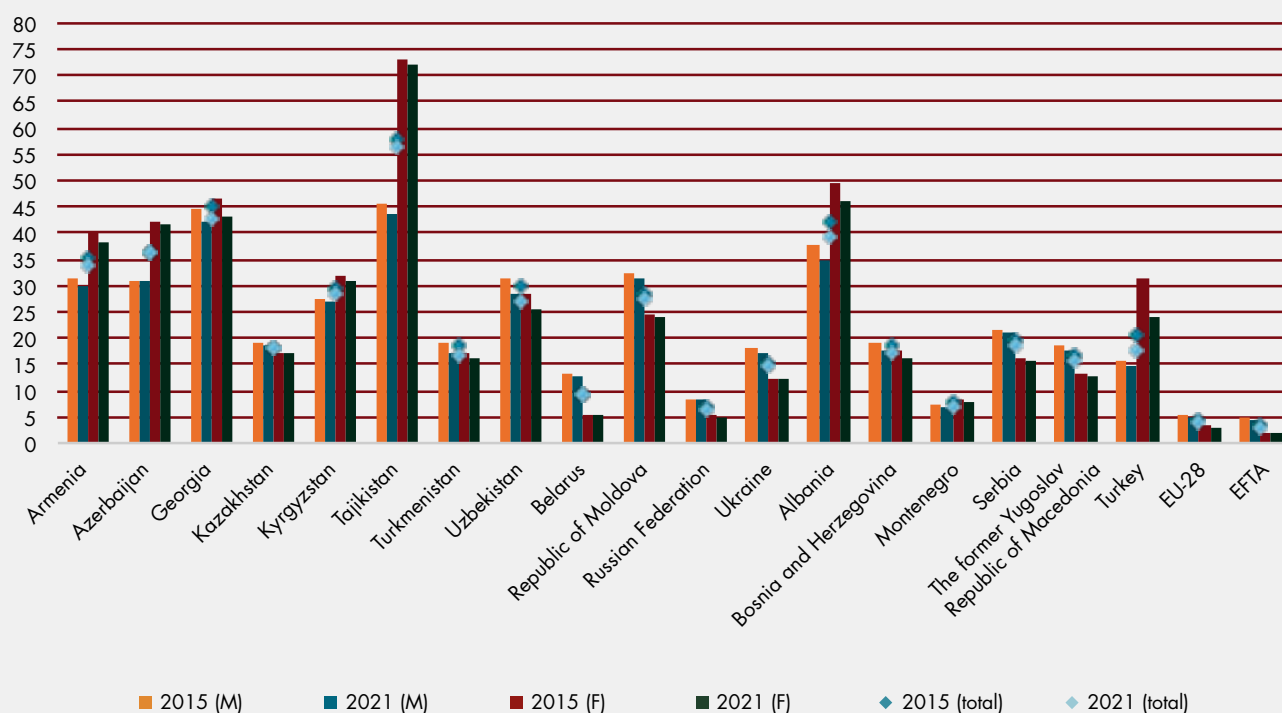
Agricultural employment also constitutes a substantial share of total employment across the ECA countries, when compared to the average share of 4.5 percent and 3 percent in 2015 in the EU-28 and EFTA countries respectively (Figure 13). In the non-EU ECA countries, employment in agriculture is the highest in Tajikistan with 58 percent of the total labour population working in agriculture, followed by Georgia (45 percent) and Albania (42 percent) in 2015. In these countries, almost half of all female labour is engaged in agricultural activities. However, regardless of gender, agricultural employment is projected to decrease over time in most countries.

FIGURE 12  
AGRICULTURE, VALUE ADDED TO GDP IN THE ECA REGION (Y: 2015, %)



SOURCE: FAO (2016)

**FIGURE 13**  
**AGRICULTURAL EMPLOYMENT AS PART OF TOTAL EMPLOYMENT**  
**AND BY SEX IN THE ECA COUNTRIES, 2015 AND 2021, %**



NOTE: No data available of Liechtenstein.

SOURCE: ILOSTAT, [http://www.ilo.org/ilostat/faces/oracle/webcenter/portalapp/pagehierarchy/Page3.jspx?MBI\\_ID=33](http://www.ilo.org/ilostat/faces/oracle/webcenter/portalapp/pagehierarchy/Page3.jspx?MBI_ID=33)

**TABLE 5**  
**AGRICULTURAL LABOUR FORCE PROJECTIONS IN 2005-07, 2030 AND 2050**

	2005/07	2030	2050
	million persons	million persons	million persons
European Union	12.9	5.1	2.4
Eastern Europe	5.6	2.2	1.0
Caucasus and Central Asia	7.8	6.0	3.8
Other Europe	0.3	0.2	0.1
Russian Federation	7.1	3.2	1.6
Turkey	15.2	11.4	6.4
<b>Europe and Central Asia</b>	<b>48.8</b>	<b>28.2</b>	<b>15.3</b>

SOURCE: FAO, 2012

Aging rural populations in many countries in the region and a gradual reduction in the number of younger people residing in rural areas is expected to result in a smaller labour force in the sector. The agricultural labour force is expected to decrease from around 50 million people (or 17 percent of the rural population) to approximately 15 million people by 2050 (FAO, 2012a) (Table 5). In light of this, the development of future sustainable and climate resilient production systems will also need to take into consideration the reduced workforce (FAO, 2014b). ■

## Natural resources in the ECA region: An Overview

While the distribution of natural resources is not equal across the ECA countries, overall, the region is rich in land resources suitable for agriculture, which provides an important basis for agricultural production. The ECA region has around 18 percent of the world's arable land (see Table 6) while having only 13.2 percent of the world's population (FAO, 2012a).

**TABLE 6**  
**AGRICULTURAL LAND IN THE ECA REGION, 2014**

	Total land area, million ha	Agricultural land area, % of total land area	Composition of agricultural land area		
			Arable land, % of agricultural land area	Permanent crops, % of agricultural land area	Meadows and pastures, % of agricultural land area
<b>Caucasus</b>					
Armenia	2.8	59.0	26.6	3.4	69.9
Azerbaijan	8.3	57.7	40.4	4.9	54.7
Georgia	6.9	36.8	17.9	6.3	75.9
<b>Central Asia</b>					
Kazakhstan	270	80.4	13.5	0.1	86.4
Kyrgyzstan	19.2	55.0	12.1	0.7	87.2
Tajikistan	13.9	34.2	15.4	3.0	81.7
Turkmenistan	47.0	72.0	5.7	0.2	94.1
Uzbekistan	42.5	62.9	16.4	1.4	82.2
<b>European CIS</b>					
Belarus	20.3	42.5	65.7	1.4	32.9
Republic of Moldova	3.3	74.8	73.9	11.9	14.2
Russian Federation	1,637.7	13.3	56.6	0.7	42.7
Ukraine	57.9	71.2	78.8	2.2	19.0
<b>Southeastern Europe</b>					
Albania	2.7	42.9	52.4	6.8	40.7
Bosnia and Herzegovina	5.1	42.2	46.8	4.9	48.3
The former Yugoslav Republic of Macedonia	2.5	50.1	32.8	3.0	64.2
Montenegro	1.3	17.1	3.8	2.2	94.0
Serbia	8.7	40.1	74.3	5.3	20.3
Turkey	77.0	50.1	53.7	8.4	37.9

**PART 3 ENSURING FOOD SECURITY THROUGH BETTER MANAGEMENT OF SCARCE AND FRAGILE NATURAL RESOURCES IN THE CONTEXT OF CLIMATE CHANGE**

	Total land area, million ha	Agricultural land area, % of total land area	Composition of agricultural land area		
			Arable land, % of agricultural land area	Permanent crops, % of agricultural land area	Meadows and pastures, % of agricultural land area
<b>EU - 28</b>					
Austria	8.2	34.8	47.5	2.2	50.2
Belgium	3.0	44.1	61.7	1.6	36.5
Bulgaria	10.8	46.8	63.8	3.1	32.9
Croatia	5.5	23.7	67.6	6.2	26.1
Cyprus	0.9	12.8	70.7	27.5	1.6
Czechia	7.7	54.7	74.8	1.8	23.3
Denmark	4.2	63.4	92.9	0.1	6.9
Estonia	4.2	22.2	66.8	0.6	32.4
Finland	30.3	7.5	98.3	0.2	1.4
France	54.7	53.1	63.1	3.5	33.3
Germany	34.8	47.9	71.0	1.2	27.7
Greece	12.8	63.2	30.6	14.1	55.2
Hungary	9.0	58.9	82.3	3.4	14.2
Ireland	6.8	66.1	23.3	0	76.6
Italy	29.4	47.3	48.8	18.0	33.1
Latvia	6.2	29.2	63.7	0.3	35.8
Lithuania	6.2	44.7	77.9	1.1	21.0
Luxembourg	0.2	50.5	47.2	1.1	51.6
Malta	0.03	32.1	87.3	12.6	N/a
Netherlands	3.3	56.1	55.0	1.9	43.0
Poland	30.6	48.5	75.0	2.6	22.2
Portugal	9.1	39.7	30.0	19.5	50.3
Romania	23.0	60.7	64.3	3.1	32.4
Slovakia	4.8	40.1	72.0	1.0	26.8
Slovenia	2.0	22.7	36.7	5.8	57.3
Spain	50.0	55.2	45.4	17.0	37.5
Sweden	40.7	7.4	85.1	0.2	14.5
United Kingdom	24.1	70.9	35.3	0.2	64.4
<b>EFTA</b>					
Iceland	10.0	15.8	7.7	N/a	92.2
Liechtenstein	N/a	40.6	53.8	N/a	46.1
Norway	36.5	3.8	81.8	0.4	17.7
Switzerland	3.9	38.0	26.5	1.5	71.9

NOTE: This data is mainly based on FAO Questionnaires from countries and/or country official publications or web sites or trade country files. However, it also contains manual estimations for certain countries as follows; Belarus (arable land), Georgia (crop/meadows and pastures), Kazakhstan, the Russian Federation, Tajikistan, Turkmenistan, Uzbekistan. EU-28 and EFTA country data are for 2011, except for total land area.

SOURCE: FAO (2017e)

Table 6 provides an overview of agricultural land and land usage. At sub-regional level, the European CIS countries have the largest total land area (1.719 million ha), which is primarily due to the Russian Federation, followed by the EU-28 countries (422 million ha), Central Asia (392 million ha), Southeastern Europe (77 million ha), EFTA countries (50 million ha) and the Caucasus (18 million ha).

The highest average percentage of agricultural land in the total land area is found in Central Asia (61 percent), followed by the Caucasus (51 percent), European CIS (50 percent), the EU-28 (43 percent), Southeastern Europe (40 percent) and the EFTA countries (25 percent).

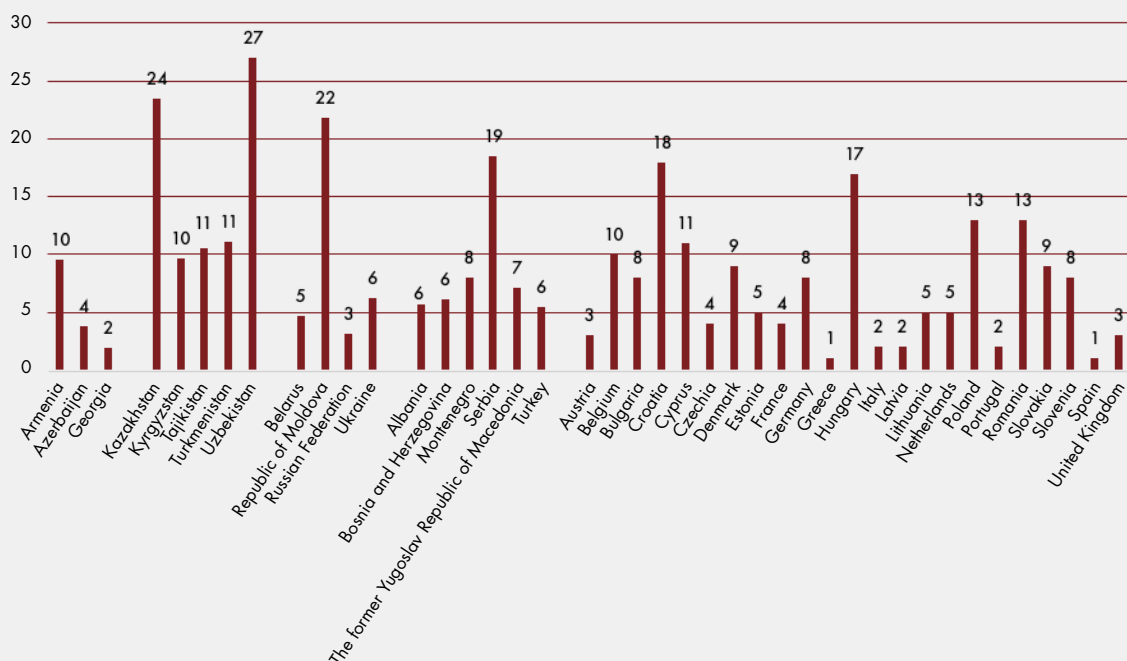
At country level, the Russian Federation, Kazakhstan and Ukraine have the most agricultural land in the region with 217 million ha, 216 million ha and 41 million ha, respectively.

Kazakhstan, Republic of Moldova and Ukraine have the highest share of agricultural land relative to total land at 77.5, 74.8 and 71.3 percent, respectively. Meadows and pastures constitute an average of 79 percent of total agricultural land in the Caucasus and Central Asia, where livestock production is dominant. Turkey has the largest area for permanent crops, equivalent to 3.2 million ha. Overall, the share of agricultural land as part of total land has remained largely unchanged across the region in recent years (FAO, 2014c). ■

## Land degradation

Despite the fact that the ECA region is well-endowed with land resources, many countries are experiencing an increase in degradation, depletion and over-exploitation, which is undermining the sustainability of their production systems (FAO, 2016c). Recent, rapid changes in land cover and land use have creat-

FIGURE 14  
POPULATION LIVING ON DEGRADED LAND, % OF TOTAL POPULATION (Y: 2010)



NOTE: No data was available for Finland, Iceland, Ireland, Liechtenstein, Luxembourg, Malta, Norway, Sweden and Switzerland.  
SOURCE: UNDP (2013)

ed major challenges to traditional landscapes and land use systems, magnifying land degradation processes and impacts. This trend is especially important for achieving SDG 2 targets centered on sustainable agriculture (Target 2.3 and 2.4). More than 20 percent of the populations of Republic of Moldova, Kazakhstan and Uzbekistan already live on degraded land (Figure 14). Such developments have a substantial effect on the ability to enhance agricultural production in order to meet increasing demand for food and feed. Land degradation not only reduces productive capacity of land, but also decreases ecosystem functions, thereby reducing resilience and limiting ability to adapt to future extreme weather events that may occur as a result of climate change. In light of this, land degradation constitutes a major development challenge for various ECA countries, negatively impacting their food security, ecosystem services and rural livelihoods. For the majority of the rural poor in the ECA region, natural resources often constitute their most important assets. Therefore, their efficient use, conservation and enhancement becomes an important precondition for sustainable rural livelihoods.

Overall, in the EU-28, EFTA and European CIS countries (except the Russian Federation), water erosion is threatening approximately 16 percent of total land, while wind erosion is impacting 6 percent. It is also estimated that 45 percent of soil in the EU-28 countries has low organic content (EU JRC, 2012). Soil sealing has a negative impact on approximately half of the land under agriculture within the EU-28 countries. It is predicted that climate change will further exacerbate these issues, worsening soil degradation and leading to further desertification (EU JRC, 2012; EEA, 2016).

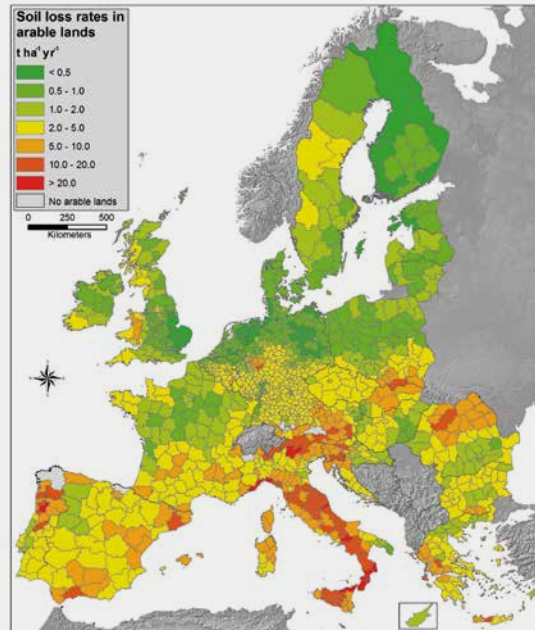
Soil erosion rates for arable land in the EU-28 countries (Figure 14) indicate that the issue is most acute in the Southern and Central EU countries, with Italy being the worst affected, followed by Croatia, Greece, Portugal, Slovakia, Slovenia and Spain. In the North and North-East of Europe, the soil loss rate is still relatively low, especially in countries such as Estonia, Finland, Ireland, Latvia, Lithuania, the Netherlands, Sweden and the United Kingdom of Great Britain and Northern Ireland.

In larger EU countries, including Germany, France, Poland and Romania, the southern territories are typically more exposed to soil losses than the northern ones (Figure 15).

Similarly, soil degradation leading to land degradation and desertification is also an issue in the Southeastern Europe sub-region. For instance, in Turkey around 79 percent, or 61.3 million ha, of the country is affected by erosion. Moreover, 80 percent of the country's soil is located on slopes steeper than 15° with wind erosion impacting about 500 000 ha (Senol and Bayramin, 2013). Another example is The former Yugoslav Republic of Macedonia, where it was calculated that in 1993 land degradation and erosion affected around 96.5 percent of the total area of the country (Mitkova and Cvetkovska, 2006). Land degradation, and in particular soil erosion, is also one of the key environmental problems in Montenegro and has affected 13 135 km<sup>2</sup> or 95 percent of the country (Spalevic et al., 2014). In Albania erosion affects about 25 percent of the country (UNEP, 2015). More specifically, on-site losses caused by soil erosion and compaction in the agricultural area were estimated at USD 138.2 million per year or about 5.5 percent of the agricultural GDP in 2011 (Binaj et al., 2014).

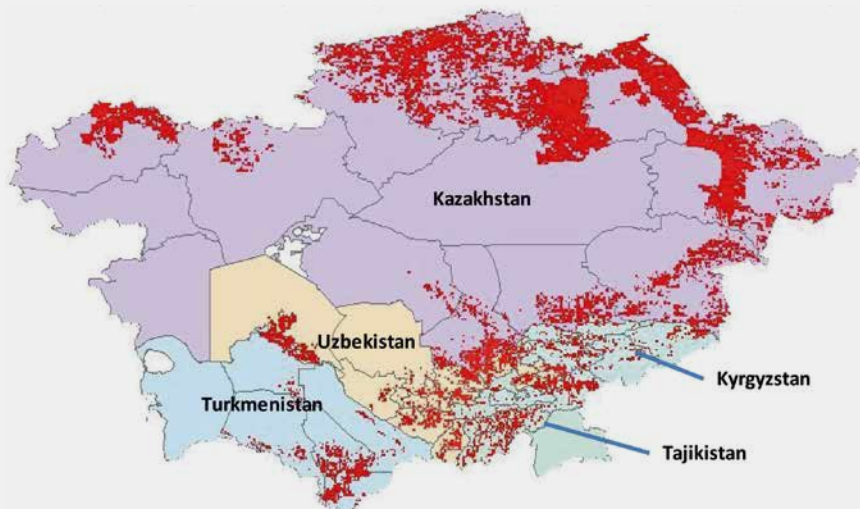
Soil erosion is equally evident across the European CIS. For instance, in Ukraine over 500 million tonnes of soil are eroded from arable land annually, which leads to the loss of 32.5 million ha of fertile soil (FAO, 2014e). In Belarus eroded and erosion-prone soils cover over 4 million ha (19 percent of the country's territory), including 2.6 million ha of arable land (Republic of Belarus, 2006). Republic of Moldova is affected by soil erosion to a lesser extent than other countries in the sub-region. Its area affected by soil erosion increased by an average of 7 100 ha, from 594 000 ha in 1965 to 878 000 ha in 2010. As a result, annual losses of fertile soil are calculated to be around 26 million tonnes (Leah, 2012). In the Volga, South Urals and West Siberia areas of the Russian Federation at least 25 percent of arable land is subject to erosion and every year this expands by 4 000-5 000 km<sup>2</sup>. This has significant adverse impacts on soil fertility, which has resulted in a 36 percent decrease in the productivity of arable land (Glazovsky, 2009).

**FIGURE 15**  
**MEAN SOIL EROSION RATES AT NUTS<sup>49</sup> 3 LEVEL FOR ARABLE LANDS**  
**(TONNES PER HA PER YEAR), 2010, EU-28**



SOURCE: European Soil Data Centre, 2010

**FIGURE 16**  
**HOT SPOTS OF LAND DEGRADATION IN CENTRAL ASIA**



NOTE: Areas in red depict prevalence of land degradation in the Central Asian countries.

SOURCE: Mirzabaev et al. (2016)

<sup>49</sup> The Nomenclature of Territorial Units for Statistics (NUTS), which is the official spatial planning standard used for comparing regions in the EU.

In the European CIS and the SEE countries, the major drivers behind soil degradation, including soil erosion, deforestation, desertification and salinization, are inappropriate agricultural practices, such as overgrazing, improper drainage<sup>50</sup> and irrigation use, illegal logging, as well as other activities, such as mining and construction (FAO, 2015d).

However, it is the countries of the Central Asia sub-region that have been most adversely affected by land degradation processes. Figure 16 provides an overview of the areas that are degraded in the five Central Asian countries.

Mirzabaev et al. (2016) estimate that the annual cost of land degradation in Central Asia between 2001 and 2009, due to land use and cover change, was approximately USD 5.85 billion, constituting high shares of the countries' GDP (Table 7). Most of the land degradation is the result of rangeland degradation, which led to USD 4.6 billion in losses, followed by desertification (USD 800 million in losses), deforestation (USD 300 million in losses), and abandonment of cropland (USD 100 million in losses). This study also shows the economic potential and justification for investments in more sustainable land management, as it is calculated that on average the cost of action is five times lower than the cost of inaction.

The major drivers behind soil degradation in Central Asia include population growth and climate change, which are adversely impacting and aggravating the limited natural resources and unsustainable land management practices. In addition, significant land use and land cover changes, observed in the last decade, are further exacerbating degradation of the land (Mirzabaev et al. 2016). Most notably, these can be linked to events such as the (1) abandonment of massive areas formerly under rain fed crop production in Kazakhstan, (2) continued desiccation of the Aral Sea, (3) the conversion of a sizable area of barren land to other land uses, mainly shrub land and grassland, and 4) deforestation and desertification due to overgrazing, soil pollution, and erosion. Finally, the increasing risks of natural hazards, such as drought, landslides and floods, are leading to extensive agricultural damage and losses. ■

## Policy response to land degradation at regional, sub-regional and national levels

Countries of the ECA region are making various efforts to combat land degradation. These involve setting regulatory frameworks, targeted programmes and actions, as well as investments in research and monitoring of specific land degradation processes.

**TABLE 7  
COSTS OF LAND DEGRADATION IN CENTRAL ASIA THROUGH LAND USE AND COVER CHANGE**

Country	Annual cost of land degradation between 2001 and 2009, billion USD	Annual cost of land degradation per capita, USD	Cost of land degradation as a share of GDP
Kazakhstan	3.06	1 782	3 %
Kyrgyzstan	0.55	822	11 %
Tajikistan	0.50	609	10 %
Turkmenistan	0.87	1 083	4 %
Uzbekistan	0.83	237	3 %
<b>Total</b>	<b>5.85</b>	-	-

NOTE: Costs of land degradation from lower soil and land productivity within the same land use are not included in the calculations.

SOURCE: Mirzabaev et al. (2016)

For example, in the EU-28 sub-region, a frame-

<sup>50</sup> In Belarus a large-scale drainage campaign was carried out in the 1960s-1980s, where over 3.4 million ha were drained, which is

16.4 percent of the territory. Around 1 million ha were wetlands (Republic of Belarus, 2002).



work of objectives related to land take<sup>51</sup> and land degradation has been established via a series of policy documents. Their key elements include: (1) progress towards the target of 'no net land take'<sup>52</sup> by 2050; (2) reducing soil erosion; (3) increasing soil organic matter; (4) remediating contaminated sites; and (5) integrating land use into all levels of government, including via the adoption of targets on soil and land as a resource (EEA, 2016).

In addition, the EU countries have issued several strategic documents to reduce land take, soil sealing and land degradation.<sup>53</sup> Within the Common Agricultural Policy, 'greening' measures are intended to address land degradation issues, for example through the protection of permanent grasslands and ecologically valuable farmland as well as crop diversification. Overarching frameworks are also defined within the EU directives on the Environmental Impact Assessment and Strategic Environmental Assessment.

In the Central Asian countries, land management is streamlined through central legal acts, such as land codes, supported by the number of other central acts, including water and forest codes and other regulations. In addition, land degradation is being partially tackled by more specific legislation like laws on pastures, on agricultural land use and soil conservation. For example, in Tajikistan, the Land Code (Republic of Tajikistan, 1997) regulates land relations by focusing on protecting land,

replenishing soil fertility, maintaining and improving the natural environment and equally developing all forms of economic activity in the country. It thus supports and upholds the protection of land using an integrated approach to soil, natural environment/natural resources (peat, forests, water sources) and economic activity, including agriculture, and outlines the duties, rights and responsibilities of land users.

Several other important initiatives are taking place in the Caucasus and Central Asia sub-regions. *The Implementation Plan of the Eurasian Soil Partnership* was adopted at the Plenary Meeting of Global Soil Partnership focal points in Turkey in June 2015. Its main objective is to promote sustainable soil management practices in Eurasia, particularly in Central Asia and the Caucasus. In particular, this plan will focus on enhancing capacities and raising awareness as well on upscaling and mainstreaming these sustainable soil management practices (FAO, 2015d).

Another important project is the *Central Asian Countries Initiative for Land Management*, which aims to scale up integrated natural resource management in drought prone and salt affected agricultural production landscapes in the Central Asian countries and Turkey. Through the adoption of integrated landscape management approaches and Integrated Natural Resource Management (INRM) practices, this initiative strives to stabilize and even reverse trends of soil salinization, reduce erosion, improve water capture and retention, increase the sequestration of carbon, and reduce losses to agrobiodiversity, thereby reducing the desertification trend in terms of extent and severity.

However, there are still gaps in the legal and policy framework, including the lack of a single (synchronized) policy in land management. This leads to weak enforcement, a lack of coordination between the various agencies, the absence of mechanisms to promote and enforce "rational use of land resources", and low technical and human resource capacity for implementing and monitoring land use strategies. There is also a need for comprehensive land protection or other related laws and acts that outline the linkages between land, water, and agriculture to ensure appropriate land use and adequate quality of land for productive use. ■

<sup>51</sup> The area of land that is 'taken' by infrastructure itself and other facilities that necessarily go along with the infrastructure, such as filling stations on roads and railway stations (EU Commission, 2009).

<sup>52</sup> According to the European Commission's Roadmap to a Resource Efficient Europe (COM (2011) 571), all new urbanization will either occur on brown-fields or will be compensated by the reclamation of artificial land (EU Commission, 2011).

<sup>53</sup> Including the Thematic Strategy (EC, 2006); Roadmap to a resource efficient Europe (EC, 2011); Guidelines on best practice to limit, mitigate or compensate soil sealing (EC, 2012b); General Union Environment action programme to 2020 'Living well, within the limits of our planet' (7EAP) (EC, 2013); The European Commission's communication on deforestation (EC, 2008); EU Forestry Strategy (EC, 2013); Territorial agenda of the European Union 2020: Towards a more competitive and sustainable Europe of diverse regions (EC, 2011); Biodiversity Strategy (EC, 2011c).

**TABLE 8  
OVERVIEW OF TOTAL RENEWABLE WATER RESOURCES PER CAPITA (M<sup>3</sup> PER YEAR)  
IN EU-28 AND EFTA COUNTRIES IN 2016<sup>54</sup>**

Austria	9 093	Greece	6 244	Poland	1 567
Belgium	1 620	Hungary	10 553	Portugal	7 478
Bulgaria	2 979	Iceland	516 090	Romania	10 866
Croatia	24 882	Ireland	11 092	Slovakia	9 233
Cyprus	669	Italy	3 199	Slovenia	15 411
Czechia	1 247	Latvia	17 763	Spain	2 418
Denmark	1 058	Lithuania	8 513	Sweden	17 793
Estonia	9 756	Luxembourg	6 172	Switzerland	6 447
Finland	19 989	Malta	120	United Kingdom	2 271
France	3 277	Netherlands	5 377		
Germany	1 909	Norway	75 417		

NOTE: No data available for Liechtenstein.

Red - countries considered water scarce; yellow - countries considered water stressed; white - countries that are neither water scarce nor water stressed.

SOURCE: Aqastat, 2016

## Water scarcity in the ECA region

Renewable water resources are unevenly distributed in the ECA region. For example, in the EU-28 and EFTA countries, Cyprus and Malta are considered water scarce,<sup>55</sup> Belgium, Czechia, Denmark and Poland are considered water stressed, and Iceland and Norway are two countries with the largest renewable water resources per capita at 516 090 m<sup>3</sup> and 75 417 m<sup>3</sup> per year, respectively (Table 8).

In other ECA sub-regions the situation is similar. Uzbekistan has the lowest renewable water resources per capita (1 635 m<sup>3</sup> per year) and is the only country that can be defined as 'water stressed' (Figure 17).

Some other countries, such as Armenia (2 574 m<sup>3</sup> per year) and Tajikistan (2 583 m<sup>3</sup> per year) also have relatively low annual renewable water resources per capita, while the Russian Federation (31 543 m<sup>3</sup> per year) and Serbia (18 326 m<sup>3</sup> per year) have the highest among the non-EU ECA countries.

As water constitutes an indispensable input to the agricultural sector in the ECA region, the issue of sustainable irrigation and water use management is very important for the sustainability of food systems.<sup>56</sup> However, in a number of countries across all the sub-regions, water withdrawal for agricultural use remains unsustainable. Eight countries in the region<sup>57</sup> are considered severely water scarce

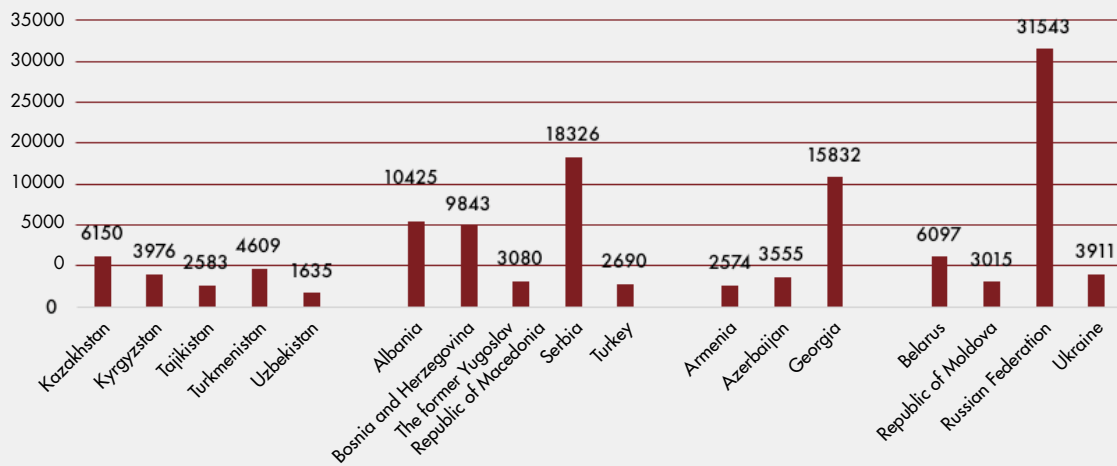
<sup>54</sup> According to FAO, water stress occurs when the water available in a country drops below 1 700 m<sup>3</sup> per year or 4 600 litres/day per person, while water scarcity is experienced when the 1 000 m<sup>3</sup> per year or about 2 700 litres/day per person threshold is crossed (FAO, 2014d).

<sup>55</sup> There are different definitions of water scarcity, but simply stated, scarcity occurs when the demand for water exceeds the available supply. The best known indicator of national water scarcity is per capita renewable water (which is the total amount of a country's internal and external water resources, both surface and ground water generated through the hydrological cycle per capita), where different threshold values are used to distinguish between different levels of water stress. As water is used by various sectors, including the agricultural sector, the level of water scarcity can also be calculated based on how much water is withdrawn from its renewable fresh water resources for the sector.

<sup>56</sup> The problems of water scarcity and stress across the ECA region, in particular for agriculture, are directly linked to SDG 6, especially 6.4, 6.5 and 6.6., which calls for ensuring the sustainable and efficient use of freshwater resources at various levels and across borders.

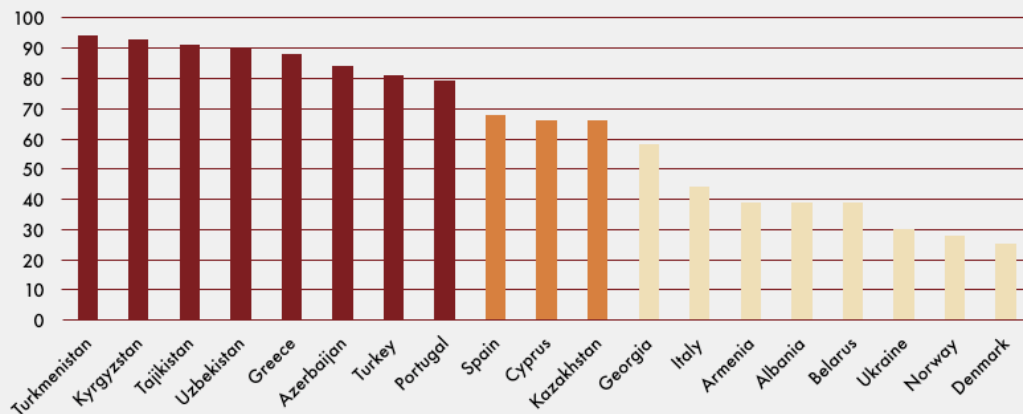
<sup>57</sup> Data is not available for the EFTA countries, Slovakia or Bosnia and Herzegovina. Year of data-1994 (Ireland), 1998 (Portugal), 2000 (Italy), 2004 (Iceland), 2006 (Finland), 2007 (Bulgaria, Greece, Norway), 2009 (Belgium), 2010 (Austria, Germany, Sweden), 2011 (Lithuania), 2012 (Croatia, Denmark, France, Hungary, the Netherlands, Poland, Spain, Switzerland, United Kingdom of Great Britain and Northern Ireland), 2013 (Cyprus, Czechia, Latvia, Romania), 2014 (Estonia, Slovakia), 2004 (Turkmenistan), 2001 (the Russian Federation), 2005 (Azerbaijan, Georgia, Ukraine, Uzbekistan), 2006 (Albania, Kyrgyzstan, Tajikistan), 2007 (Armenia, Republic of Moldova, The former Yugoslav Republic of Macedonia), 2008 (Turkey), 2009 (Serbia), 2010 (Kazakhstan, Montenegro, Ukraine), 2012 (Armenia, Azerbaijan), 2013 (Belarus, Serbia).

**FIGURE 17**  
**OVERVIEW OF TOTAL RENEWABLE WATER RESOURCES PER CAPITA (M<sup>3</sup> PER YEAR) IN ECA REGION**



SOURCE: AQUASTAT, 2016

**FIGURE 18**  
**WATER WITHDRAWAL FOR AGRICULTURAL USE IN THE ECA COUNTRIES (PERCENT OF TOTAL WITHDRAWAL)**



NOTE: Red - Countries considered severe physical water scarce (withdraw more than 75 percent of their renewable freshwater resources)  
 Orange - Countries considered physical water scarce (withdraw more than 60 percent of their renewable freshwater resources)  
 Yellow - Countries considered water stressed (withdraw more than 25 percent of their renewable freshwater resources)  
 SOURCE: FAO (2017e)

in terms of the levels of withdrawal of their renewable freshwater resources<sup>58</sup> (Figure 18), including Turkmenistan (94 percent withdrawal rate), Kyrgyzstan (93 percent), Tajikistan (91 percent), Uzbekistan (90 percent), Greece (88 percent), Azerbaijan (84 percent), Turkey (81 percent) and Portugal (79 percent). Spain, Cyprus and Kazakhstan are considered water scarce countries with an average freshwater resource withdrawal rate of 67 percent. Georgia, Italy, Armenia, Albania, Belarus, Ukraine, Norway and Denmark are the countries in the ECA region that are water stressed. For the other countries in the region the rate of freshwater resources withdrawal is less than 25 percent.

Substantial water withdrawal for agricultural use causes higher levels of water stress in many ECA countries, which is already a concern in the region. It causes the deterioration of fresh water resources in terms of quantity (aquifer overexploitation, dry rivers, etc.) and quality (eutrophication, organic matter pollution, saline intrusion, etc.) (EEA, 2017). According to the World Resource Institute’s projections, by 2020 all the countries in the Central Asia and Caucasus, except for Georgia, will be experiencing ‘high’ or ‘extremely high’ levels of water stress (Table 9).<sup>59</sup> In addition, some European CIS countries, such as the Russian Federation and Ukraine, and the Southeastern European countries The former Yugoslav Republic of Macedonia and

**TABLE 9 PROJECTIONS OF WATER STRESS LEVELS FOR AGRICULTURE IN THE ECA REGION<sup>60</sup>**

Score	0-1	1-2	2-3	3-4	4-5
Value	Low (<10%)	Low to medium (10-20%)	Medium to high (20-40%)	High (40-80%)	Extremely high (>80%)

Name	2020	2030	2040
Kyrgyzstan	4.91	4.92	4.93
Kazakhstan	4.79	4.77	4.79
Armenia	4.16	4.46	4.74
Turkmenistan	4.13	4.38	4.76
Azerbaijan	4.10	4.34	4.58
The former Yugoslav Republic of Macedonia	4.03	4.05	4.13
Uzbekistan	3.97	4.26	4.30
Spain	3.93	4.09	4.22
Greece	3.86	4.12	4.23
Turkey	3.71	3.95	4.12

<sup>58</sup> With regards to water withdrawal, countries are considered ‘water stressed’ if they withdraw more than 25 but less than 60 percent of their renewable freshwater resources; countries are considered ‘water scarce’ if they withdraw more than 60 but less than 75 percent of their renewable freshwater resources and countries are considered ‘severely water scarce’ if they withdraw more than 75 percent of their renewable freshwater resources (FAO, 2014d).

<sup>59</sup> Water stress measures total annual water withdrawals (municipal, industrial, and agricultural) expressed as a percentage of the total annual available blue water. Higher values indicate more competition among users (Luo et al., 2015).

<sup>60</sup> Under a business-as-usual scenario

Name	2020	2030	2040
Italy	3.61	3.72	3.80
Ukraine	3.54	3.70	3.22
Tajikistan	3.30	3.36	3.42
Portugal	3.14	3.37	3.61
Bulgaria	3.05	2.86	2.69
Russian Federation	3.04	3.06	3.02
United Kingdom	2.88	2.87	2.81
Belgium	2.81	3.01	3.25
Luxembourg	2.75	2.76	2.75
Georgia	2.41	2.67	2.94
Albania	2.32	2.44	2.56
Republic of Moldova	2.12	2.84	3.77
Poland	2.09	2.21	2.21
Netherlands	1.92	2.35	2.75
Lithuania	1.74	1.93	2.09
Czechia	1.74	1.88	1.91
Austria	1.73	1.77	1.89
Germany	1.65	1.68	1.67
France	1.58	1.77	1.90
Belarus	1.28	1.37	1.37
Ireland	1.27	1.25	1.22
Switzerland	1.23	1.28	1.34
Hungary	1.17	1.29	1.39
Romania	1.15	1.32	1.42
Montenegro	1.09	1.44	1.68
Estonia	1.06	1.27	1.50
Sweden	0.89	0.92	0.93
Finland	0.71	0.63	0.54
Liechtenstein	0.47	0.53	0.59
Latvia	0.46	0.56	0.63
Slovakia	0.38	0.58	0.73
Slovenia	0.35	0.59	0.82
Serbia	0.30	0.42	0.60
Norway	0.20	0.21	0.21
Croatia	0.12	0.23	0.32
Denmark	0.03	0.23	0.53
Bosnia and Herzegovina	0.01	0.01	0.02
<b>World Average</b>	1.92	2.00	2.09

NOTE: Water stress measures total annual water withdrawals (municipal, industrial, and agricultural) expressed as a percentage of the total annual available blue water. Higher values indicate more competition among users. No data available for Iceland.

SOURCE: Luo et al., 2015

Turkey are also included, as are the EU countries Greece, Italy, Portugal and Spain. Moreover, by 2040 in addition to the countries mentioned above, Republic of Moldova and Belgium are also expected to be experiencing 'high' levels of water stress, while Bulgaria and the Russian Federation are projected to have reduced their levels of water stress from 'high' to 'medium to high' (Luo et al, 2015).

Climate change processes pose additional risks in terms of water availability across the ECA region (ENVSEC, 2014). Due to climate change, global average annual temperatures are expected to increase, while average annual precipitation is also likely to decrease (IPCC, 2014). Average temperatures across ECA countries have already increased by 0.5 °C in the South and 1.6 °C in the North of the region since the early 1990s. Further increases by up to an average 2.6 °C are expected by 2050 across the ECA countries (World Bank, 2009). The northern parts of the region will experience more temperature changes in winter, whereas the southern parts will face more warming during the summer. The number of hot days will likely increase by 22-37 days per year by 2030-2049 with the largest increase in heatwave duration in the North Caucasus, the Urals and Western Siberia, Kazakhstan and Central Asia. The number of frost days is expected to decrease by 14-30 days, particularly in the Baltic countries (World Bank, 2009). Temperature rises will result in greater evaporation from soil, leading to less water availability for plants and reduced input to ground water, as well as an increased risk of drought.

Temperature increases affect hydrology, as warmer air can hold more water vapor, which can lead to more intense rainstorms and a higher risk of flooding. The result is thus more extreme weather events and changing precipitation patterns, which some countries are already experiencing. Temperature increases will also cause glaciers to melt more rapidly, particularly in Central Asia and the Caucasus, and winter snow to be reduced, which has been estimated to reduce water flow by up to 40 percent, while in some cases threatening to decrease long-term water availability in some countries (Sedik and Lerman, forthcoming, 2016; World Bank, 2009; UNISDR and World Bank, 2009).

In terms of precipitation, it is projected that the northern and eastern parts of the ECA region will be wetter, while the southern part will be drier. The mean annual precipitation will likely increase in the majority of the Russian Federation's regions (by 5-11 percent by 2050), except for the North Caucasus (-2 percent), with an increase in winter precipitation (9-18 percent). For the rest of the ECA region, more precipitation in winter (9 percent) and spring (5 percent) is projected, but with South-eastern Europe seeing a decrease (-6 percent for annual mean). Moreover, the intensity of precipitation will increase, varying from 2-6 percent for all the countries in the region, which may result in more flooding. Also, runoff is expected to decrease everywhere except the Russian Federation, with the largest decrease likely in Southeastern Europe (-25 percent). This will result in more dry spells and droughts (World Bank, 2009). ■

## **Overview of the policy response to water resource management at regional, subregional and national levels**

There are various policies and approaches to water resource management in the ECA countries, since water is indispensable for many economic activities, including agriculture, energy production, industry and mining. In the ECA region, water is not only closely connected to agriculture, but is also linked to energy, due to the importance of hydropower, particularly in Central Asia. As a result, water issues are cross-sectoral and mainstreamed into various sectoral policies and legislation.

In the EU, there is a high degree of standardization in water policy, with the aim of ensuring the sustainability of water resources for EU member countries. For instance, the EU Water Framework Directive (WFD) provides a legal framework to protect and restore water environments and ensure long-term sustainable use of Europe's water bodies. It focuses on all EU members to achieve 'good qualitative and quantitative status' and requires member states to establish a river basin management plan (RBMP) for each river basin on its territory. The Danube

River Management Plan 2015-2021 (ICPDR, 2015) is an example of such a transboundary RBMP, which shows how to achieve at least good status in terms of both water quality and quantity for all waters within the basin. This basin covers over 800 000 km<sup>2</sup> and 10 percent of continental Europe and extends into the territories of 19 countries (both EU and non-EU countries). The International Commission for the Protection of the Danube River is a platform that facilitates the coordination of WFD related work at the multilateral and river basin level. Promoting institutional coordination and collaboration at all levels in terms of ensuring integrated water resource management, among all stakeholders is very important.

Overall, it is important that countries have adequate water abstraction laws and water quality protection, including mainstreaming in national sectoral planning instruments like policies, plans and strategies for agriculture, water, the environment, climate change, sustainable development and others. An example is the *Albanian National Integrated Water Resources Management Strategy* (2016). This Strategy provides the legal, institutional, technical and socio-economic framework for Albania's water resources. It is based on European environmental legislation as well as on IWRM principles and helps to address the needs that have been identified for Albania's water resources. Its vision includes risk reduction and management with regard to floods, thereby integrating disaster risk management as one of its objectives.

During the past few decades, the impact of natural disasters, in particular climate-related disasters, on agriculture in the ECA region has steadily increased. It is estimated that between 1990 and 2017, a total of 577 natural disasters<sup>61</sup> occurred in the ECA region,<sup>62</sup> which affected over 69 million people and resulted in over USD 49 billion in economic damages. The European CIS countries experienced the largest number of natural disasters (221) with over 10.6 million people affected (Table 10).

<sup>61</sup> The natural hazards include earthquakes, landslides, floods, storms, droughts, wild fires, among others.

<sup>62</sup> This subsection on natural hazards does not include the EU-28 and EFTA countries.

However, Southeastern Europe experienced the highest economic damage (more than USD 30 billion) from 188 natural disasters that occurred between 1990-2017.

ECA countries are exposed to various natural hazards, including droughts, floods, earthquakes, landslides and storms. The INFORM Risk Index (Table 11) indicates that the highest exposure to earthquakes is observed in the mountainous countries of Central Asia – Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, as well as in the Black Sea Basin – Turkey, Armenia and Azerbaijan. Floods are most likely to affect Serbia, the Russian Federation and Ukraine. Albania, Tajikistan and Kyrgyzstan have a very high drought risk. While the countries with a very high overall risk of natural hazards<sup>63</sup> include Tajikistan, Uzbekistan, the Russian Federation and Turkey.

Of all climate-related disasters, the agricultural sector is the most impacted by floods, droughts and storms.<sup>64</sup> According to an FAO study (2015), the agricultural sector absorbed approximately 22 percent of the total damage and losses caused by large and medium-scale natural disasters that occurred during the 2003-2013 period in developing countries. As climate change related natural hazards are expected to increase in frequency and intensity (IPCC, 2014), more and more agricultural producers will be negatively impacted together with other stakeholders, such as land users, hydro-power corporations and urban centers. Such processes are expected to cause more economic damage and losses that may substantially impact livelihoods and hinder sustainable development (FAO 2017b).

<sup>63</sup> The natural hazard risk component of the index consists of the geometric average risk of earthquakes, tsunamis, floods, tropical cyclones and droughts (INFORM, 2016).

<sup>64</sup> In terms of subsectors, crop and livestock production were mostly affected by floods and droughts, forestry by floods and storms and fisheries by tsunamis and storms. This study helped to fill some of data gaps that currently exist regarding measuring the impact of natural hazards on the agricultural sector, which is essential in order to better understand people's vulnerabilities and risks as well as to better inform decision-making and undertake effective risk reduction measures and investments (FAO, 2015c).

**TABLE 10**  
**THE NUMBER OF NATURAL DISASTERS, TOTAL PEOPLE AFFECTED AND ECONOMIC LOSS**  
**IN THE ECA REGION (1990-2017)**

Country	No. of natural disasters	Total No. people affected	Total damage (in USD million)
<b>Caucasus</b>	<b>45</b>	<b>3 859 125</b>	<b>1.112</b>
Armenia	8	395 894	201
Azerbaijan	15	2 575 273	211
Georgia	22	887 958	700
<b>Central Asia</b>	<b>123</b>	<b>10 492 768</b>	<b>2.454</b>
Kazakhstan	21	794 658	285
Kyrgyzstan	28	2 270 907	217
Tajikistan	65	6 774 735	1.803
Turkmenistan	2	420	99
Uzbekistan	7	652 048	50
<b>European CIS</b>	<b>221</b>	<b>10 628 607</b>	<b>15.627</b>
Belarus	13	159 591	177
Republic of Moldova	15	2 902 752	800
Russian Federation	159	4 714 451	11.301
Ukraine	34	2 851 813	3.349
<b>Southeastern Europe</b>	<b>188</b>	<b>9 971 822</b>	<b>30.251</b>
Albania	24	941 551	24
Bosnia and Herzegovina	23	1 414 155	821
Montenegro	5	12 386	N/a
Serbia	23	210 265	2.280
The former Yugoslav Republic of Macedonia	23	1 281 548	409
Turkey	90	6 111 917	26.717
<b>Total</b>	<b>577</b>	<b>34 952 322</b>	<b>49.444</b>

NOTE: No data of total damage available in Montenegro.

SOURCE: EM-DAT (The Emergency Events Database) - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium.



**TABLE 11**  
**NATURAL HAZARD RISK IN THE EUROPE AND CENTRAL ASIA REGION, EXCEPT EU-28 AND EFTA COUNTRIES**

Score	0.0 - 1.4	1.5 - 2.6	2.7 - 4.0	4.1 - 6.0	6.1 - 10.0
Value	Very low	Low	Medium	High	Very high
Country	Earthquake	Flood	Drought	Natural Disasters	
<b>Caucasus</b>					
Armenia	8.0	4.7	5.7	4.4	
Azerbaijan	8.2	4.9	5.3	4.5	
Georgia	7.8	5.7	5.4	4.5	
<b>Central Asia</b>					
Kazakhstan	7.5	5.8	5.0	4.3	
Kyrgyzstan	9.7	5.6	7.2	5.9	
Tajikistan	9.7	5.6	7.7	6.1	
Turkmenistan	8.5	5.3	5.0	4.6	
Uzbekistan	9.9	6.3	6.7	6.1	
<b>European CIS</b>					
Belarus	0.1	6.1	3.2	2.3	
Republic of Moldova	5.1	5.9	6.1	3.9	
Russian Federation	7.1	8.4	5.5	6.3	
Ukraine	2.7	7.1	3.5	3.2	
<b>Southeastern Europe</b>					
Albania	6.2	4.9	7.8	5.8	
Bosnia and Herzegovina	6.3	7.3	3.5	4.2	
Montenegro	4.2	4.9	2.1	4.0	
Serbia	6.6	8.6	2.7	4.6	
The former Yugoslav Republic of Macedonia	6.6	4.4	4.5	3.6	
Turkey	9.3	6.1	3.8	6.0	

SOURCE: INFORM, 2017

Accurate and reliable post-disaster agricultural damage and losses data is often lacking due to the lack of or limited human, technical and financial resources to undertake a systematic assessment for the agricultural sector. Nevertheless, some data is available on the impact of climate-related hazards on agriculture in the Caucasus, Central Asia and the European CIS. For instance, a drought in 2000-2001 significantly affected Tajikistan and Georgia, the impact of which was estimated at 5 and 6 percent of those countries' GDPs respectively (World Bank, 2009). Rainfall was below the long term average in nearly all areas in Tajikistan, with an average of 60 percent of normal levels and river flows at around 40 to 85 percent of normal levels (FAO and WFP, 2001). This resulted in a decrease in crop yields of 30-40 percent (CAREC, 2015). Another example is the drought that affected Republic of Moldova in the summer of 2007, which adversely impacted about 84 percent of the country's arable land and resulted in an estimated USD 407 million in economic losses from crop failures and livestock deaths (World Bank, 2009). A frost at the end of March 2015 in Tajikistan caused substantial damage and losses to crops and orchards, affecting 225 000 people in the Sughd province (OCHA, 2015).

Floods and droughts in Southeastern Europe have affected many people, including smallholder farmers, who were impacted by the 2014 floods and landslides in Serbia and Bosnia and Herzegovina. The extraordinarily heavy rains – with the most rainfall measured in the last 120 years – caused massive flooding and affected 24 and 81 municipalities in the countries respectively, and resulted in damage and losses to the agricultural sector of EUR 228 million (or 19 percent of total damage and losses) in Serbia and EUR 187 million (or 9 percent of total damage and losses) in Bosnia and Herzegovina (United Nations/EU/World Bank, 2014a; United Nations/EU/World Bank, 2014b). The floods and landslides washed away newly planted crops, destroyed storage shelters and drowned livestock.

The former Yugoslav Republic of Macedonia is among the Southeastern European countries that are prone to droughts. The most vulnerable agricultural zone is the Povardarie region, especially the areas of the Crna, Bregalnica and

Vardar rivers. It is estimated that the impact of the 1993 drought resulted in a total crop failure that was calculated to be around 7.6 percent of total national income (United Nations/EU/World Bank, 2014a; United Nations/EU/World Bank, 2014b). Due to the lack or incomplete or inaccurate damage and loss data, the exact impact of the 2003 and 2006-2007 droughts on the crops, grasses and fodder production is not fully known.

Natural hazards, like droughts, depending on their severity and duration, may not only impact the agricultural sector, but may also pose serious risks to health and food security. For instance, a severe drought in 2000 and 2001 in Tajikistan and Uzbekistan led to the unavailability of drinking and irrigation water and resulted in slow and chronic forms of malnutrition as households reduced their intake of meat and dairy products. In addition, due to the drought of 2007-2008 in Tajikistan, crop yields fell by over 40 percent (CAREC, 2015), and combined with the global rise in food prices this resulted in 2.2 million people being undernourished (FAO, 2008).

Understanding the exact impact of natural hazards on agriculture and people's livelihoods is of utmost importance to better understanding people's vulnerabilities and risks as well as to better inform decision-making and undertake effective risk reduction measures and investments. ■

## Overview of the policy response to natural hazards at the regional, subregional and national levels

The policy response to climate change processes has been limited in most ECA countries. In many instances, comprehensive strategies for improving the resilience and adaptability of agricultural systems to climate change are missing in practice, as are public funds. At this point, there is limited or no inter-ministerial cooperation or initiatives for tackling climate change and implementing policy responses. Instead, policy interventions are predominantly aimed at reducing the consequences and negative effects

of weather extremes. Agricultural policies, on the other hand, often focus on production rather than on building resilience (Volk et al., 2015).

Responses to climate change in the agricultural sector are further complicated by a lack of awareness among the public and decision makers about the concept, threats and consequences of climate change, by missing linkages between the economic costs of climate change and investment decisions and through underdeveloped and/or under-implemented risk management mechanisms as well as disaster risk reduction measures, among other things. At household level, resilience to climate change requires both sufficient buffering capacity in the form of assets and income, and diversity of income sources. In rural areas, where households are often poor, and employment opportunities are scarce, lack of resilience to climate change is particularly visible.

Nevertheless, positive examples have emerged. Serbia is currently shifting from a reactive, emergency response-oriented approach towards one that is more focused on proactive disaster risk reduction. It recently adopted the *Action Plan for the Implementation of the National Disaster Risk Management Programme (NDRMP) 2016-2020*, which is in line with the international Sendai Framework for Disaster Risk Reduction (DRR) (2015-2030).<sup>65</sup> This action plan for the implementation of the NDRMP specifically underlines activities in the six sectors of agriculture, education, health, water management, social protection and cultural heritage. Specifically, for the agricultural sector, it includes activities, such as risk assessments for the agriculture, water management, forestry and veterinary sectors that are consistent with international standards and EU Directives and developing vulnerability maps as well as flood and forest fire risk maps.

Another example is Armenia's *Disaster Risk Management National Strategy and Action Plan* (Republic of Armenia, 2017), which aims to reduce the country's vulnerability to natural and man-made related hazards and implementing risk reduction activities consistent with the Hyogo

Framework for Action (2005-2015) and the Sendai Framework for DRR (2015-2030). This document also acknowledges other international instruments, such as the United Nations Framework Convention on Climate Change (UNFCCC) and the SDGs. It outlines various DRR related activities, such as early warning systems, veterinary sanitary measures, monitoring of forests, anti-mudflows, and others that the Ministry of Agriculture is implementing. The Ministry is also integrating the disaster risk management component into sectoral development programmes.

The linkages between natural hazards and climate change should also be acknowledged in national climate change documents. In 2013 Kyrgyzstan approved the "Priority Directions for Adaptation to Climate Change in the Kyrgyzstan until 2017", which prioritizes agriculture and food security as the sectors that are most vulnerable to the adverse impacts of climate variability and change (WFP, 2014). Kyrgyzstan's Agricultural Adaptation Programme (2016-2020) consists of various measures, including climate-smart practices, such as no-till and conservation agriculture, improvement and diversification of crop varieties as well as the use of animal breeds more adapted to changing conditions (Climate Change Center in Kyrgyzstan, 2017).

There is also a need to mainstream disaster risk reduction and climate change into national sectoral planning instruments, such as for agriculture, environment, natural resource management and rural development. It is important that the linkages between natural hazards and climate change are mentioned, although they are often not acknowledged or integrated. However, good examples include *The Strategy for Agricultural Development in Georgia* (2015-2020)<sup>66</sup> and the *Rural Development Strategy of Georgia* (2017-2020),<sup>67</sup> in which disaster risk reduction and climate change are mainstreamed as the expected increase in frequency and severity of extreme weather events due to climate change

<sup>65</sup> It has also adopted a National Strategy for DRR Protection and Rescue in Emergency Situations in 2011 and drafted a new Disaster Risk Reduction and Management Law (not yet adopted).

<sup>66</sup> Ministry of Agriculture of Georgia, Strategy for Agricultural Development in Georgia 2015-2020 (Available at [www.moa.gov.ge/Download/Files/227](http://www.moa.gov.ge/Download/Files/227))

<sup>67</sup> Ministry of Agriculture of Georgia, Rural Development Strategy of Georgia 2017-2020 (Available at <http://enpard.ge/en/wp-content/uploads/2015/05/Rural-Development-Strategy-of-Georgia-2017-2020.pdf>)

is acknowledged. The impacts of droughts, floods and hurricanes are expected to have significant implications on the development and productivity of the agricultural sector. Activities to reduce the effects of climate change are linked to environmental protection and the sustainable management of natural resources.

Sector specific hazard planning instruments are also essential within the context of climate change. In this regard, Turkey has established an *Agricultural Drought Action Plan* (FAO, 2017b), which outlines priority areas for addressing preparedness and drought mitigation measures. Turkey is also participating in the Drought Management Centre for Southeastern Europe, which is located in Slovenia and co-financed by the European Union through the South East Europe Transnational Cooperation Programme. Such projects help policy makers review drought impacts within a regional setting, which can enhance evaluations at country level and foster regional cooperation to promote and implement adaptation/mitigation measures to reduce drought vulnerability.

International agreements, such as the Paris Climate Change Agreement and the Sendai Framework for Disaster Risk Reduction (DRR) 2015-2030 (successor of the Hyogo Framework for Action) are crucial for ensuring national commitment and willingness to work towards common climate change and DRR objectives. The (Intended) Nationally Determined Contributions (FAO, 2016g), which contain countries' commitments towards reducing their anthropogenic greenhouse gas emissions as well as their adaption priorities, are likely to become major drivers for national prioritization as well investments in the near future. In this regard, there has also been an increasing interest in addressing climate change adaptation, disaster risk reduction and climate change mitigation in an integrated way as advocated by interventions such as FAO's integrated climate smart agriculture approach. ■

## Food losses and waste in the ECA region

Environmental (and economic) sustainability of agricultural and food systems can be adversely affected by the occurrence of food losses and waste (FLW)<sup>68</sup> in these systems, as they lead to wasted natural and economic resources. It is estimated that in Europe,<sup>69</sup> 31 percent of the food produced for human consumption is not eaten by people and is largely spoiled and discarded. Eleven percent of this is discarded by consumers (FAO, 2011). FLW also undermines the adaptive capacities and resilience measures of vulnerable populations to cope with climate change, through decreased food availability and reduced income. In addition, FLW is a major contributor to climate change. At the global level it accounts for about 8 percent of anthropogenic GHG emissions (FAO, 2015e). Efforts to reduce FLW in the ECA region are driven by SDG 12.3: *“By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses”*.

The share of food losses for various categories of food differ across the ECA sub-region (Figure 19). More affluent countries of the SEE sub-region tend to have the highest share of food losses in vegetables, cereals and fruits. The SEE countries are followed by the European CIS ones, where the highest levels of losses occur in fruits and pulses.

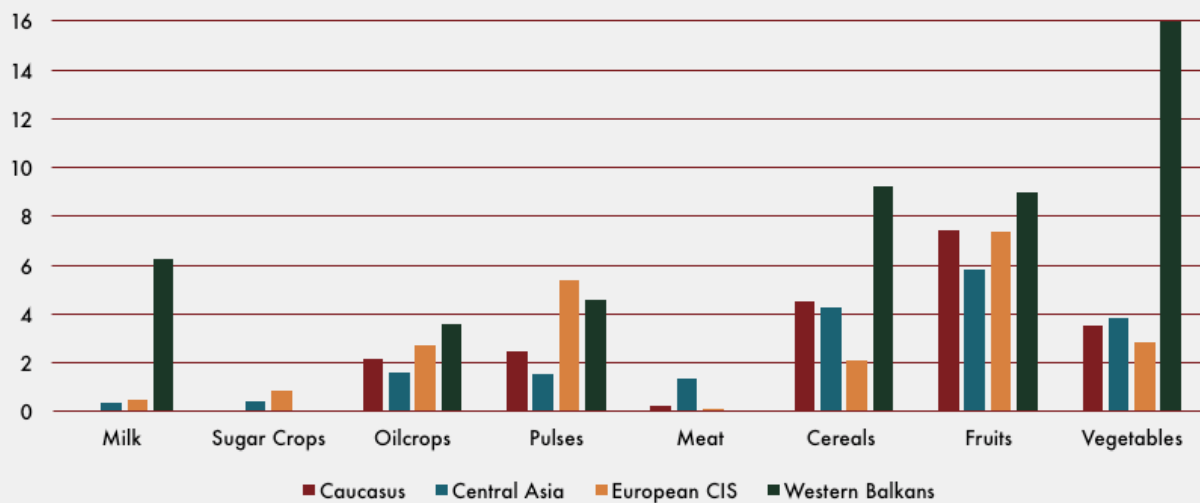
The underlying causes for food losses and waste differ across ECA countries and often depend on the level of economic development in the countries

<sup>68</sup> **Food loss** refers to the decrease in quantity or quality of food, and occurs during production (harvest-mature stage) and at various distribution segments of the food supply chain, up to retail. It includes 'pre-harvest loss + loss at harvest + post-harvest loss'. **Food loss; food waste** refers to discarding or alternative (non-food) use of food that is safe and nutritious for human consumption along the entire food supply chain. Food waste occurs predominantly, but not exclusively, at the final consumer level when food which is fit for consumption is not consumed but wasted, mainly by choice or negligence. Food losses and waste (FLW) includes both FL and FW, that is, losses throughout the entire chain from production to consumption.

<sup>69</sup> It includes EU-28 and EFTA countries, Southeastern Europe and European CIS.

<sup>70</sup> Calculations are based FAO's food balance sheets (FLW = production + import – consumption – export).

FIGURE 19  
FOOD LOSSES ACROSS ECA SUB-REGIONS, PERCENT, Y: 2013<sup>70</sup>



SOURCE: FAOSTAT, Food Balance Sheets (<http://www.fao.org/faostat/en/#data/FBS>).

in question<sup>71</sup> (Themen, 2014; FAO, 2014b). The bulk of losses in middle and low income countries of the region are seen at the agricultural production and post-harvest handling and storage stages of food supply chains. These losses are largely due to inadequate harvest, post-harvest and storage equipment and technologies. Absence of investment in equipment and technology is compounded by the overall investment climate, the difficulty of doing business in many Southeastern European and former Soviet states and the discouragingly high rates of interest (often over 20 percent per annum) charged by commercial lenders to value chain actors.

<sup>71</sup> Within the context of the request by the FAO Regional Conference for Europe (ERC) 2012, FAO initiated work on a regional assessment of food losses and waste and the identification of policy options for the reduction of food losses and waste in the ECA region. However, until now, no measurements of FLW have been conducted across the region. The available loss figures are estimations derived from a number of assessment studies that have been undertaken, complemented by assumptions and extrapolation.

Management, marketing and product development are also major underlying causes of losses, with country studies pointing to poorly qualified management and labour as being responsible for high levels of losses. In addition, the fragmented nature of agri-food production, caused by the breakup of public vertically-integrated production systems during the 1990s and the slow pace of consolidation into commercial farms have led to major challenges in value chain coordination owing to the large numbers of small producers.

The poor quality of produce, caused by the fragmented nature of production and the absence of standardized approaches to production, also contributes significantly to losses and waste. Cereals, oilseeds and vegetables, primarily those produced in low and middle income countries, are relegated to use as animal feed on both local and international markets owing to their poor quality. Also, large quantities of harvested produce are simply discarded as a result of blight and degradation. Processors, ranging from

bakeries to meat processors, but most markedly dairy, cheese and fruit juice producers, point to the lack of commercial quantities of raw materials of standardized quality as a key constraint.

The most recent estimates on European Union (EU) food waste levels (FUSIONS, 2016) indicate that 70 percent of EU food waste takes place at the household level, and in the food service and retail sectors, while 30 percent per cent takes place at the production and processing levels. In November 2016, the European Commission (EC) launched the EU Platform on Food Losses and Food Waste (EU PFLW). The EU PFLW aims to support all actors in defining measures needed to prevent food waste, sharing best practice and in evaluating progress made over time. ■

## Overview of the policy response to the FLW challenges

Addressing FLW requires collective action through integrated approaches involving all actors in the food value chain. In order to achieve sustainable reduction in FLW, it will be necessary for ECA countries to enhance their institutional, financial, organizational and technical capacities to address the underlying causes of food losses and waste, from production to consumption, as well as loss and waste management. Countries will also have to identify approaches to increasing resource efficiency and further contribute to and accelerate climate action.

Making the investment climate less conducive to FLW, would necessitate strengthening the rule of law, as well as immediate government support to existing and potential investors through targeted and coordinated actions.

The development of producers' organizations is key to consolidating supply and to improving production and post-harvest processes. This could be strengthened by showcasing successful cooperative and marketing group models as well as by providing support to investment in production, quality control, post-harvest handling and marketing. Similarly, stakeholders could benefit from intra-regional exchanges on successes achieved in reducing FLW through skills development, knowledge sharing and innovation.

Consumer awareness campaigns, developed jointly by consumer organizations, relevant government authorities and industry associations will play a key role in informing the public about date marking issues, public health issues and in promoting the benefits of improved buying, storage and cooking practices in relation to reducing waste, saving money and protecting family health. Coordination of food losses and waste monitoring and reduction initiatives will necessitate the engagement of interested national associations, the provision of support to private sector agrifood chain actors, as well as the promotion of awareness of food losses and waste definitions, terminologies, and measurement and reporting methodologies.

A number of important initiatives are currently taking place in the ECA region that show positive progress towards reaching the SDG 12 goal of ensuring responsible consumption and production. In recent years several projects and initiatives have been developed with the aim of reducing FLW and meeting SDG target 12.3 (for which FAO is custodian of the indicator).

The *Global Initiative on Food Loss and Food Waste Reduction*<sup>72</sup> – “Save Food” – provides technical, policy and regulatory development support to facilitate coherence at local, national, regional and global levels (FAO, 2017g). This umbrella programme was launched in 2011, with four major components: 1) Awareness raising, advocacy, and capacity development<sup>73</sup>; 2) Partnerships and collaboration; 3) Research to inform policy and strategy formulation, development and coherence; and 4) Technical support to targeted investments and projects to implement FLW prevention and reduction.

<sup>72</sup> FAO and Messe Düsseldorf lead SAVE FOOD initiative, and they are collaborating with donors, bi- and multi-lateral agencies and financial institutions and private sector partners (the food packaging industry and others) to develop and implement the programme on food losses and waste reduction.

<sup>73</sup> In 2017 FAO will launch an education package, targeted to the EU, to address food waste. These materials seek to raise awareness and develop capacity among school children, teachers and staff and their families and networks on food losses and waste issues and introduce good practices conducive to food waste reduction, with an expected long-term impact. The package consists of different modules that can be used by teachers in class and to plan lessons and activities on the issues. It can be adapted to meet different needs regarding time availability, knowledge and age of the students as well as the curriculum context.

Education campaigns designed to address food waste prevention and sustainable food systems and nutrition are being undertaken through a range of initiatives, including through public-private collaborations. Turkey, for example, launched a *Campaign on Preventing Bread Waste*, following national assessments on Bread Waste and Consumer Habits (FAO, 2015f). A Prime Ministry Circular was issued in order to ensure efficient implementation of the campaign, coordinated by the Turkish Grain Board and the Ministry of Food, Agriculture and Livestock, in cooperation with all relevant institutions and organizations including the private sector. Other countries are taking steps to propose national policies to reduce food waste: France became the first country to mandate that large grocery stores must eliminate food waste by donating food to local charities (Natural Resources Defense Council, 2015); In August, 2016, Italy introduced legislation designed to encourage the recovery and redistribution of safe and nutritious food for direct human consumption (Gazzetta Ufficiale, 2016).

Information sharing platforms have been established to facilitate and support knowledge exchange aimed at addressing food losses and waste issues. The FAO - IFPRI *Technical Platform on the Measurement and Reduction of Food Losses and Waste* was conceptualized during the Turkish Presidency of the G20, and established in December, 2015. The web-based platform is a repository of knowledge on measuring food losses and waste, which facilitates information-sharing and coordination among a diverse set of key stakeholders, such as international organizations, private sector actors, financial institutions and non-governmental organizations. It reinforces current efforts to measure food losses and waste, as mandated to FAO for SDG 12.3.

The Platform also collaborates with the *Global research network on reduction of food losses and food waste*, a web-based platform of the Meeting of Agricultural Chief Scientists of G20 states (MACS), which has the objective of generating a pool of FLW expert profiles and FLW research activities, results and advanced technologies.

In December 2015, the EC launched the Communication: *Closing the loop - An EU Action Plan for the Circular Economy*, which prioritizes food waste

action at EC and EU Member State level. The Communication consists of an *EU Action Plan for the Circular Economy* and an *annex to the action plan* that outlines a timetable for proposed actions and related legislative proposals on waste, including a revised proposed directive (Waste Framework Directive - WFD) that also refers to food waste. In November 2016 the EC launched the *EU Food Losses and Food Waste Platform* (EU PFLW) in support of Member States actions. In September 2017, the EU and FAO signed a Letter of Intent to enhance the collaboration on food waste prevention and reduction, food safety, and antimicrobial resistance in supply chains<sup>74</sup>.

Recovery and redistribution of safe and nutritious food for direct human consumption (R&R) is a possible solution – to be implemented along the entire food supply chain, from local to international level – for preventing food from being discarded or becoming waste. While actions of R&R have been implemented for decades, it is only recently that R&R has become a policy priority, given its relevance and potential in the prevention of food waste (Bucataru, 2016).<sup>75</sup>

In 2015 FAO issued the global voluntary definition on *Recovery and redistribution of safe and nutritious food for direct human consumption*, which stated that: “*Recovery of safe and nutritious food for human consumption is to receive, with or without payment, food (processed, semi-processed or raw) which would otherwise be discarded or wasted from the agricultural, livestock, forestry and fisheries supply chains of the food system. Redistribution of safe and nutritious food for human consumption is to store or process and then distribute the received food pursuant to appropriate safety, quality and regulatory frameworks directly or through intermediaries, and with or without payment, to those having access to it for food intake. (FAO, 2015g)*”. Guidelines are being developed to contribute to the ongoing national and global policy discussions on food waste prevention while stimulating the circular economy.<sup>76</sup> ■

<sup>74</sup> <http://www.fao.org/news/story/en/item/1040628/icode/>

<sup>75</sup> Bucataru in FAO 2016 Knowledge and Information for Sustainable Food Systems <http://www.fao.org/3/a-i5373e.pdf>

<sup>76</sup> In June 2016 FEBA, FoodDrinkEurope and EuroCommerce launched a guide to encourage food and drink manufacturers, wholesalers and retailers to donate safe and nutritious food to food banks. These guidelines, endorsed by the European Commission's Standing Committee on Plants, Animals, Food and Feed, give practical answers to questions to food business operators wanting to donate food.

## CONCLUSIONS

The effects of climate change are already being felt in many ECA countries and pose considerable challenges to agriculture production, as it will alter production conditions and increase the frequency of extreme weather events. As a result, in order to meet the interlinked challenges of food security and climate change, production systems must undergo significant transformations. As future production needs must occur largely on existing agricultural land, sustainable intensification practices must be adopted in the ECA region, not only to increase productivity and incomes, but also to safeguard the natural resources on which production depends. In such circumstances, adopting an ecosystem approach, addressing ecosystem degradation and loss and working at the landscape scale is essential as healthy and diverse systems are more productive, provide higher agricultural yields and are more resilient to natural

hazards and climate change. In addition, increasing resource efficiency, by reducing food losses and waste can greatly contribute to meeting future food needs, safeguarding the scarce natural resources base, reducing related GHG emissions and contributing to countries' commitments under the Paris Agreement.

In order to adequately address the cross-sectorial nature of climate change, national policy and legislation need to be aligned and sectorial planning (such as environment, agriculture, food security, natural resource management and rural development) needs to be integrated into a common sustainable development framework that is linked to SDG targets. To ensure informed decision making by both farmers and policy makers, there is a need to harmonize data across countries, guarantee open access to said data, and ensure the active participation of research, technology and development entities. ■





**JETY-OGUS RAION,  
KYRGYZSTAN**

Freshly squeezed apple  
juice ready for sale.

©FAO/Pavel Kiparisov



# ANNEX

## OVERVIEW OF SUSTAINABLE DEVELOPMENT GOALS AND THE CORRESPONDING TARGETS WITH A PARTICULAR RELEVANCE TO MEETING SDG 2 IN THE ECA REGION

### **Goal 1: End poverty in all its forms everywhere.**

- 1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than USD 1.25 a day
- 1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
- 1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable
- 1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters
- 1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in all its dimensions
- 1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions

### **Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.**

- 2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
- 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
- 2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment
- 2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

- 2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed
- 2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries
- 2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round
- 2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

**Goal 3: Ensure healthy lives and promote well-being for all at all ages.**

- 3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being
- 3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks

**Goal 5: Achieve gender equality and empower all women and girls.**

- 5.1 End all forms of discrimination against all women and girls everywhere
- 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life
- 5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

**Goal 6: Ensure availability and sustainable management of water and sanitation for all.**

- 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
- 6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
- 6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

**Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.**

8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services

**Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.**

9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets

9.a Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to [...] landlocked developing countries

**Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable.**

11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning

**Goal 12: Ensure sustainable consumption and production patterns.**

12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries

12.2 By 2030, achieve the sustainable management and efficient use of natural resources

12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses

**Goal 13: Take urgent action to combat climate change and its impacts.**

13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

13.2 Integrate climate change measures into national policies, strategies and planning

13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

**Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.**

14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

**Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.**

15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed

**Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.**

**Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development.**

17.10 Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda

17.14 Enhance policy coherence for sustainable development

17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

# GLOSSARY

**Body mass index.** The ratio of weight-to-height measured as the weight in kilograms divided by the square of height in meters.

**Food insecurity.** A situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life. It may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution or inadequate use of food at the household level. Food insecurity, poor conditions of health and sanitation and inappropriate care and feeding practices are the major causes of poor nutritional status. Food insecurity may be chronic, seasonal or transitory.

**Food security.** A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Based on this definition, four food security dimensions can be identified: food availability, economic and physical access to food, food utilization and stability over time.

**Hunger.** In this report the term hunger is used synonymously with chronic undernourishment.

**Malnutrition.** An abnormal physiological condition caused by inadequate, unbalanced or excessive consumption of macronutrients and/or micronutrients. Malnutrition includes undernutrition and overnutrition as well as micronutrient deficiencies.

**Micronutrients.** Vitamins, minerals and certain other substances that are required by the body in small amounts for normal physiological function. They are measured in milligrams or micrograms.

**Overnourishment.** Food intake that is continuously in excess of dietary energy requirements.

**Overnutrition.** A result of excessive food intake relative to dietary nutrient requirements.

**Overweight and obesity.** Body weight that is above normal for height as a result of an excessive accumulation of fat. It is usually a manifestation of overnourishment. Overweight is defined as a BMI of more than 25 but less than 30 and obesity as a BMI of 30 or more.

**Stunting.** Low height for age, reflecting a past episode or episodes of sustained undernutrition.

**Undernourishment.** A state, lasting for at least one year, of inability to acquire enough food, defined as a level of food intake insufficient to meet dietary energy requirements. For the purposes of this report, hunger was defined as being synonymous with chronic undernourishment.

**Undernutrition.** The outcome of undernourishment, and/or poor absorption and/or poor biological use of nutrients consumed as a result of repeated infectious disease. It includes being underweight for one's age, too short for one's age (stunted), dangerously thin for one's height (wasted) and deficient in vitamins and minerals (micronutrient malnutrition).

**Underweight.** Low weight for age in children, and BMI of less than 18.5 in adults, reflecting a current condition resulting from inadequate food intake, past episodes of undernutrition or poor health conditions.

**Wasting:** Low weight for height, generally the result of weight loss associated with a recent period of starvation or disease.

# REFERENCES

**3RP.** 2017. *Regional Refugee and Resilience Plan 2017-2018: In Response to the Syria Crisis*. Turkey.

**Abdurazakova, D.** *Social Protection and Rural Population: The Case of the post-Soviet Countries*. 2016. FAO REU technical paper (unpublished).

**Asian Development Bank (ADB).** 2010. *Satisfying Hidden Hunger. Addressing Micronutrient Deficiencies in Central Asia*. Asian Development Bank Nutrition and Development Series, 8.

**Bajramovic, N., N. Bogdanov, J. Butkovic, D. Dimitrievski, E. Erjavec, G. Gjerci, E. Gjokaj, B. Hoxha, I. J. Stomenkovska, D. Konjevic, A. Kotevska, A. Martinovic, I. Miftari, M. Nacka, D. Ognjenovic, M. Rednak, E. Tuna, T. Volk, E. Zhllima** (authors); **Volk, T. E. Erjavec, P. Ciaian and S. Gomez y Paloma** (editors). 2016. *Analysis of the agricultural and rural development policies of the Western Balkan countries*.

**Ballard, T.J., Kepple, A.W., and Cafiero, C.** 2013. *The Food Insecurity Experience Scale: Development of a Global Standard for Monitoring Hunger Worldwide*. Technical paper. Rome, FAO.

**Binaj, A., Veizi, P., Beqiraj E., Gjokaj, F. and E. Kasa.** 2014. *Economic losses from soil degradation in agricultural areas in Albania*, *Agric. Econ.* – Czech, 60, 2014 (6): 287–293.

**CAREC.** 2015. *Tajikistan: Country situation assessment*. Working paper. [http://prise.odi.org/wp-content/uploads/2015/08/Tajikistan\\_Country\\_Situation\\_Assessment.pdf](http://prise.odi.org/wp-content/uploads/2015/08/Tajikistan_Country_Situation_Assessment.pdf)

**Climate Change Center in Kyrgyzstan.** 2017. [Website]. Available at <http://climatechange.kg/ky-rgy-zstan-i-izmenenie-klimata/otraslevye-programmy-po-adaptatsii/>

**Dagmar, B, Hamidov, A., and Helming, K.** 2016. *Impact of agricultural land use in Central Asia: a review*, *Agronomy for Sustainable Development* 36:6.

**ECA R-UNDG.** 2017. *Building more inclusive sustainable and prosperous societies in Europe and Central Asia*. Regional Advocacy Paper. <https://undg.org/wp-content/uploads/2017/01/2017-Regional-Advocacy-Paper-FINAL-19-June-2017.pdf>

**ECO-RCC (Economic Cooperation Organization Regional Coordination Centre for Food Security).** 2017. [Website]. Available at <http://www.eco-rccfs.org/>. Accessed 12 July 2017.

**ENVSEC.** 2014. ENVSEC Newsletter. *Highlights from the environment and security initiative*. January – June 2014. [http://www.envsec.org/publications/envsec\\_nws\\_janjun14\\_web\\_1\\_2.pdf](http://www.envsec.org/publications/envsec_nws_janjun14_web_1_2.pdf)

**EU Commission.** Phare Multi Country Transport. Programme Co-ordination Unit. 1999. *Transport and the environment: A multi-country approach*.

**EU Commission.** 2009. Glossary. Available at [http://glossary.eea.europa.eu/terminology/concept\\_html?term=land%20take](http://glossary.eea.europa.eu/terminology/concept_html?term=land%20take)

**EU Commission.** 2011. *Roadmap to a Resource Efficient Europe*. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0571&from=EN>

**European Environmental Agency (EEA).** 2016. *The direct and indirect impacts of EU policies on land*. EEA Report No 8/2016.

**European Environmental Agency.** 2017. Glossary.

**EU Fusions.** 2017. [Website] Available at <http://eu-fusions.org/>

## REFERENCES

- EU Joint Research Center (JRC).** 2012. *The State of Soil in Europe*. Ispra, Italy.
- FAO.** 2008. *FAO's Role in the 2008/2009 Humanitarian Food Security Appeal for Tajikistan*, [http://www.fao.org/fileadmin/user\\_upload/emergencies/docs/tajikistan\\_appeal\\_2008\\_2009.pdf](http://www.fao.org/fileadmin/user_upload/emergencies/docs/tajikistan_appeal_2008_2009.pdf)
- FAO.** 2011. *Global Food Loss and Food Waste— Extent, causes and prevention*. Rome, Italy.
- FAO.** 2012a. *European and Central Asian Agriculture Towards 2030 and 2050, Policy Studies on Rural Transition* No. 2012-1.
- FAO.** 2012b. *Issues Affecting the Future of Agriculture and Food Security for Europe and Central Asia, Policy Studies on Rural Transition* No. 2012-3.
- FAO.** 2013. *Food Wastage Footprint: Impacts on Natural Resources*. Summary Report. Rome, Italy.
- FAO.** 2014a. *Rural Women in Eastern Europe and Central Asia*. Budapest, Hungary.
- FAO.** 2014b. *Rural Women in Eastern Europe and Central Asia*. Budapest, Hungary.
- FAO.** 2014c. *Statistical Yearbook 2014: Europe and Central Asia*. Rome, Italy.
- FAO.** 2014d. *Aquastat. Water*. Rome, Italy.
- FAO.** 2014e. *Ukraine: Soil fertility to strengthen climate resilience*. Preliminary assessment of the potential benefits of conservation agriculture. <http://www.fao.org/3/a-i3905e.pdf>
- FAO.** 2015a. *Regional Overview of Food Insecurity: Europe and Central Asia. Focus on Healthy and Balanced Nutrition*. Budapest, Hungary
- FAO.** 2015b. *Addressing social and economic burden of malnutrition through nutrition-sensitive agricultural and food policies in the region of Europe and Central Asia*. Agenda item #6. 39th Session, European Commission on Agriculture. Budapest, Hungary.
- FAO.** 2015c. *The impact of disasters on agriculture and food security*. Available at <http://www.fao.org/3/a-i5128e.pdf>
- FAO.** 2015d. *Combating Land Degradation for Food Security and Provision of Soil Ecosystem Services in Europe and Central Asia – International Year of Soils*. European Commission on Agriculture, 39th Session, Budapest, Hungary.
- FAO.** 2015e. *Food Wastage Footprint & Climate Change*.
- FAO.** 2015f. *Turkey wages an all-out campaign against bread waste*. Webnews, <http://www.fao.org/europe/news/detail-news/en/c/276192/>
- FAO.** 2015g. *SAVE FOOD: Global Initiative on Food losses and waste Reduction*. Website: <http://www.fao.org/save-food/news-and-multimedia/news/news-details/en/c/288692/>
- FAO.** 2016a. *Climate Change and Food Security: Risks and Responses*. Rome, Italy.
- FAO.** 2016b. *The State of Food and Agriculture: Climate Change, Agriculture and Food Security*. Rome, Italy.
- FAO.** 2016c. *Regional Strategic Review Paper: Europe and Central Asia*. Budapest, Hungary.
- FAO.** 2016d. *Regional Overview of Food Insecurity: Europe and Central Asia. The Food Insecurity Transition*. Budapest, Hungary.
- FAO.** 2016e. *FAO's Work in Climate Change*. Rome, Italy.



- FAO.** 2016f. *Voices of the Hungry: Measuring food insecurity through people's experiences. One Metric for the World.* Rome, Italy.
- FAO.** 2016g. *The agriculture sectors in the Intended Nationally Determined Contributions: Analysis.* Rome, Italy.
- FAO.** 2016h. Aquastat. Rome, Italy.
- FAO.** 2017a. *The State of Food Security and Nutrition in the World 2017: Building resilience for peace and food security.* Rome, Italy.
- FAO.** 2017b. *Drought characteristics and management in Central Asia and Turkey.* Rome, Italy.
- FAO.** 2017c. *FAO and the SDGs: Indicators - Measuring up to the 2030 Agenda for Sustainable Development.* Rome, Italy.
- FAO.** 2017d. *Agricultural trade policies in the Post-Soviet countries in 2015-2016.* Rome, Italy.
- FAO.** 2017e. FAOSTAT. [Website] Available at <http://www.fao.org/faostat/en/>
- FAO.** 2017f. FAO Trade and Markets Division. [Website] Available at <http://www.fao.org/economic/est/international-trade/europe-and-central-asia/agri-food/en/>
- FAO.** 2017g. SAVE FOOD: Global Initiative on Food Loss and Waste Reduction. [Website] Available at <http://www.fao.org/save-food/background/en/>
- FAO, IFAD and WFP.** 2013. *The State of Food Insecurity in the World: The Multiple Dimensions of Food Security.* Rome, FAO.
- FAO, IFAD and WFP.** 2016. *Monitoring Food Security and Nutrition in Support of the 2030 Agenda for Sustainable Development: Taking stock and looking ahead.* Rome, Italy.
- FAO/WFP.** 2001. *Crop and Food Supply Assessment Mission to Tajikistan.* <http://www.fao.org/docrep/004/Y1534e/Y1534e00.htm>
- FAO/WHO.** 2014. Second International Conference on Nutrition. Conference Outcome Document: Rome Declaration on Nutrition. Rome, Italy.
- GAIN.** 2017. GAIN report RS1736. Russian Federation Agricultural State Program 2013-2020 amended in 2017. ([https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Agricultural%20State%20Program%202013-2020%20Amended%20in%202017\\_Moscow\\_Russian%20Federation\\_6-8-2017.pdf](https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Agricultural%20State%20Program%202013-2020%20Amended%20in%202017_Moscow_Russian%20Federation_6-8-2017.pdf))
- Gassmann, F.** 2011. *Protecting Vulnerable Families in Central Asia: Poverty, vulnerability and the impacts of economic crisis.*
- Gazzetta Ufficiale.** 2016. <http://www.gazzettaufficiale.it/eli/id/2016/08/30/16G00179/sg>
- Glazovsky, N.** 2009. *Combat Desertification, Deforestation and Drought.* Area Studies – Russia (Regional Sustainable Development Review, vol. 1.)
- IFPRI.** 2017. *Global Food Policy Report.* Washington, D.C.
- INFORM.** 2016. Guidance Note-INFORM Global Model. Available at <http://www.inform-index.org/portals/0/inform/2016/Guidance%20Note%20-%20Interpreting%20and%20Applying%20the%20INFORM%20Global%20Model.pdf>
- INFORM.** 2017. Index for Risk Management.
- International Commission for the Protection of the Danube River (ICPDR).** 2015. The Danube River Basin Management Plan 2015–2021. <https://www.icpdr.org/main/sites/default/files/nodes/documents/managementplansbrochure2015.pdf>

## REFERENCES

- International Monetary Fund.** 2017. World Economic Outlook Database. Washington D.C.
- IPCC.** 2014. *Climate Change 2014 Synthesis Report Summary for Policymakers*. [https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5\\_SYR\\_FINAL\\_SPM.pdf](https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf)
- Leah, T.** 2012. Soil Protection of Republic Moldova in the Context of Sustainable Development. *Present Environment and Sustainable Development*, vol. 6, no. 1.
- Luo, T., R. Young, and P. Reig.** 2015. *Aqueduct projected water stress rankings*. Technical note. Washington, DC: World Resources Institute, August 215. Available online at <http://www.wri.org/publication/aqueduct-projected-water-stress-country-rankings>
- Mazzocchi, M., Capacci, S., Shankar, B. and B. Traill.** 2014. *Agri-Food Systems for Better Nutrition in Europe and Central Asia*. Budapest, Hungary.
- Mirzabaev, A., Goedecke, J., Dubovyk, O., Djanibekov, U., Quang, B.L., & Aw-Hassan, A.** 2016. Economics of land degradation in Central Asia. In Nkonya, E. et al (Eds), *Economics of Land Degradation and improvement – a global assessment for sustainable development*. Springer. Retrieved on [2016, 01/11] from [DOI 10.1007/978-3-319-19168-3\_10].
- Ministry of Agriculture of Georgia.** 2015. *Strategy for Agricultural Development in Georgia 2015-2020*. [www.moa.gov.ge/Download/Files/227](http://www.moa.gov.ge/Download/Files/227)
- Mitkova, T., Cvetkovska, M.** 2006. Presentation on: Overview of soil information and soil protection policies in Republic of Macedonia. Ministry of the Environment and Physical Planning.
- Natural Resources Defense Council.** 2015. *France Moves Toward a National Policy Against Food Waste*. <https://www.nrdc.org/sites/default/files/france-food-waste-policy-report.pdf>
- OCHA (Office for the Coordination of Humanitarian Affairs).** 2015. Caucasus, Central Asia and Ukraine: Regional Humanitarian Snapshot (January - June 2015), [http://reliefweb.int/sites/reliefweb.int/files/resources/ROCCA\\_00024\\_HSRC\\_20150716\\_ENG.pdf](http://reliefweb.int/sites/reliefweb.int/files/resources/ROCCA_00024_HSRC_20150716_ENG.pdf)
- OCI (Organization of Islamic Cooperation).** 2017. [Website] Available at <http://www.oic-oci.org/home/?lan=en>. Accessed 12 July 2017.
- OECD (Organization for Economic Co-operation and Development).** 2013. *Better Policies for Development. In Focus: Policy Coherence for Development and Global Food Security*. Paris, France.
- Republic of Armenia.** 2017. Extract from the protocol of the government session of the Republic of Armenia. N 14 dated 6 April 2017 on the approval of the Disaster Risk Management National Strategy and the Action Plan. [www.mes.am/files/legislation/477.doc](http://www.mes.am/files/legislation/477.doc)
- Republic of Belarus, Ministry of Natural Resources and Environmental Protection.** 2002. National Report of the Republic of Belarus on Implementation of the UN Convention to Combat Desertification.
- Republic of Belarus.** 2006. National Action Plan on Rational Use of Natural Resources and Environment of the Republic of Belarus for 2006-2010.
- Republic of Tajikistan.** Land Code No. 498, 12 December 1997 Available at [http://www.cawater-info.net/library/eng/tj/land\\_code.pdf](http://www.cawater-info.net/library/eng/tj/land_code.pdf)
- Scaling Up Nutrition (SUN).** 2015. [Website] Available at <http://scalingupnutrition.org/>

**Senol S. and I. Bayramin.** 2013. Soil Resources of Turkey. P.225-237 In: *Soil Resources of Mediterranean and Caucasus Countries*. Y. Yigini, P. Panagos, and L. Montanarella, (eds), Office for Official Publications of the European Communities, Luxembourg.

**Social and Industrial Foodservice Institute.** 2016. [Website] Available at <http://sifi.ru.com/2016/12/re-launch-of-hot-school-meals-in-the-kyrgyz-republic/>

**Spalevic, V., Curovic, M., Simunic, I., Behzadfar, M. and V. Tanaskovic.** 2014. *Land degradation, land use and soil erosion: the case of Montenegro*. CIHEAM, The Watch Letter: Land Issues in the Mediterranean Countries, vol.28, no.1, pp. 58-62.

**The University of California.** (2017) *What you need to know about food waste and climate change*. <https://www.universityofcalifornia.edu/longform/what-you-need-know-about-food-waste-and-climate-change>.

**Think.Eat.Save.** 2017. [Website] Available at <http://www.thinkeatsave.org/>

**Thomas O. Wiedmann, Heinz Schandl, Manfred Lenzen, Daniel Moran, Sangwon Suh, James West and Kanemoto Keiichiro.** 2015. *The Material Footprint of Nations, Proceedings of the National Academy of Sciences of the United States of America*, 112(20): 6271–6276.

**United Nations.** 2015. *Probabilistic Population Projections based on the World Population Prospects: The 2015 Revision*. Population Division.

**United Nations.** SDG Indicators: Revised List of Global Sustainable Development Goals Indicators. 2017. [Website] Available at <https://unstats.un.org/sdgs/indicators/indicators-list/> Accessed 13 July 2017.

**United Nations/EU/World Bank.** 2014a, Serbia Floods 2014. [http://www.ilo.org/wcmsp5/groups/public/-ed\\_emp/documents/publication/wcms\\_397685.pdf](http://www.ilo.org/wcmsp5/groups/public/-ed_emp/documents/publication/wcms_397685.pdf)

**United Nations/EU/World Bank.** 2014b, Bosnia and Herzegovina Floods, 2014. [http://europa.ba/wp-content/uploads/2015/05/delegacijaEU\\_2014090308560389eng.pdf](http://europa.ba/wp-content/uploads/2015/05/delegacijaEU_2014090308560389eng.pdf)

**UN DESA.** 2017. World Population Prospects. The 2017 Revision. Key Findings and Advance Tables.

**UNDP.** 2013. *Human Development Report 2013. The Rise of the South: Human Progress in a Diverse World*.

**UNDP.** 2017. [https://www.unecce.org/fileadmin/DAM/stats/documents/ece/ces/ge.32/2017/mtg1/WV\\_PDF/EN\\_WS\\_2C1-UNDP-Support\\_country\\_reporting.pdf](https://www.unecce.org/fileadmin/DAM/stats/documents/ece/ces/ge.32/2017/mtg1/WV_PDF/EN_WS_2C1-UNDP-Support_country_reporting.pdf)

**UNECE.** 2016. *Looking Back, Leaping Forward: Moving from MDGs to SDGs in Europe and Central Asia*.

**UNEP.** 2015. *Outlook on climate change adaptation in the Western Balkan Mountains, MOUNTAIN ADAPTATION OUTLOOK SERIES*.

**UN Framework Convention on Climate Change.** 2016. The Paris Agreement.

**UNHCR.** 2017. Syria Regional Refugee Response.

**UNSCN.** 2014. Targets and Indicators for the Post-2015 Sustainable Development Goals: Accountability for the Measurement of Results in Nutrition. A technical note.

**US Agency for International Development (USAID) and Global Alliance for Improved Nutrition (GAIN).** 2015. Programme of Food Products Fortification in Afghanistan and Central Asia: Analysis of legislative and regulatory framework on wheat fortification. Available at <http://docplayer.ru/28063517-Programma-po-fortifikacii-produktov-pitaniya-v-afganistane-centralnoy-azii.html>

## REFERENCES

- Volk, T., Erjavec, E., Rac, I. and M. Rednak.** 2015. Policy Report. Report prepared under the EU 7th Framework Programme AGRICISTRADe project.
- WHO.** 2010. Nutrition Landscape Information System Country Profile Indicators: Interpretation Guide.
- WHO.** 2017a. Global Database on Child Growth and Malnutrition.
- WHO.** 2017b. Nutrition Global Targets 2025.
- WHO.** 2017c. Global Health Observatory Data Repository.
- WHO Regional Office for Europe.** 2013. Vienna Declaration on Nutrition and Non-communicable Diseases in the Context of Health 2020. WHO European Ministerial Conference on Nutrition and Noncommunicable Diseases in the Context of Health 2020. Copenhagen, Denmark.
- WHO Regional Office for Europe.** 2014. European Food and Nutrition Action Plan 2015-2020. 64th Session of the Regional Committee for Europe. Copenhagen, Denmark.
- WHO Regional Office for Europe.** 2017. [Website] Available at <http://www.euro.who.int/en/health-topics/health-policy/health-2020-the-european-policy-for-health-and-well-being/about-health-2020>
- World Bank.** 2009. *Adapting to Climate Change in Europe and Central Asia.* [http://siteresources.worldbank.org/ECAEXT/Resources/258598-1243892418318/ECA\\_CCA\\_Full\\_Report.pdf](http://siteresources.worldbank.org/ECAEXT/Resources/258598-1243892418318/ECA_CCA_Full_Report.pdf)
- World Bank.** 2015. *The State of Social Safety Nets.* Washington, D.C.
- World Bank.** 2017a. The World Bank Indicators. Washington, D.C.
- World Bank.** 2017b. ASPIRE database. Available at <http://datatopics.worldbank.org/aspire/> Washington, D.C.
- World Food Programme (WFP).** 2014. *Kyrgyz Republic: An overview of climate trends and the impact on food security.* Available at [http://documents.wfp.org/stellent/groups/public/documents/ena/wfp274707.pdf?\\_ga=2.124975050.1993533905.1499781214-929972660.1499781214](http://documents.wfp.org/stellent/groups/public/documents/ena/wfp274707.pdf?_ga=2.124975050.1993533905.1499781214-929972660.1499781214)
- World Food Programme (WFP).** 2016. Country Programme Tajikistan (2016-2020)
- World Trade Organization (WTO).** 2017. Domestic support: Amber, Blue and Green Boxes. [Website]. Available at [https://www.wto.org/english/tratop\\_e/agric\\_e/negs\\_bkgnd13\\_boxes\\_e.htm](https://www.wto.org/english/tratop_e/agric_e/negs_bkgnd13_boxes_e.htm)







# 2017

# THE STATE OF FOOD SECURITY AND NUTRITION IN EUROPE AND CENTRAL ASIA

## KEY MESSAGES

→ The Europe and Central Asia (ECA) region encompasses a great deal of economic, social and natural diversity. This is reflected in the food insecurity problems throughout the region. Poverty remains the principal obstacle to people's access to food in the region. While countries have made significant progress in reducing the prevalence of undernourishment over the past two decades, the new FIES indicator shows that 14.3 million people in the region are still experiencing severe food insecurity in terms of access to food.

→ Malnutrition in one or more of its three main forms – undernutrition, overnutrition and micronutrient deficiencies – is present to varying degrees in all countries of the region. Often all three coexist, in what is called the “triple burden” of malnutrition. It is not unusual for countries to experience high rates of both child undernutrition and obesity.

→ Women in the region are at greater risk of malnutrition than men. Anaemia in women of child-bearing age is an important public health problem. At the same time, women are in a unique position to improve nutrition in their households, because they are responsible for growing, purchasing, processing and preparing most of the food their families consume. This means that gender-sensitive initiatives to improve nutrition can make a real difference.

→ While countries have taken the first steps towards implementing the 2030 Agenda – building on measures adopted to meet the earlier Millennium Development Goals – only a few have policy frameworks that address all four pillars of food security; namely, availability, access, utilization and stability. Some countries still lack comprehensive food security policies. In others, food security is understood more narrowly to mean primarily meeting national food self-sufficiency, without considering other crucial aspects such as access to food for certain groups of the population and healthy diets.

→ Many countries in the region are recognizing the importance of addressing nutrition issues in order to achieve food

security and improve the wellbeing of their citizens. Yet, nutrition policies and programmes have had varying degrees of success.

→ To produce reliable and up-to-date data on malnutrition – particularly micronutrient deficiencies – and to generate better understanding of the connection between food insecurity and malnutrition, better coordination is needed at national and regional levels.

→ Food demand in the region is growing, consumption patterns are changing, and urbanization is accelerating. At the same time, many production systems in the region are already under stress and making further productivity gains is becoming more challenging. Achieving food security under these conditions will require sustainable increases in agricultural production, more efficient use of natural resources and augmenting resilience.

→ Some of the countries in the ECA region are among the most vulnerable to climatic change, and many are already experiencing negative impacts on their agro-ecosystems. Increasing damage and losses to crops, livestock and the forestry and fishery subsectors are being recorded and are affecting both the population and the environment.

→ Food losses and waste are important in the context of climate change. By wasting less food, and reducing food losses along the value chain, pressure on fragile ecosystems is lessened, greenhouse gas emissions are reduced, agrifood systems become more efficient, and food security and nutrition are enhanced.

→ The Sustainable Development Goals, or SDGs, provide a powerful framework for tackling the challenges faced by the countries of Europe and Central Asia. To take advantage of this opportunity, it is important that countries exercise strong political will and make financial commitments to meeting the targets. It is also important to convene and engage the major concerned groups – public and private, domestic and international – to explore policy inter-linkages and ensure a socially just, integrated approach.



ISBN 978-92-5-130046-6



9 789251 300466

I8194EN/1/11.17