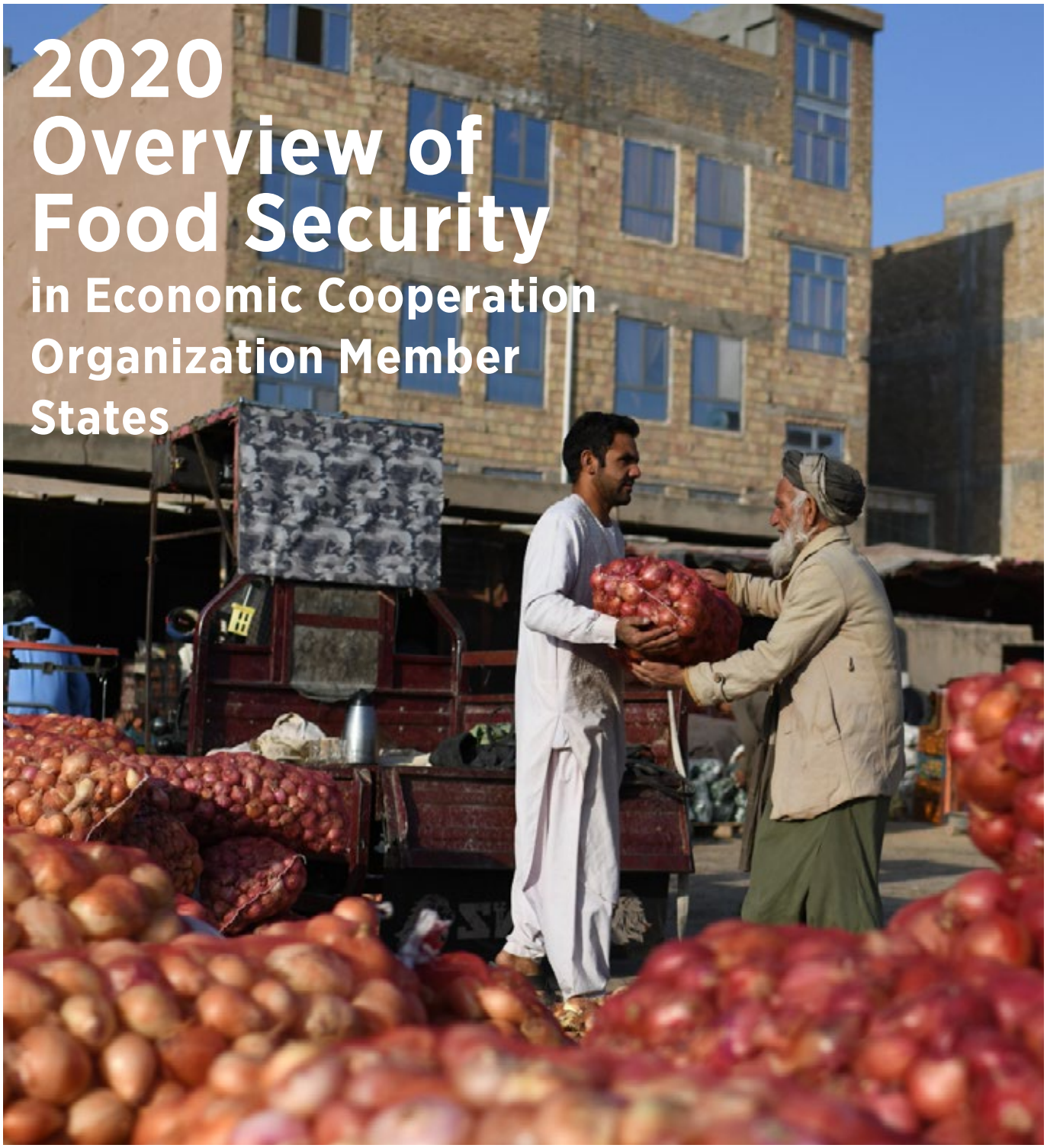
Economic Cooperation Organization
Regional Coordination Centre
for Food Security

ECO-RCCFS

Food and Agriculture
Organization of the
United Nations

2020 Overview of Food Security

in Economic Cooperation Organization Member States



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Foreword

The Economic Cooperation Organization Regional Coordination Centre for Food Security (ECO-RCCFS) concentrates on ensuring food security and aims to be a hub for collaboration in the ECO region. This focus guides ECO-RCCFS in analysing the current state of food security to provide solutions and improve the current situation.

With this working principle, we are proud to publish the second edition of the ***"Overview of Food Security in the Countries of the Economic Cooperation Organization (ECO)"***. The publication offers solutions and recommendations by emphasizing the current situation of food security in the region with a special emphasis on the effects of the COVID-19 pandemic.

The increasing effects of diseases, climate change, population growth, rising food prices, urbanization on food systems and the ongoing effects of the pandemic around the world have made it increasingly difficult to achieve the SDG targets.

At this point, it is of the utmost importance to carry out research on increasing access to feed, reinforcing food supply chains, ensuring rural and urbanization connections and market access, and minimizing diseases, malnutrition, the impacts of climate change, the deterioration of natural resources and logistical problems, especially during the post-COVID period. In order to provide solutions to these problems, it is crucial to analyse the current situation.

This annual report provides a comprehensive review of the current status of food security in the region, highlighting the characteristics of food security, trends, challenges and recommendations. The publication brings together the latest and reliable data to provide the most up-to-date food security overview of the ECO region.

Ensuring food security and nutrition is a key investment and one that will strengthen society. Diet-related diseases will decrease and the welfare of people – especially children – will improve, making them more beneficial to society. In so doing, development and poverty reduction become inevitable.

We hope that the analyses, findings and recommendations published here will contribute to ensuring food security in the region and lead to enhanced cooperation among ECO Member States.

Aylin ÇAĞLAYAN ÖZCAN
Representative for ECO-RCCFS

1. Introduction

This report provides an overview of developments concerning food security and nutrition in ECO member states. The overview is based on the data available as of mid-2021. The COVID-19 pandemic adds an entirely new dimension to this overview, but due to the lack of sufficient reliable data on the effects of the pandemic on food security and nutrition, a qualitative assessment has been made using a literature review of reports and published articles.

Experience so far indicates that COVID-19 is highly likely to impact every aspect of food security and nutrition across the globe. In particular, the spread of the COVID-19 virus has provoked the transformation of food systems to respond to the emerging challenges, while at the same time inviting adversities in terms of the availability, access and utilization of food. Drawing on a method developed by Temel (2005), Temel and Dorjee (2014), Temel and Karimov (2019) and Temel, Janssen and Karimov (2003), the conceptual framework illustrated in Figures 1 and 2 presents an overview of the potential effects of the virus on food security and nutrition in ECO member states. The premise of this framework is that COVID-19 would affect food security and nutrition outcomes through two channels elaborated in detail in Section 2.3.

The report is organized in seven sections. Following the Introduction, Section 2 introduces the overall approach adopted in the overview and assessment of the food security and nutrition situation in ECO member states. Section 3 reviews the progress made towards the SDG 2 targets using the most recent data from FAO. The data used in the overview do not incorporate COVID-19-related data. Therefore, the potential impact on food security and nutrition of the spread of the virus is presented separately in Section 4, which discusses the potential global and regional effects of COVID-19. Section 5 elaborates on the key linkages between agriculture and nutrition and underlines a nutrition challenge that diversified and nutrition-sensitive agriculture has high potential to overcome. Section 6 discusses prospects for food security and nutrition in ECO member states until 2030. Finally, Section 7 concludes the report, pointing to the need to incorporate the key considerations into country-level food security and nutrition strategies.

2. Conceptual framework of food security

The overview adopts an approach with three elements. First, the food security agenda of the Committee on World Food Security is positioned within the United Nations (UN) sustainable development implementation framework. FAO's indicators are then used to assess progress towards the food security and nutrition targets set by the 2030 Sustainable Development Agenda of the UN. Second, sustainable, inclusive and efficient food systems are considered as critical to the evolution of the food security and nutrition situation. Lastly, the potential effects of COVID-19 on food systems and the aspects of food security and nutrition are elaborated.

2.1. Food security and the 2030 Sustainable Development Agenda

Definition of food security

The 1996 Rome Declaration on World Food Security and the 2030 Sustainable Development Agenda of the UN together determine the scope of the food security overview. The Rome Declaration defines food security as a state in which "all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food, which meets their dietary needs and food preferences for an active and healthy life." It emphasizes that ensuring food security requires the establishment of four conditions simultaneously. First of all, sufficient quantities of food should be available with appropriate qualities through domestic production, imports, stocks and/or food aid. Second, people should have income and/or assets to access to sufficient food for a healthy diet. People should also have non-economic means for physical access to food in markets. Third, food needs to be consumed in a healthy and hygienic environment for effective utilization of the nutrients in the food consumed. An environment with improved sanitation, health care and clean water is critical for complete utilization of the nutrients in the food. Finally, stability of all the processes involved should be ensured through prevention and preparedness strategies against adverse consequences of economic, social and natural shock. The continuity and sustainability of all the optimal pathways leading to a food secure situation for all people at all times is necessary, in order not to risk losing access to food as a consequence of shocks or cyclical events.

The 2030 Agenda provides an implementation framework organized around 17 Sustainable Development Goals (SDGs) where food security and nutrition occupy a central place. Specifically, SDG 2, aimed at achieving zero hunger, is a dedicated objective designed to monitor and assess progress towards the food security and nutrition targets of the Agenda. Aiming to end hunger, achieve food security and improved nutrition and promote sustainable agriculture by 2030, SDG 2 incorporates eight targets, which are closely related. For instance, in contexts where many of the food insecure depend on agriculture for a living, improvements in agricultural productivity and incomes of small-scale food producers (Target 2.3) will be a vehicle to improve access to food (Target 2.1). Making agriculture more resilient and sustainable (Target 2.4) will in turn strongly influence the future availability and stability of food supplies (Targets 2.3 and 2.4). Together, improvements towards Targets 2.1, 2.3 and 2.4 will underpin progress towards Target 2.2, which aims to "end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in

children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons." Monitoring progress towards SDG 2 targets should therefore go beyond simple tracking of SDG 2 indicators, calling for an improved understanding of the web of interactions among the 17 SDGs.

Indicators to monitor food security

FAO and other Rome-based international organizations have adopted a representative set of indicators to evaluate the degree of food (in)security on the one hand and monitor food security situation on the other. A broad consensus has been reached on the indicators listed in Table 1 in which the food security and nutrition indicators are mapped across the four pillars of food security with an underlying functional relationship between the four pillars (i.e. determinants). According to this functional relation, food security and nutrition policy option should target desirable changes in the food security and nutrition (FSN) pillars to minimize food insecurity and undernutrition.

Table 1: The suite of food security indicators

FOOD SECURITY INDICATORS	DIMENSION	
Average dietary energy supply adequacy Average value of food production Share of dietary energy supply derived from cereals, roots and tubers Average protein supply Average supply of protein of animal origin	AVAILABILITY	STATIC and DYNAMIC DETERMINANTS
Percentage of paved roads over total roads Road density Rail lines density	PHYSICAL ACCESS	
Domestic food price index	ECONOMIC ACCESS	
Access to improved water sources Access to improved sanitation facilities	UTILIZATION	
Cereal import dependency ratio Percentage of arable land equipped for irrigation Value of food imports over total merchandise exports	VULNERABILITY	
Political stability and absence of violence/terrorism Domestic food price volatility Per capita food production variability Per capita food supply variability	SHOCKS	
Prevalence of undernourishment Share of food expenditure of the poor Depth of the food deficit Prevalence of food inadequacy	ACCESS	OUTCOMES
Percentage of children under 5 years of age affected by wasting Percentage of children under 5 years of age who are stunted Percentage of children under 5 years of age who are underweight Percentage of adults who are underweight Prevalence of anaemia among pregnant women Prevalence of anaemia among children under 5 years of age Prevalence of vitamin A deficiency (forthcoming) Prevalence of iodine deficiency (forthcoming)	UTILIZATION	

Note: Values and detailed descriptions and metadata for these indicators are available on the companion website (www.fao.org/publications/sofi/en/).
Source: FAO.

2.2. Sustainable, inclusive and efficient food systems for food security and nutrition

A food system is a unified structure incorporating all the activities and processes affecting the production, distribution, consumption and disposal of food. Adopted from FAO (2017),

a sustainable food system is defined to be one that delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised. This means that it is profitable throughout, ensuring economic sustainability; that it has broad-based benefits for society, securing social sustainability; and that it has a positive or neutral impact on the natural resource environment, safeguarding the sustainability of the environment. Inclusiveness in the context of a country refers to the engagement of smallholder producers in the agricultural and food value chains on an equal footing with large producers; and in the context of international trade, it refers to the engagement of economically small countries in global agricultural and food value chains. The goal of inclusiveness is to help smallholder producers or small economies gain benefits from existing domestic market and international trade opportunities.

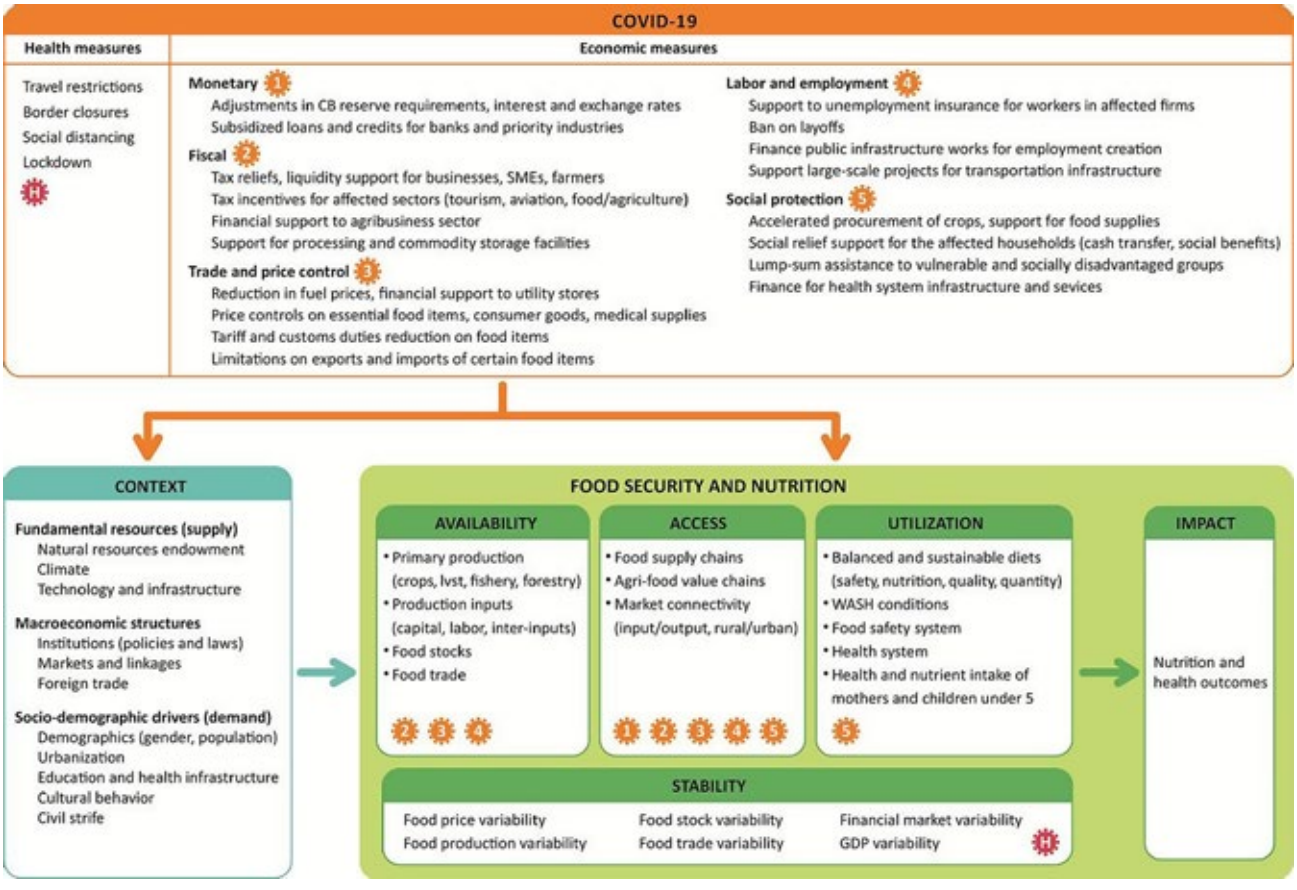
Currently, the ability of food systems to provide nutritious food and contribute to enhanced livelihood opportunities in an environmentally sustainable way is challenged by a range of pressures, including rapid population growth, urbanization, increasing wealth and consequent changes in consumption patterns and diets, as well as the COVID-19 pandemic and extreme weather events associated with climate change, land degradation and biodiversity loss. Responding to these challenges requires a systems-based approach that addresses their range and complexities in a holistic manner (HLPE, 2017). For example, from the food systems perspective, obesity is regarded as a systemic failure and can be addressed by cross-sectoral policy interventions involving the agriculture, environment, nutrition and health sectors. Strategies can be designed to increase concurrently the production of nutritionally adequate food, the acquisition of food through sustainable processes and the utilization of food in healthy food environments.

2.3. Conceptual framework for a COVID-19 impact analysis on food security

Existing as well as projected adverse impacts of the ongoing COVID-19 pandemic on food security and nutrition are elaborated here by drawing on the conceptual framework presented in Figure 1. This framework formalizes two critical pathways originating from containment measures to food security and nutrition outcomes. In pathway (1), characterized by the chain of linkages “Containment Measures -> Economic Measures -> Natural; Social Demographic Economic Environment (Context) -> Food Security and Nutrition Dimensions -> Food Security and Nutrition Outcome”, containment measures and the associated economic measures are expected to shape food security and nutrition outcomes through changes in the entire natural-socio-economic fabric of the society. For example, a fiscal intervention (through tax relief) or a monetary intervention (through lowering interest rates) or trade intervention (through reducing import duties for health care material) as a response to negative effects of containment measures would carry indirect multiplier effects to food security and nutrition outcomes through progress made in the private business environment. In other words, the immediate focus along pathway (1) is improvement in the macro environment that supports improved food security and nutrition outcomes. Since loss of income and livelihoods due to lay-offs, business closures and reduced remittances are among the adversities arising in the macro environment, such factors would be considered in the domain of pathway (1).

In pathway (2), however, the focus is on the chain of linkages, "Containment Measures -> Food Economy Measures -> Food Security and Nutrition Dimensions -> Food Security and Nutrition outcome", which targets food security and nutrition outcomes through changes in food economy. Figure 2 presents the same framework in an operational format focusing more on the interactions along pathway (2). It is important to note that the interactions concerned are constrained by containment measures that have direct implications for the food economy. Such formatting of the interactions makes it easy to address food security and nutrition issues along pathway (2), and more easily identify and elaborate on critical interactions among the food security dimensions that are triggered by COVID-19-related food policy interventions. For the purpose of this report, pathway (2) will be the centre of attention in analysing the effects of containment measures on food security and nutrition outcomes. To put it simply, throughout pathway (2), a food security and nutrition lens will be the key apparatus to identify where containment and food-agriculture measures have a direct and immediate impact on food security and nutrition outcomes, as opposed to indirect and delayed impact through pathway (1). Therefore, loss of smallholder income and livelihoods, bankruptcies in the food economy, disruptions in food and agricultural production and markets would fall under pathway (2). Consider, for example, the policy of tax relief and liquidity support specifically designed for farmers or food manufacturers. Along pathway (2), this policy would help farmers continue farm production (i.e. food availability), while helping agricultural markets remain active by preventing disruptions and bankruptcies in businesses and SMEs (i.e. access to food). Reducing import tariffs for intermediate agricultural inputs (such as farm chemicals, fertilizers, oil) is another policy that can be examined along pathway (2). This policy would benefit agricultural producers and ensure the continuity of agricultural production (food availability) and finally reduce the pressure on food prices (access to food) due to disruptions in agricultural supply chains.

Figure 1: Conceptual framework for a COVID-19 impact analysis on food security and nutrition

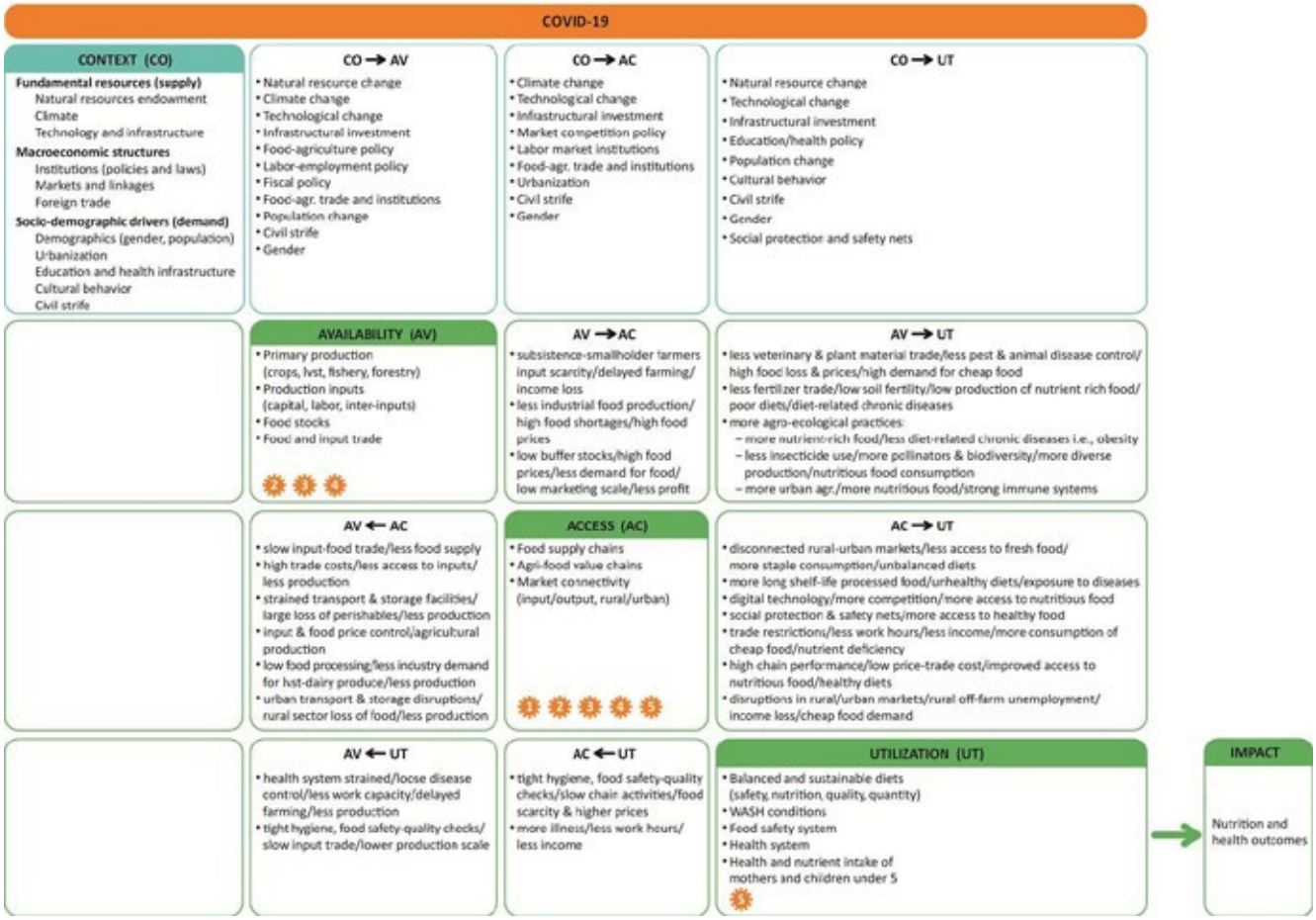


The structure presented in Figure 2 simplifies the identification and assessment of important cause-effect linkages from a COVID-19-related policy intervention to food security and nutrition outcomes. Four components, including Context (CO), Availability (AV), Access (AC) and Utilization (UT), are placed on diagonal cells while their interactions are positioned on off-diagonal cells. Each component is characterized by the factors placed in the respective diagonal cell. For example, the Access component is defined by the factors including food supply chains, agri-food value chains and market connectivity, which are directly influenced by monetary (1), fiscal (2), trade and price control (3), labour and employment (4) and social protection (5) policy interventions. Likewise, the Availability component is defined by factors, including primary production, production inputs, food stocks and food and input trade. These factors are influenced mainly by fiscal (2), trade and price control (3), and labour and employment (4) policy interventions. Off-diagonal cells include the factors that define the type of influence from one component to another. Take, for example, the off-diagonal cell denoted by AV->AC, in which case "input scarcity of subsistence and smallholder farmers leads to delayed farming activities, which then results in income loss" defines a chain of linkages starting from AV whose impact is observed on AC. This chain of economically harmful linkages may be addressed by liquidity support to farmers or agribusiness sector, which is a fiscal policy intervention (2). The off-diagonal cell denoted by AV->AC, on the other hand, represents feedback from AC to AV, in which case "slow input and food trade transactions due to logistical disruptions in market connectivity would reduce demand for food, which then discourages farmers to invest in agricultural production". Public support to establish safe logistics and favourable loans to food-related businesses, SMEs and farmers would be a policy intervention through fiscal (2) and monetary (1) instruments, respectively. In other words, for each evidence-based binary linkage, one or more policy interventions can be formulated to improve the effectiveness of the interaction concerned or control its adverse effects.

As of mid-2021, COVID-19 is ongoing, with multiple effects emerging day by day. At this stage, the framework presented here should be considered as a policy tool that can be used to identify ex-ante policy interventions under counterfactual scenarios. To implement the framework in the context of the COVID-19 pandemic, it is necessary to first identify the component(s) that are affected by a given containment measure as they will represent the starting point(s) in a chain of interactions. For example, disrupted trade linkages due to the pandemic would have multiple negative effects on food security in an economy dependent on imports of food and agricultural inputs. Food prices would tend to rise, limiting access to food by the poor while reducing incomes of small enterprises (demand effect). Agricultural input constraints, on the other hand, would reduce production and food availability (supply effect). To reduce the negative effects on food security and nutrition outcomes, a viable policy intervention would be to provide income support to the poor (AC) and release food available in stocks (AV). Disruptions in supply chains due to lockdown measures is another example where incomes of farmers in particular and the poor in general will dwindle to substantially lower levels due to minimum work hours, making access to food (AC) much harder as real prices rise. Agricultural production will also suffer due to fewer work hours that risk the preparations for the next period of crop production (AV). Once the entry component(s) for each containment measure is identified, as exemplified aboves, next step is to introduce a policy intervention to avoid and/or neutralize the adverse changes in the entry component(s) or other components in the chain of interactions. By doing so, the potential deterioration in food security and nutrition outcomes will be minimized.

Often, interactions among factors that affect food security induce changes in multiple components sequentially. Therefore, long chains of linkages are relevant for assessment of the effect of a policy intervention on food security and nutrition outcomes. Take, for example, the chain denoted by CO->AC->AV->UT. This consists of three binary interactions taking place sequentially: CO->AC, AC->AV, AV->UT. With public investment in the establishment of safe logistics (i.e. fiscal policy (2)) and/or support to unemployment insurance for workers in affected industries (i.e, labour and employment policy (4)), CO would change in such a way as to ensure sufficient food in wholesalers and retailers to sustain food demand in markets. This would stabilize prices and producers' incomes while securing access to food by temporarily unemployed persons (i.e., CO->AC). Safe logistics will reduce food loss and waste, and input and food price stabilization will provide incentives for agricultural production to continue (i.e. AC->AV). If agroecological practices are adopted, less insecticide will be used, and more pollinators, biodiversity and diverse production should prevail, which will ultimately result in nutritious food consumption (i.e. AV->UT).

Figure 2: Conceptual framework: COVID-19 and food security interactions



3. Overview of Food Security

This section adopts the logical structure of Table 1, in which food security outcomes are specified as a function of the static and dynamic factors that directly and/or indirectly affect food security.

3.1. Food security outcomes

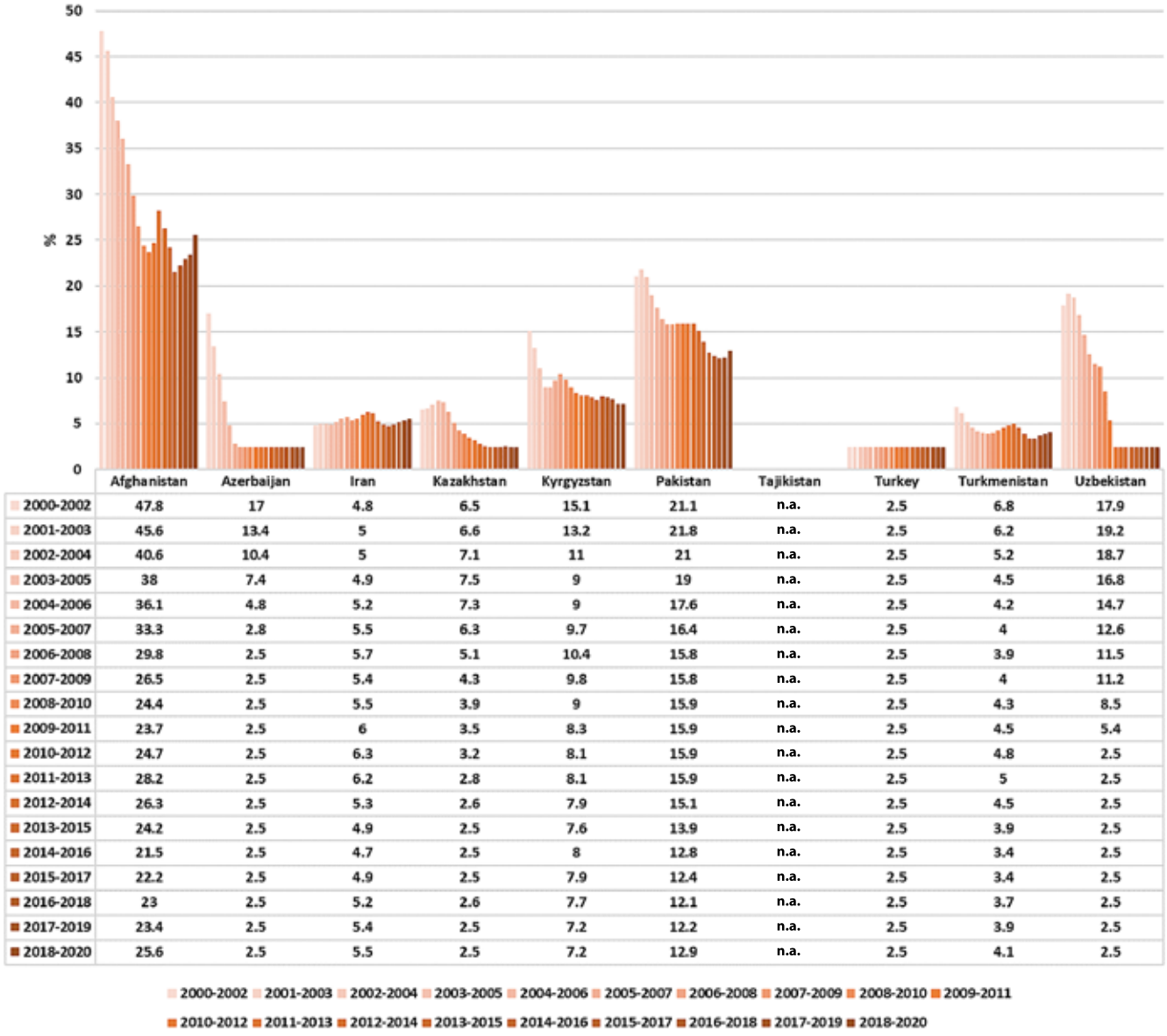
3.1.1. Prevalence of undernourishment (PoU)

During the period 1999-2019, all ECO member states significantly reduced the prevalence of undernourishment; however, progress has halted in some countries in more recent years.

Progress towards zero hunger is monitored using two SDG 2 indicators: 2.1.1 and 2.2.2. Indicator 2.1.1 measures the prevalence of undernourishment – defined as the proportion of undernourished people relative to the total population. It approximates the degree of inadequacy of energy intake of a person in relation to the required energy intake. It is important to note from the outset that every year FAO data are retrospectively revised as new data arrive from member states. This backward revision method should be taken into account when current trends are contrasted with past trends.

Figure 3 shows that all of ECO member states successfully reduced the PoU during the period 2000-2020, as indicated by declining PoU trends. However, as seen in Figure 3, the PoU has increased strongly in Afghanistan in recent years (from 21.5 percent in 2014-16 to 25.6 percent in 2018-20), and risen slightly in Iran, Pakistan and Turkmenistan; while improving in Kyrgyzstan (a decrease from 8 percent in 2014-16 to 7.2 percent in 2018-20), and remaining below 2.5 percent in Azerbaijan, Kazakhstan, Turkey and Uzbekistan. For Tajikistan, data are not available. Turkey remains the only country in the region with a PoU level of less than 2.5 percent for the entire period 2000 to 2020; however, a rising influx of refugees has exerted pressure on the government's fiscal space and poses a risk to the livelihoods of a large number of vulnerable people. Pakistan is also under going the same process, with a large number of refugees. It is estimated that 59 million people are still suffering from undernourishment in ECO member states, implying that about 13 percent of the regional population (475 million) is still undernourished.

Figure 3: Prevalence of undernourishment during 2000-2020 (%, SDG 2.1)



	Afghanistan	Azerbaijan	Iran	Kazakhstan	Kyrgyzstan	Pakistan	Tajikistan	Turkey	Turkmenistan	Uzbekistan
2000-2002	47.8	17	4.8	6.5	15.1	21.1	n.a.	2.5	6.8	17.9
2001-2003	45.6	13.4	5	6.6	13.2	21.8	n.a.	2.5	6.2	19.2
2002-2004	40.6	10.4	5	7.1	11	21	n.a.	2.5	5.2	18.7
2003-2005	38	7.4	4.9	7.5	9	19	n.a.	2.5	4.5	16.8
2004-2006	36.1	4.8	5.2	7.3	9	17.6	n.a.	2.5	4.2	14.7
2005-2007	33.3	2.8	5.5	6.3	9.7	16.4	n.a.	2.5	4	12.6
2006-2008	29.8	2.5	5.7	5.1	10.4	15.8	n.a.	2.5	3.9	11.5
2007-2009	26.5	2.5	5.4	4.3	9.8	15.8	n.a.	2.5	4	11.2
2008-2010	24.4	2.5	5.5	3.9	9	15.9	n.a.	2.5	4.3	8.5
2009-2011	23.7	2.5	6	3.5	8.3	15.9	n.a.	2.5	4.5	5.4
2010-2012	24.7	2.5	6.3	3.2	8.1	15.9	n.a.	2.5	4.8	2.5
2011-2013	28.2	2.5	6.2	2.8	8.1	15.9	n.a.	2.5	5	2.5
2012-2014	26.3	2.5	5.3	2.6	7.9	15.1	n.a.	2.5	4.5	2.5
2013-2015	24.2	2.5	4.9	2.5	7.6	13.9	n.a.	2.5	3.9	2.5
2014-2016	21.5	2.5	4.7	2.5	8	12.8	n.a.	2.5	3.4	2.5
2015-2017	22.2	2.5	4.9	2.5	7.9	12.4	n.a.	2.5	3.4	2.5
2016-2018	23	2.5	5.2	2.6	7.7	12.1	n.a.	2.5	3.7	2.5
2017-2019	23.4	2.5	5.4	2.5	7.2	12.2	n.a.	2.5	3.9	2.5
2018-2020	25.6	2.5	5.5	2.5	7.2	12.9	n.a.	2.5	4.1	2.5

Note: *Data showing with a value of 2.5 signifies a prevalence of undernourishment below 2.5%. n.a = data not available.*

Source: FAOSTAT.

3.1.2. Prevalence of malnutrition

SDG 2 Target 2.2 calls for an end by 2030 to "end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons" by 2030. This section describes progress in the area of nutrition.

Although stunting (low height for weight) among children under 5 years old has substantially declined across the region, several countries are still lagging behind. Almost all ECO member states achieved the target for the prevalence of wasting (low weight for height) which reflects acute growth disturbances.

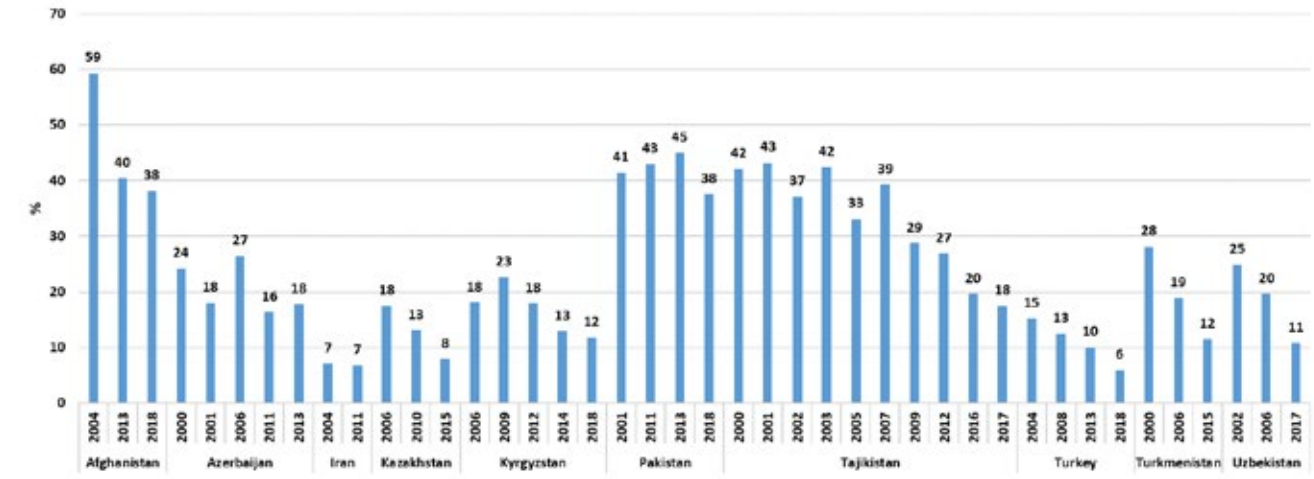
SDG 2 Target 2.2 aims to reduce the prevalence of stunting by 40 percent by 2025. During the period 2000-2018, all ECO member states recorded significant reductions in stunting (Figure 4). As of the most recent year for which data are available, stunting in Central Asian countries varies within the range of 8-18 percent. With a decline from 40 percent in 2000 to 18 percent in 2017, Tajikistan is the leading country with the highest reduction in stunting. With only 6 percent in 2018, Turkey has the lowest rate in the region, followed by Iran,

while Afghanistan and Pakistan both have a rate of 38 percent the highest in the region. In recent years, the rate of increased only in Azerbaijan, while eight out of 10 countries in the region experienced reductions. (I) Although declines in stunting are the dominant trend in the region, this may not accurately reflect the actual situation because part of the decline may be spurious due to high rates of population growth.

For countries lagging behind, achieving SDG Target 2.2 requires substantial investment in nutrition-sensitive agriculture, health-nutrition and education. The prevalence of stunting is currently highest in Pakistan and Afghanistan, followed by Tajikistan, where more than 18 percent of children under five are too short for their age.

There are various preventive actions to reduce stunting. Pregnant and lactating mothers can be targeted by nutrition interventions. Exclusive breastfeeding can be applied for infants to receive adequate nutrition during the first six months of life. Complementary foods can be made available in adequate quantities and quality for children aged 6–23 months. Lastly, focusing nutrition interventions on the first 1000 days of life and improving the quality of health care services should reduce stunting.

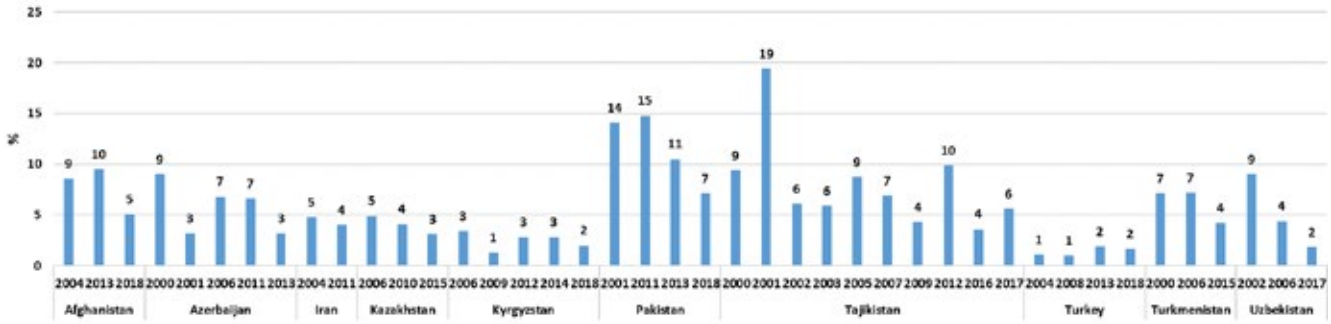
Figure 4: Children under 5 years of age who are stunted (%, SDG 2.2)



Source: FAOSTAT.

Wasting (being too thin for height) among children under five is an issue of critical importance due to the heightened risk of disease and death. The global nutrition target is to reduce childhood wasting to below 5 percent by 2025. With 7 percent wasting in 2018, Pakistan is one of the two ECO member states that has not yet reached the target. However, if recent progress continues, Pakistan is highly likely to reach the target before 2025. With 5.6 percent wasting in 2017, Tajikistan is also very close to achieving the target. Eight of 10 ECO countries have already reached the 5 percent target (Figure 5).

Figure 5: Children <5 years of age affected by wasting (%, SDG 2.2)



Source: FAOSTAT.

A common measure of obesity is the body mass index (BMI), a person's weight (in kilograms) divided by the square of his or her height (in metres). Obesity increases the risk of diet-related non-communicable diseases and disability in adulthood, and can result in loss of working hours and income. Overall, the ECO member states showed an alarming level of obesity in 2016, especially in countries with rising incomes. Compared to the 2025 global target of 12.4 percent (worldwide average for men and women obesity targets by 2025 (Development-Initiatives, 2020)), except for Afghanistan and Pakistan and to some extent Tajikistan, the rest of the region is off-track with respect to adult obesity (Figure 6). Turkey has the highest obesity rate of 32 percent, followed by Iran with 26 percent, and Kazakhstan and Azerbaijan with around 21 percent.

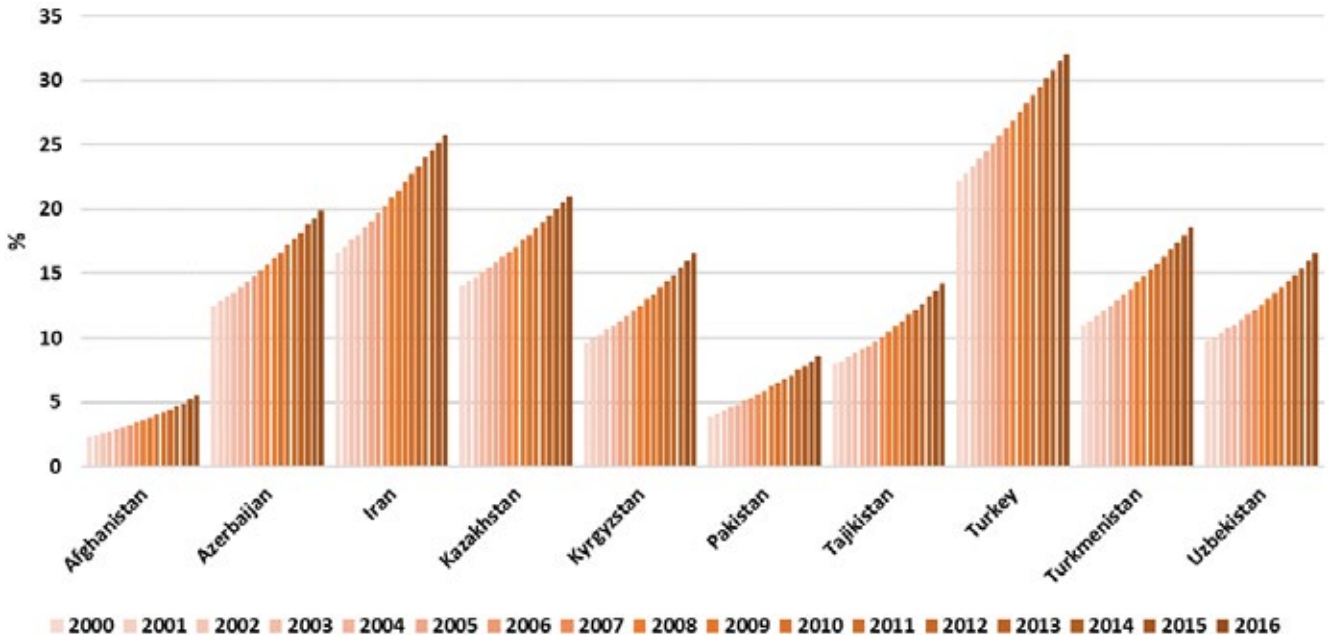
Obesity increased in all ECO member states during the period 2000-2016. The obesity level is highest for Turkey, followed by Iran, Kazakhstan and Azerbaijan.

Micronutrient deficiencies (measured by anemia) started to rise in recent years in almost all ECO countries. The main food and nutritional challenge is not quantity of food consumption but dietary quality and diversity.

Although all ECO member states experienced a rise in adult obesity during 2000-2016, there are differences across countries with respect to levels and rates. Afghanistan, Pakistan and Tajikistan showed the lowest levels both in 2000 and 2016, followed by Kyrgyzstan, Turkmenistan and Uzbekistan, and then by Azerbaijan, Kazakhstan, Iran and Turkey. Those with the lowest levels also have the highest average annual growth rates of obesity, while and those with the highest levels experienced the lowest rates of annual growth. In both cases, the situation is alarming. For low-level countries, nutrition-sensitive interventions to influence the underlying determinants of nutrition may be an option to avoid the emergence of trends observed in high-level countries. However, for high-level countries with relatively higher incomes, influencing consumers' food choices through provision of health and nutrition information is a viable option to promote healthy and balanced diets.

Growth rates during more recent years further highlight the potential danger of rising obesity in countries with the lowest levels. Over the period 2014-2016, obesity in Afghanistan grew by 13 percent annually, followed by Pakistan with 10 percent and Kyrgyzstan with 6 percent. The annual growth rate of obesity in the rest of the region varied from 3 to 5 percent.

Figure 6: Prevalence of obesity in the adult population (18 years and older, %)



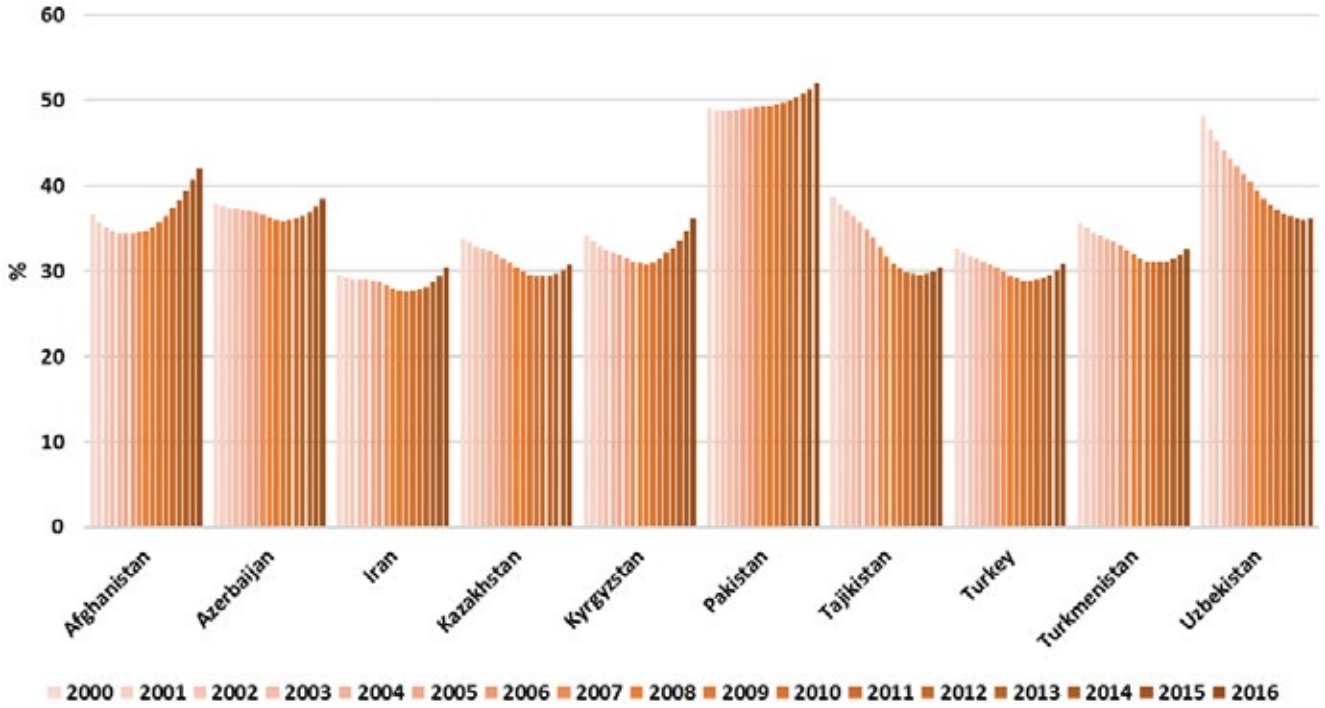
Source: FAOSTAT.

Alarming obesity trends in ECO member states are laeding to the emergence of diet-related non-communicable health problems that can in turn lead to death and illness worldwide and contribute to social inequities. Although not estimated yet, the socio-economic burden of diet-related health problems is expected to be high not only in high-income countries but also in low-income countries across the region. While the SDG framework does not include a specific indicator for adult obesity, eliminating it is included in the target to end all forms of malnutrition. Reducing obesity is also important for achieving other SDG targets – such as ensuring healthy lives and promoting well-being for all (SDG 3 Target 3.4).

Anemia in women of reproductive age is an indicator of both poor nutrition and poor health. Children and women are particularly vulnerable to anemia. SDG 2 Target 2.2 explicitly calls for the nutritional needs of adolescent girls and pregnant and lactating women to be addressed as anemia in women of reproductive age is a public health concern with a high social cost. Anemia is also closely linked to other SDG targets – and lowering its prevalence will help to reduce maternal mortality (SDG 3 Target 3.1) and improve levels of economic productivity (SDG 8 Target 8.2).

Trends over the period 2000-2016 indicate that anemia declined in all ECO member states until 2012-2013, but reversed thereafter with an upsurge in spite of population increases in all countries in the region (Figure 7). Overall, the prevalence varies between 30 and 50 percent across ECO member states. As of 2016, available data reveal that prevalence of anemia increased sharply in Afghanistan, Kyrgyzstan, Azerbaijan and Iran, followed by moderate increases in Kazakhstan, Tajikistan, Pakistan, Turkey and Turkmenistan. Uzbekistan is the only country in the region where the level has remained unchanged. Anemia continues to be a health threat for mothers and indirectly to child health through less time spent on child care. It also has a delayed negative effect on economic growth if child health problems are not addressed in time.

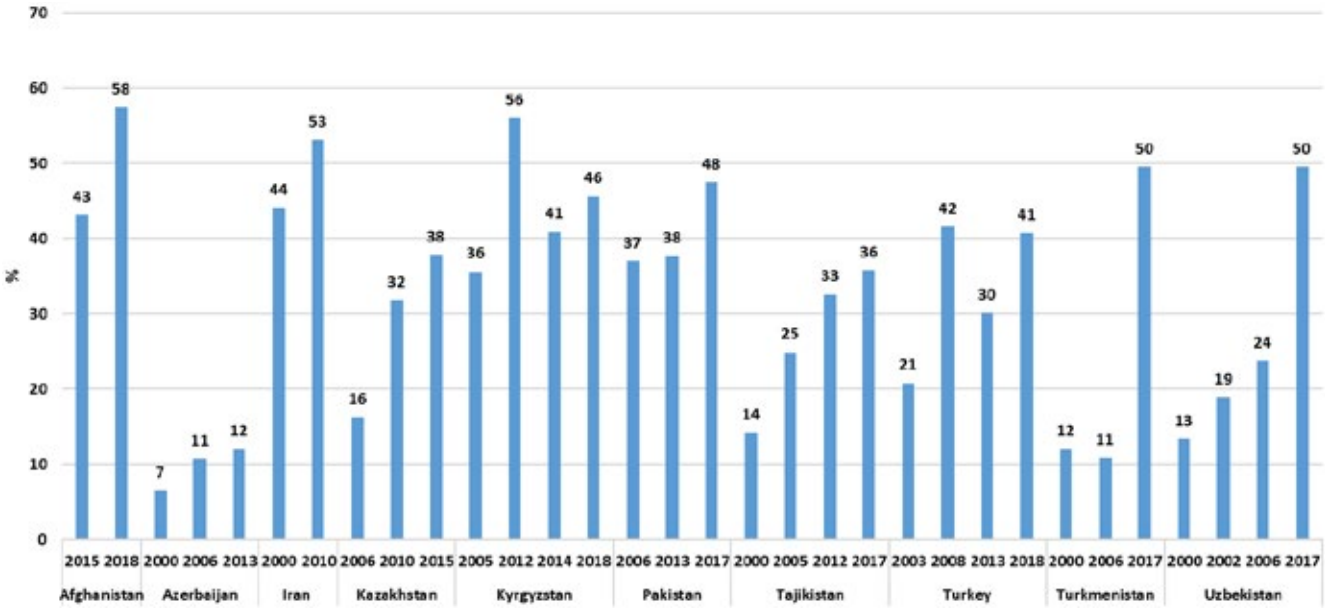
Figure 7: Prevalence of anemia among women of reproductive age (15-49 years, %)



Source: FAOSTAT.

Breastfeeding directly contributes to ending hunger and child malnutrition, and increasing the rate of exclusive breastfeeding by up to 50 percent in the first six months of life is one of the global nutrition targets. Afghanistan (based on data from 2018), Iran (based on data from 2010), Turkmenistan (2015) and Uzbekistan (2017) achieved the target of 50 percent, while Pakistan (2018), Kyrgyzstan (2018), Turkey (2018) and Tajikistan (2017) are on track within the range of 36-48 percent. The situation in Azerbaijan is critical, with only 12 percent prevalence based on the most recent available data (2013) (Figure 8).

Figure 8: Prevalence of exclusive breastfeeding among infants 0-5 months of age



Source: FAOSTAT.

3.1.3. Food systems for healthy diets and improved nutrition

During the period 1999-2020, the prevalence of undernourishment declined substantially across ECO member states, but malnutrition remains a key challenge. Addressing inequities in food systems would pave the way for improved access to healthy diets and nutrition intake.

A food system encompasses all activities and processes that form part of the production, processing, distribution, preparation and consumption of food. Climate change, global trade, urbanization, income growth and distribution, population growth and migration, and politics and cultural context are the key external drivers of changes in the workings of food systems (Development-Initiatives, 2020; HLPE, 2017). Unless effectively governed by multi-sector policy interventions, these drivers can lead to imbalances in the operation of food systems and restrict access to healthy diets for some people, leading to unequal nutrition outcomes and malnutrition in all its forms.

In order to make further progress towards the 2025 and 2030 nutrition targets, a nutrition "lens" should be applied to each component of a food system (including food supply chains, food environments, individual-level filters, and consumer behaviour) in order to detect critical areas for nutrition interventions, such as developing food-based dietary guidelines (FBDGs) and increasing investment in agricultural R&D for nutritious crops. Such interventions have the potential to make a major difference to micronutrient intakes in highly deficient areas in ECO member states where predominantly wheat-based diets comprise more than 50 percent of dietary energy.

Increasing food diversity in diets is another area where food policies can improve food security and nutrition. Diverse diets would reduce micronutrient deficiencies and hence leading to better nutrition outcomes. All these interventions should be designed from a multi-sector perspective. Furthermore, the food systems approach opens up an avenue to develop cross-sector policy interventions to achieve sustainable food security and nutrition.

3.2. Static and dynamic determinants of food security

3.2.1. Food availability

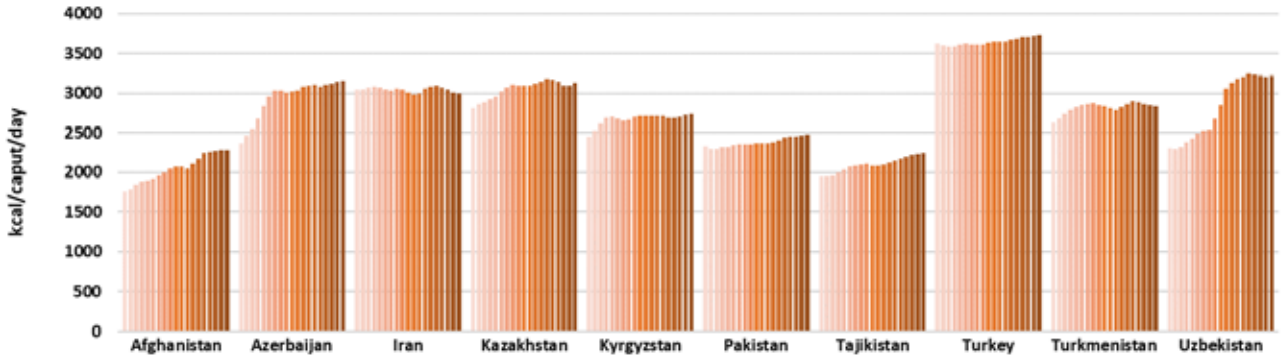
Dietary energy supply

Food availability at the national level has remained stable during the period 2018-2020.

In almost all countries, sufficient quantity of food is physically available for consumption. However, this does not mean that all people have access to food for actual consumption.

The amount of available food measured in terms of calories per day per person has remained stable in recent years including the 2018-20 period (Figure 9), implying that the quantity of food which is physically available for consumption has not changed significantly. However, this trend does not mean that people have stable access to food for actual consumption. The indicator of Average DES Adequacy (ADESA) expresses the DES as a percentage of the Average Dietary Energy Requirement (ADER). Analysed together with the PoU, the ADESA reveals whether undernourishment is mainly due to insufficiency of food supply or to particularly bad distribution.

Figure 9: Dietary Energy Supply (DES) (kcal/caput/day)



	Afghanistan	Azerbaijan	Iran	Kazakhstan	Kyrgyzstan	Pakistan	Tajikistan	Turkey	Turkmenistan	Uzbekistan
2000-2002	1761	2371	3054	2809	2459	2334	1945	3624	2632	2312
2001-2003	1787	2463	3051	2863	2528	2294	1946	3598	2677	2300
2002-2004	1851	2554	3068	2893	2615	2292	1956	3593	2741	2324
2003-2005	1882	2683	3083	2927	2695	2314	1998	3594	2792	2376
2004-2006	1901	2837	3071	2962	2700	2325	2038	3614	2822	2435
2005-2007	1928	2966	3052	3025	2675	2341	2071	3622	2850	2492
2006-2008	1962	3032	3033	3078	2647	2352	2084	3619	2861	2527
2007-2009	2003	3031	3055	3106	2669	2358	2100	3611	2870	2537
2008-2010	2044	3017	3051	3099	2698	2359	2106	3616	2853	2677
2009-2011	2072	3022	3015	3101	2719	2363	2091	3637	2837	2853
2010-2012	2078	3040	2992	3101	2720	2365	2082	3650	2814	3060
2011-2013	2044	3085	2999	3125	2714	2366	2092	3656	2792	3135
2012-2014	2109	3096	3058	3141	2714	2381	2123	3657	2823	3186
2013-2015	2176	3104	3083	3186	2716	2410	2150	3679	2861	3211
2014-2016	2247	3089	3098	3177	2694	2440	2175	3690	2894	3240
2015-2017	2260	3104	3073	3149	2693	2452	2200	3716	2887	3231
2016-2018	2266	3123	3042	3095	2700	2459	2217	3713	2862	3225
2017-2019	2281	3147	3010	3098	2724	2466	2233	3732	2849	3213
2018-2020	2277	3155	2997	3130	2734	2478	2241	3742	2835	3221

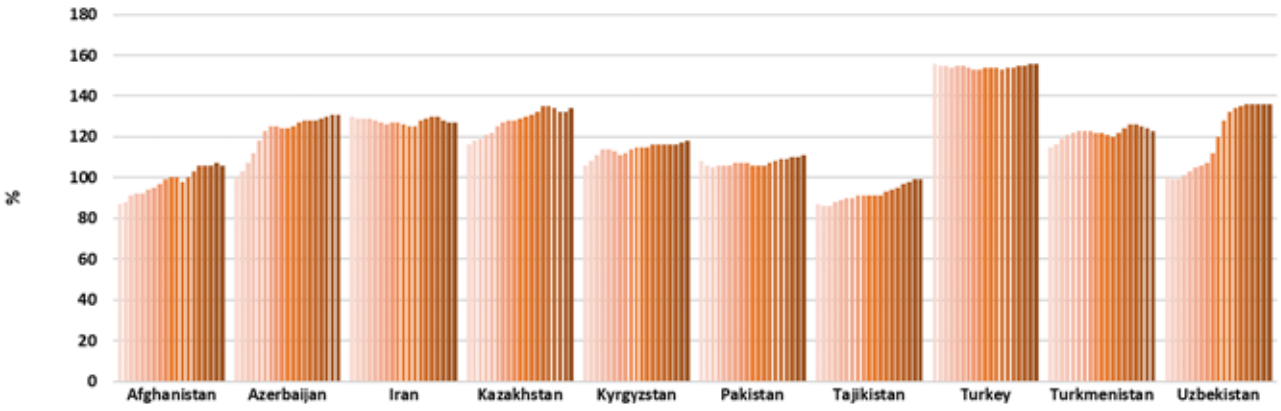
Source: FAOSTAT.

Figure 10 shows that in ECO member states the amount of available food in terms of calories has grown faster than the population.

Almost all countries, led by Turkey and Kazakhstan, have more food than required for their people. Although Pakistan (110 percent adequacy) and Turkmenistan (123 percent adequacy) have adequate calories, the prevalence of undernourishment in these countries increased

over the same period (see Figure 3). This indicates that increased supply of calories did not contribute to the reduction in prevalence, which further suggests that prevailing undernourishment in those countries is not due to insufficient food availability.

Figure 10: Average dietary energy supply adequacy (%)



	Afghanistan	Azerbaijan	Iran	Kazakhstan	Kyrgyzstan	Pakistan	Tajikistan	Turkey	Turkmenistan	Uzbekistan
2000-2002	87	100	130	116	106	108	87	156	115	100
2001-2003	88	103	129	118	108	106	86	155	116	99
2002-2004	91	107	129	119	111	105	86	155	119	99
2003-2005	92	112	129	121	114	106	88	154	121	101
2004-2006	92	118	128	122	114	106	89	155	122	103
2005-2007	94	123	127	125	113	106	90	155	123	105
2006-2008	95	125	126	127	111	107	90	154	123	106
2007-2009	97	125	127	128	112	107	91	153	123	107
2008-2010	99	124	127	128	114	107	91	153	122	112
2009-2011	100	124	126	129	115	106	91	154	122	120
2010-2012	100	125	125	130	115	106	91	154	121	128
2011-2013	98	127	125	131	115	106	91	154	120	132
2012-2014	100	128	128	132	116	107	93	153	122	134
2013-2015	103	128	129	135	116	108	94	154	124	135
2014-2016	106	128	130	135	116	109	95	154	126	136
2015-2017	106	129	130	134	116	109	97	155	126	136
2016-2018	106	130	128	132	116	110	98	155	125	136
2017-2019	107	131	127	132	117	110	99	156	124	136
2018-2020	106	131	127	134	118	111	99	156	123	136

Source: FAOSTAT.

Defined as the ratio of the agriculture share of government expenditures to the agriculture share of GDP, the agriculture orientation index is one of the SDG2 indicators used to monitor investment in agriculture (Figure 11).

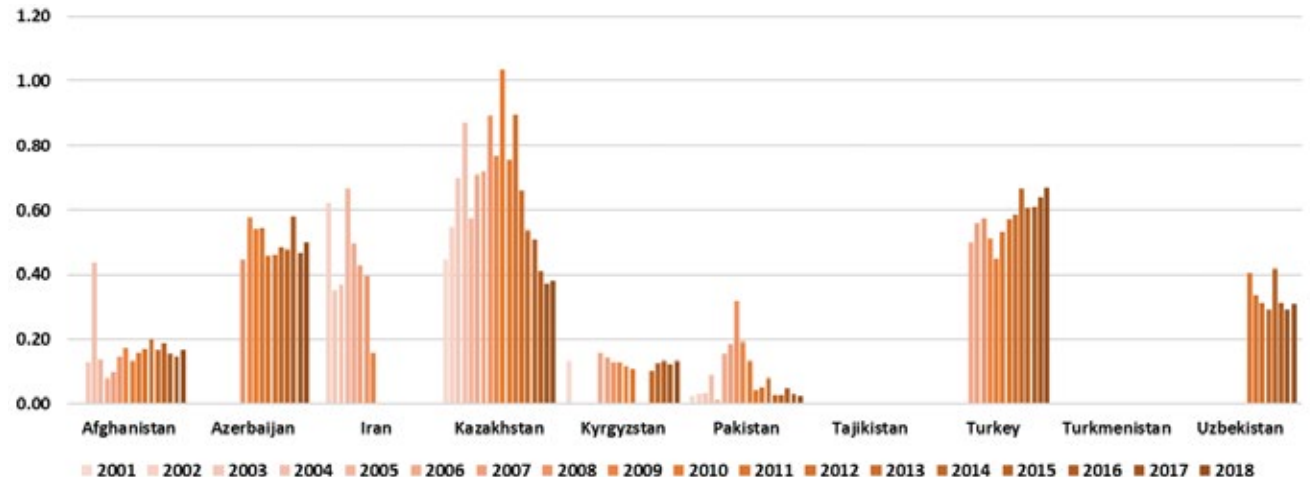
Most recent data show that public support for agricultural productivity has increased in the majority of ECO member states

Investment aimed at increasing agriculture productivity

Increasing agricultural investment, (SDG 2 Target 2.A) should enhance the productive capacity of agriculture to the extent that sectoral policies and policies that affect agricultural productivity should support agricultural research and extension services, technology development and plant and livestock gene banks. Data from 2017-2018 show that agricultural orientation has started to increase in Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Turkey and Uzbekistan. Pakistan is the only country which experienced a decrease. (Data were not available for Iran, Tajikistan and Turkmenistan.) As of 2018, Turkey and Azerbaijan were leading both in terms of an increase in percentage points (3 pp) and in terms of percentage levels (0.67 for Turkey and 0.50 for Azerbaijan).

The trends shown in Figure 11 further demonstrate that support to agriculture has not been stable across ECO member states, fluctuating from one year to the next, especially in Kazakhstan, Turkey, Azerbaijan, Iran and Afghanistan.

Figure 11: Agriculture orientation index for government expenditures



Source: FAOSTAT.

Changes in dietary energy supply

Effects of external drivers, including urbanization, population growth and changing diets, on food availability are becoming more pronounced during recent years.

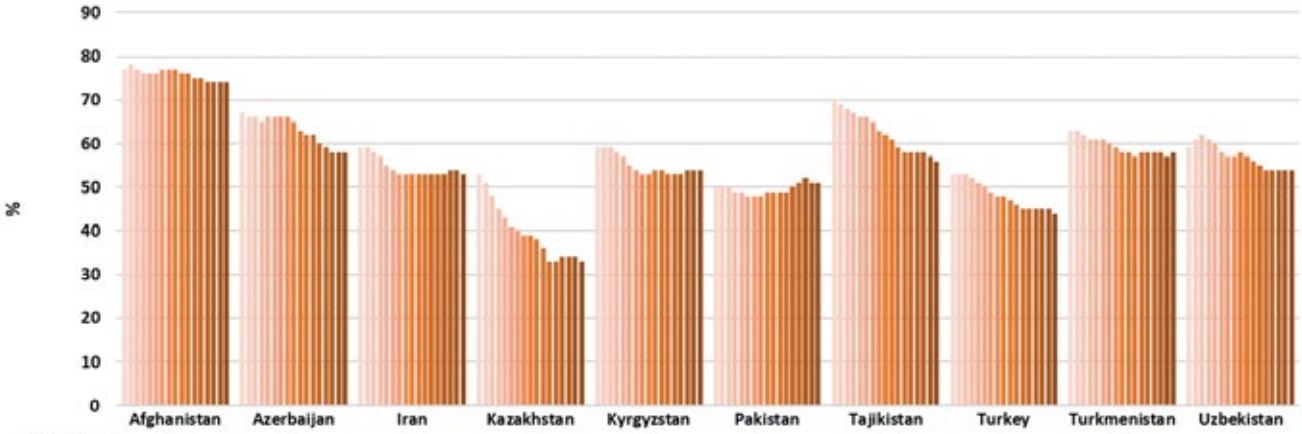
As a whole, during the last two decades, the region reduced its supply of calories from cereals and roots and increased both protein and fat supply (see trends in Figures 12, 13 and 14). However, a focus on recent years reveals a mixed trend across sources of calories, proteins and fat. A declining trend of energy supply from cereals is observed in five countries, while Iran, Kazakhstan, Kyrgyzstan, Pakistan and Turkmenistan saw the supply of cereal calories fluctuate slightly (Figure 12). Also observed are declining trends in protein supply in five countries, while Uzbekistan, Turkey, Azerbaijan and Pakistan experienced increases in protein supply (Figure 13), and Azerbaijan and Iran showed steady trends. With respect to fat supply, five countries experienced an increase, while four countries had declining trends. This implies the emergence of a mixed picture concerning fat

supply. With respect to cereal calorie supply and protein supply, the region on average has experienced a reduction. It is important to note here that changes during the most recent period have more or less plateaued, although exceptions include protein supply in Uzbekistan (Figure 13) and fat supply in Uzbekistan, Turkey and Kazakhstan (Figure 14).

If these recent trends are sustained in the future, with declining cereal calories and protein supply, ECO member states will end up with a calorie consumption distribution that diverges from the optimal distribution for Asia, which assumes the acquisition of 45-65 percent calories from cereals, 16 percent from protein and 33 percent from fat.

The current scale of change has important implications for food security and nutrition, and would affect the burden of malnutrition in the region. In the long term sub-optimal nutrition intake would not only hamper labour productivity and economic growth, it would also strain government finance due to increasing health costs linked to growth in diet-related diseases.

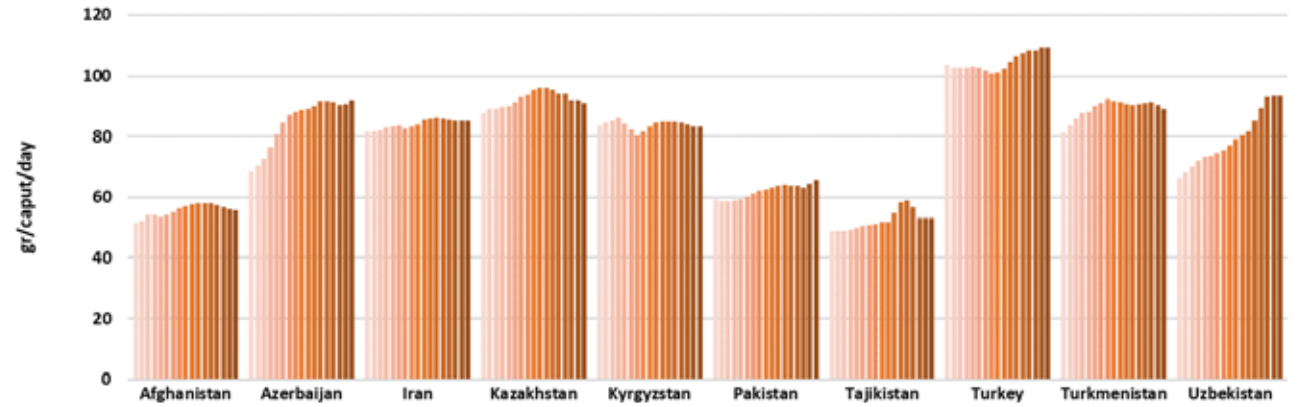
Figure 12: Dietary Energy Supply from cereals, roots and tubers (%)



	Afghanistan	Azerbaijan	Iran	Kazakhstan	Kyrgyzstan	Pakistan	Tajikistan	Turkey	Turkmenistan	Uzbekistan
2000-2002	77	67	59	53	59	50	70	53	63	59
2001-2003	78	66	59	51	59	50	69	53	63	61
2002-2004	77	66	58	48	59	50	68	53	62	62
2003-2005	76	65	57	45	58	49	67	52	61	61
2004-2006	76	66	55	43	57	49	66	51	61	60
2005-2007	76	66	54	41	55	48	66	50	61	58
2006-2008	77	66	53	40	54	48	65	49	60	57
2007-2009	77	66	53	39	53	48	63	48	59	57
2008-2010	77	65	53	39	53	49	62	48	58	58
2009-2011	76	63	53	38	54	49	61	47	58	57
2010-2012	76	62	53	36	54	49	59	46	57	56
2011-2013	75	62	53	33	53	49	58	45	58	55
2012-2014	75	60	53	33	53	50	58	45	58	54
2013-2015	74	59	53	34	53	51	58	45	58	54
2014-2016	74	58	54	34	54	52	58	45	58	54
2015-2017	74	58	54	34	54	51	57	45	57	54
2016-2018	74	58	53	33	54	51	56	44	58	54

Source: FAOSTAT.

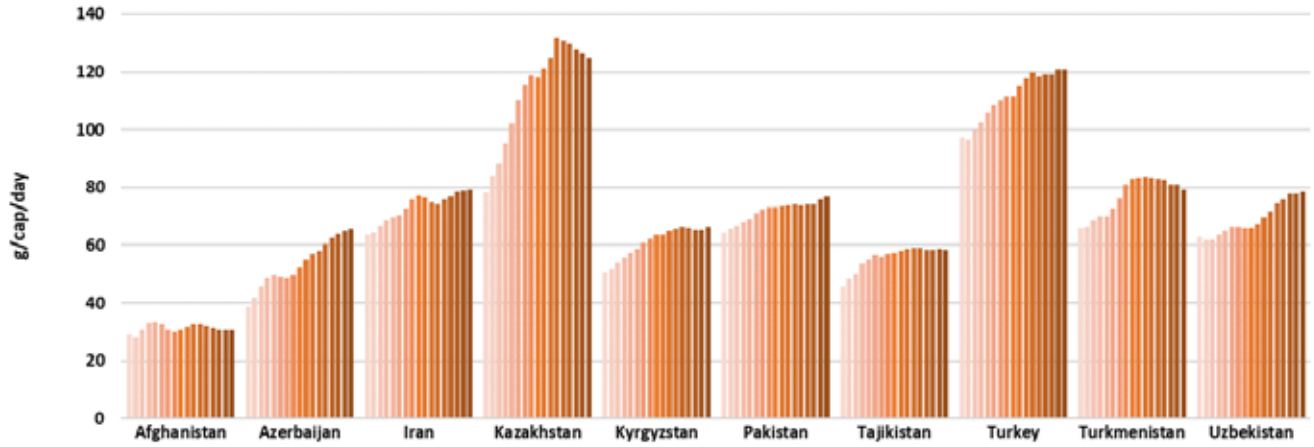
Figure 13: Average protein supply (gr/caput/day)



	Afghanistan	Azerbaijan	Iran	Kazakhstan	Kyrgyzstan	Pakistan	Tajikistan	Turkey	Turkmenistan	Uzbekistan
2000-2002	51	68	82	88	84	59	49	104	81	66
2001-2003	52	70	82	89	85	59	49	103	84	68
2002-2004	54	73	82	89	85	59	49	103	86	70
2003-2005	54	76	83	90	86	59	49	103	88	72
2004-2006	54	81	83	90	84	59	50	103	88	73
2005-2007	54	85	84	91	82	60	51	103	90	74
2006-2008	55	87	83	93	80	61	51	102	91	75
2007-2009	56	88	83	94	82	62	51	101	92	75
2008-2010	57	89	84	95	83	63	52	101	92	77
2009-2011	58	89	86	96	85	63	52	102	91	79
2010-2012	58	90	86	96	85	64	55	105	91	80
2011-2013	58	92	86	95	85	64	58	106	90	82
2012-2014	58	92	86	94	85	64	59	107	91	85
2013-2015	57	91	86	94	85	64	57	108	91	89
2014-2016	57	90	85	92	84	63	53	108	91	93
2015-2017	56	91	85	92	83	64	53	109	90	93
2016-2018	56	92	85	91	83	66	53	109	89	93

Source: FAOSTAT.

Figure 14: Average fat supply (gr/caput/day)



	Afghanistan	Azerbaijan	Iran	Kazakhstan	Kyrgyzstan	Pakistan	Tajikistan	Turkey	Turkmenistan	Uzbekistan
2000-2002	29	39	64	78	51	64	46	97	66	63
2001-2003	28	42	64	84	52	66	48	97	66	62
2002-2004	31	46	67	88	54	67	50	100	69	62
2003-2005	33	49	69	95	56	68	54	102	70	64
2004-2006	34	50	70	102	57	69	55	106	70	65
2005-2007	33	49	70	110	59	71	57	109	73	66
2006-2008	31	49	73	115	61	72	56	110	76	66
2007-2009	30	50	76	119	62	73	57	112	81	66
2008-2010	31	52	77	118	64	73	57	112	83	66
2009-2011	32	55	77	121	64	73	58	115	83	67
2010-2012	33	57	75	125	65	74	59	118	84	70
2011-2013	33	58	74	132	66	74	59	120	83	72
2012-2014	32	60	76	131	66	74	59	119	83	74
2013-2015	32	62	77	130	66	74	59	119	83	76
2014-2016	31	64	79	128	65	74	58	119	81	78
2015-2017	31	65	79	126	65	76	59	121	81	78
2016-2018	31	66	79	125	66	77	58	121	79	79

Source: FAOSTAT.

Transboundary animal diseases

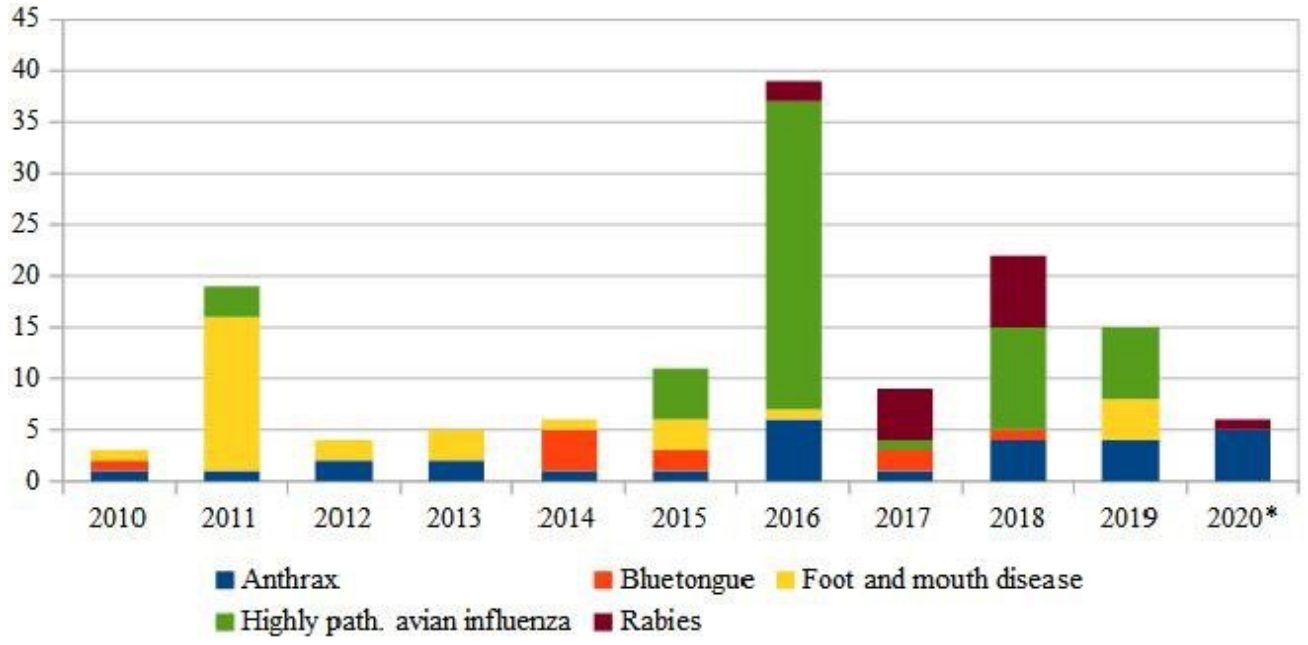
Incidence of transboundary animal diseases in ECO member states poses a serious risk to food security and nutrition.

Transboundary animal diseases (TADs) are highly contagious with extremely rapid diffusion across national borders. The international live animal trade, land encroachment, conflicts, smuggling, barriers to animal treatments, privatization of animal health services and climate change are among the key transmission channels. TADs reduce the quality, quantity and safety of livestock production and trade, and thereby threaten food security and health in the short term and economic growth in the long term due to the reduction in animal fat supply.

TADs like foot-and-mouth disease, which affects cattle, and pests of small ruminants, which affects sheep and goats, are highly prevalent in Central and Western Asia. Figure 15 shows the distribution of diseases identified in ECO member states during the period 2010-2020. Five types of diseases have been observed with varying frequencies. The frequency of outbreaks increased significantly during the period 2015-2020, with avian influenza being by far the most frequently observed disease in the region, followed by anthrax and rabies. However, reports of foot-and-mouth disease were less frequent compared to the period 2010-2015. It is important to note that the number of disease types also increased in the region during the latter period, as opposed to the former characterized mostly by outbreaks of foot-and-mouth disease. Another critical observation is that the frequency of anthrax appeared to be significant and stable during 2016-2020. The threats from TADs in ECO member states become elevated especially during the latter period, putting a strain on the animal health control mechanisms of host governments.

Gains from addressing TADs are indisputable. The livestock sector plays a critical role in the economic growth of many countries, including Pakistan, Tajikistan and Uzbekistan. In Pakistan, livestock contributes 11 percent to agricultural GDP, largely through milk production, while in Tajikistan and Uzbekistan, agriculture accounts for 25 percent and 18 percent, respectively. Prevention of transboundary animal diseases, as well as animal-related human diseases, would increase livestock's contribution to GDP and provide improved access to food for millions of people. The contribution of animal-sourced food to the cognitive development of children is also substantial and plays a critical role in sustainable development through improved health and income earning capacities of the poor. Taken together, increasing populations and the availability of fat supply in ECO member states signal the likely transformation of livestock farming and natural landscapes. Regional collaborations and concerted actions are critical for timely interventions to address threats and ensure effective national and cross-border management of risks from TADs. National and international regulatory systems are also necessary to respond to existing challenges and prevent the emergence of new outbreaks in the region.

Figure 15: Frequency of animal disease outbreaks in ECO member states



Source: OIE WAHIS

3.2.2. Food access

Incomes

Consumers' purchasing power (real income and prices), infrastructure for physical access (roads, railroads etc.), and safety nets such as social protection programmes determine the level of food access.

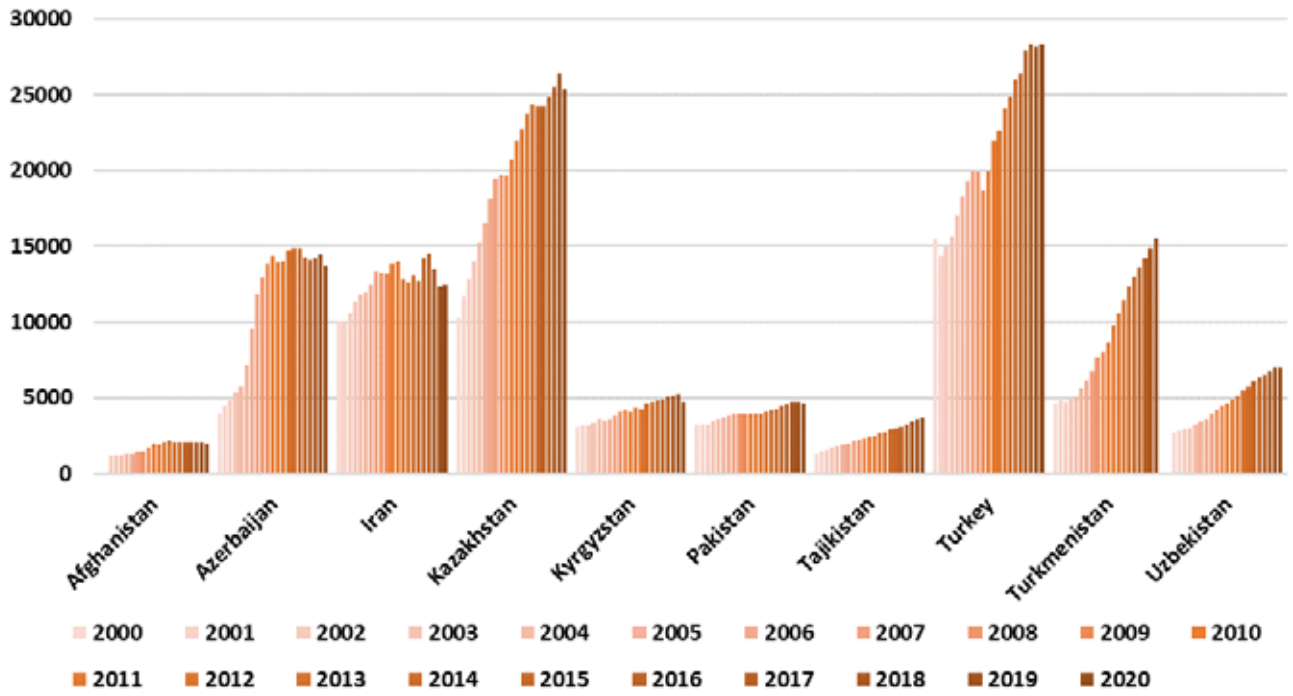
Trends in incomes during the period 2000-2020 are positive across ECO member states; however, momentum in income growth has diminished significantly during the years 2017-2020.

During the period 2000-2020, all ECO member states achieved a substantial increase in the level of GDP per capita. Kazakhstan witnessed the largest increase, followed by Turkey, Azerbaijan and Turkmenistan. Other countries in the region experienced relatively smaller increases. Afghanistan, Kyrgyzstan, Tajikistan and Pakistan recorded the lowest increase in

GDP per capita. Comparing average annual income growth rates for three sub-periods – 2000-2014, 2015-17 and 2018-20 – confirms that, relative to the period 2015-17, the most recent period witnessed a decline in income growth in the majority of countries, except Tajikistan, Turkmenistan and Uzbekistan (Figure 16). Momentum in income growth during the 2000-14 period was also lost in Turkey and Pakistan during 2018-20. However, income growth accelerated in Tajikistan, Turkmenistan and Uzbekistan during 2018-2020. Except for these three countries and Turkey, the remaining ECO member states have seen a decline in GDP per capita in 2020 compared to 2018 (Figure 16).

Increasing investment in agricultural and broad-based rural development should help reverse the upsurge of undernourishment in the region, especially in countries faced with frequent conflicts and high population growth. Research suggests that economic growth driven by agricultural growth improves access to food, which in turn leads to an improvement in FSN as the majority of the poor reside in rural areas. However, improvement in food security is not automatic, and calls for pro-poor and inclusive growth policy interventions aimed at encouraging smallholders to participate in activities along the agricultural value chains.

Figure 16: Gross domestic product per capita (in purchasing power equivalent, constant 2011, $)



Source: FAOSTAT.

Market prices of key food items

Trends in national wheat flour and meat prices underline two distinct periods with different implications for access to food.

Trends in wheat flour and meat prices for during 2007-2020 show two distinct sub-periods: 2007-2014 with increasing prices and 2014-2020 with decreasing prices (Figures 17, 18). Compared to international market prices, national wheat flour prices (annual averages based on monthly prices) during 2007-2020 indicate significant profit margins in six ECO member states. The prices started to rise just before the financial crisis in 2008 and continued until 2014, thereafter declining and fluctuating in a narrow band until 2020. Relatively speaking, price increases in Pakistan were the lowest whiole Azerbaijan recorded a large increase between 2007-2014, and prices in other countries moved in

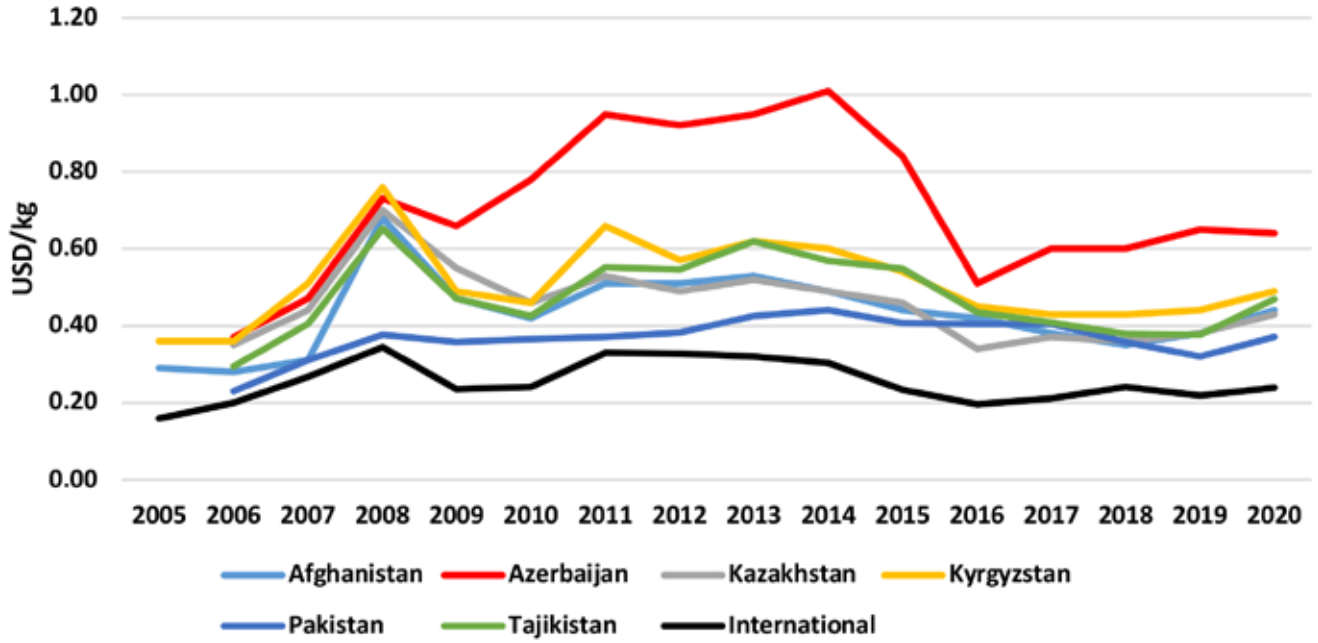
between these two poles. During 2016-2020, global prices fluctuated at a low level within a very narrow band, and with the exception of for Azerbaijan, national prices converged to reasonable levels.

Although trends in meat prices were similar to those in wheat flour prices during 2007-2020 (Figure 18), Azerbaijan and Kazakhstan experienced lower prices compared to those in Tajikistan and Kyrgyzstan, reflecting differences in the performance of livestock sectors. Considering the critical role of animal-based calories in the cognitive development of children under 5, these differences may hold important implications for food security and nutrition. Currently, low world food and oil prices are working in favour of importers of both goods, like Tajikistan and Afghanistan, but working against oil exporters and food importers, like Azerbaijan and Iran, due to their declining export revenues.

Trends in national wheat flour and meat prices are similar to trends in world meat, dairy, sugar and oil prices (Figures 17, 18, 19), suggesting that national food prices and hence access to food are highly vulnerable to volatility in world markets due to the high dependence of ECO member states on food imports. The 2008 financial crisis with large increases in food and fuel prices showed that domestic market food prices are in fact highly vulnerable to volatility in international markets. As shown in Figures 17 and 18, wheat and meat prices in ECO member states followed the same trend as world food prices (Figure 19), with significant increases from 2007 to 2014. The food price effect is stronger with important consequences for the PoU if prices of the main staples rise. Combined with low improvement in GDP per capita, adverse changes in world food prices hampered progress in the reduction of undernourishment, especially in Afghanistan, Kyrgyzstan, Pakistan and Tajikistan where food imports are high.

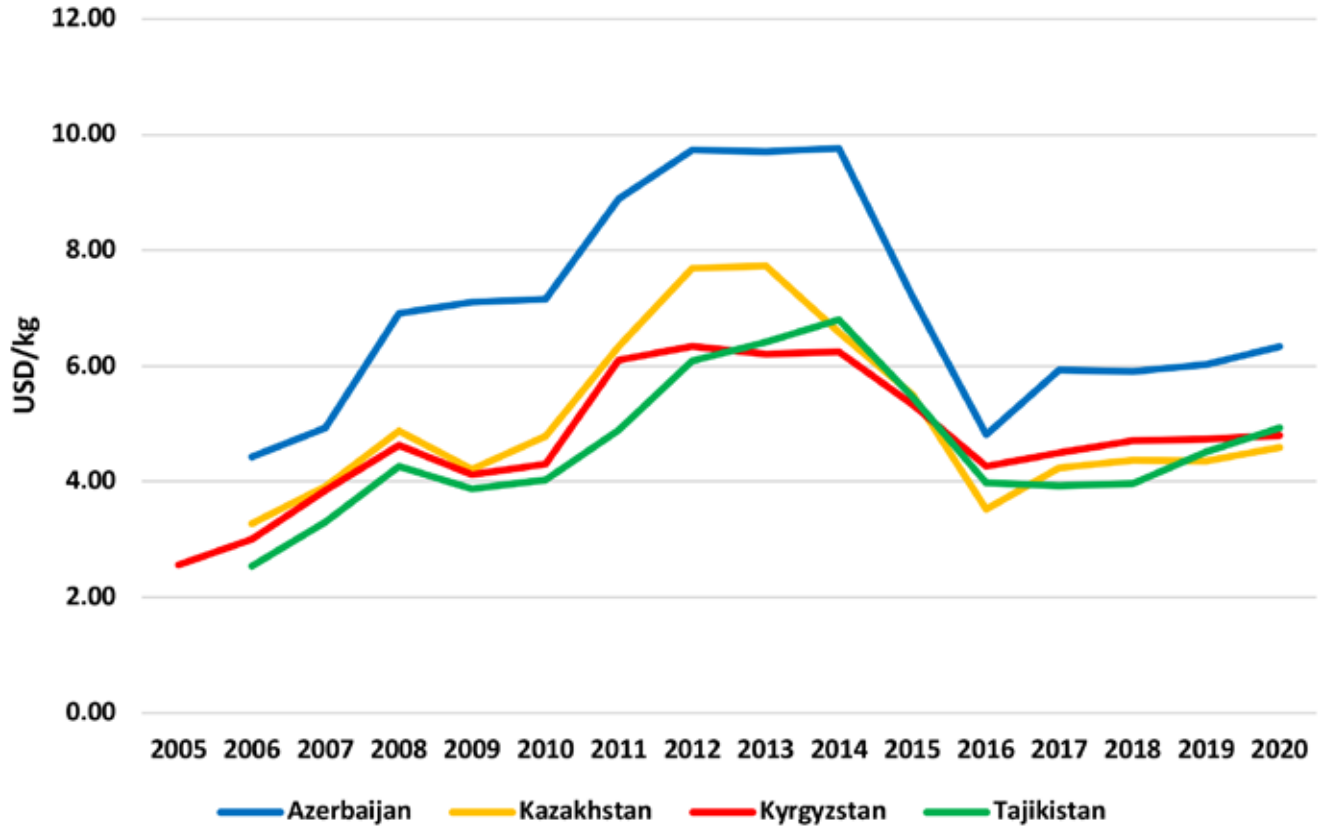
Together, prevailing poverty rates and per capita GDP suggest that income distribution matters in improving the poor's economic access to food, and that labour market regulations, social protection programmes and safety nets should be coupled with pro-poor, inclusive income distribution policies. Such policies have a role to play in counteracting rising food insecurity, reducing the implied income inequality and improving access to food by the poor via social protection and safety nets programmes.

Figure 17: Annual average of monthly wheat flour retail prices (USD/kg)



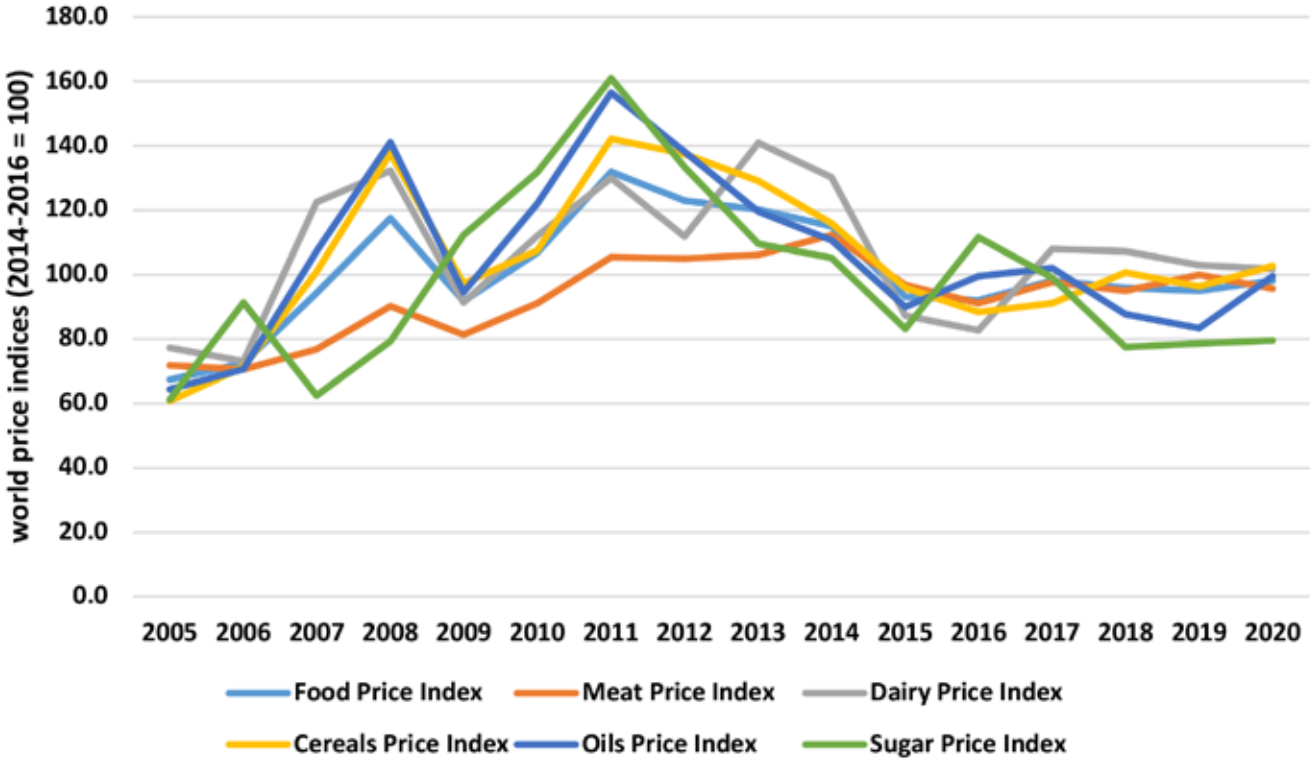
Source: https://fpma.apps.fao.org/giews/food-prices/tool/public/

Figure 18: Annual average of monthly beef meat prices (USD/kg)



Source: https://fpma.apps.fao.org/giews/food-prices/tool/public/

Figure 19: Annual world price indices (2014-2016 = 100)



Source: http://www.fao.org/worldfoodsituation/foodpricesindex/en/

Social protection for vulnerable population

Social protection services are under stress due to large numbers of refugees and internally displaced people in Turkey, Pakistan and Iran.

Targeting social protection policies should go hand in hand with financial commitments to existing safety nets to effectively deliver services for the poor.

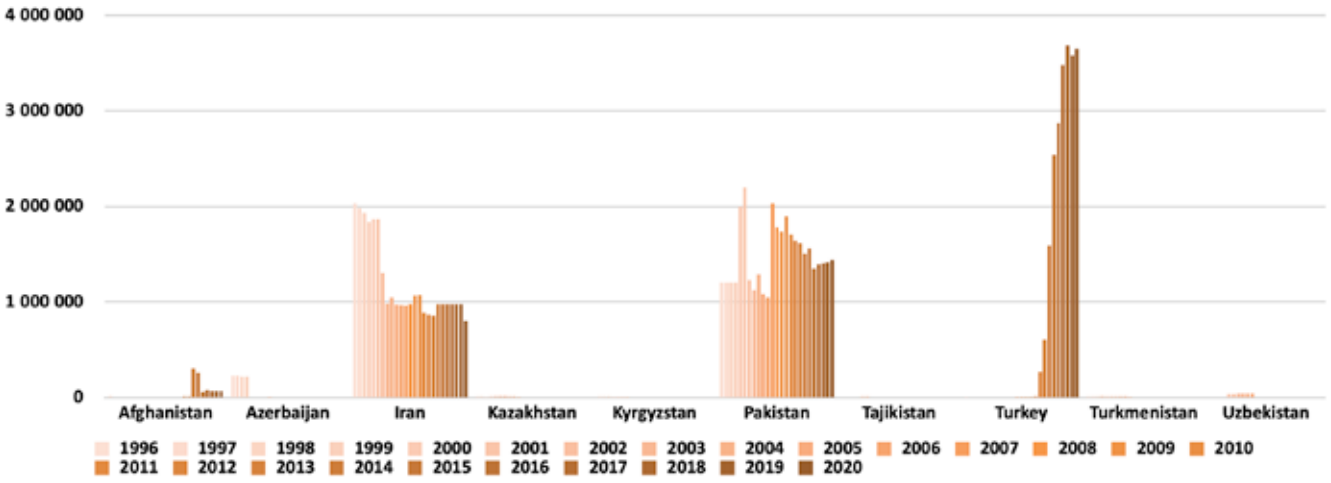
Improving physical access to food is a challenging task especially for Turkey, which has experienced a rising influx of about 3.6 million refugees as of 2020 (with a reduction of about 99000 people during 2017-2019), Pakistan about 1.4 million (with an increase of about 27 thousand newcomers during 2017-2019), Iran about 1 million and Afghanistan about 76000 (Figure 20). The refugee influx puts extra strain on government finance, including social protection for the poor and vulnerable.

Refugees are more vulnerable to food and nutritional insecurity than citizens of host countries as they have neither access to land for crop cultivation nor the necessary qualifications for employment and public social protection programmes. Many of them are earning livelihoods with low wages in the agriculture, industry and service sectors. Most of the studies monitoring their situation indicate heightened risks of food and nutrition insecurity. With respect to Internally Displaced Persons (IDPs), Azerbaijan and Afghanistan are facing challenegs in ensuring access to food and other livelihood assets. As IDPs are citizens of their own countries, they are entitled to receive public support from regular public sources, which places an extra burden on the already limited resources of social protection programmes and health services.

Social protection policies and programs are important instruments, contributing directly to progress towards SDG 1 and SDG 2. SDG Target 1.3 aims 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”. Data from the World Bank show that

coverage of social safety net programmes (as a percentage of the population) is highest in Kazakhstan and Turkey at 31 and 18 percent, respectively, followed by Uzbekistan with 12 percent, and Tajikistan, Afghanistan and Kyrgyzstan with about 9 percent. These programmes cover a wide range of social support services, including cash transfers, disability benefits, in-kind food transfers (food stamps and vouchers, food rations, supplementary feeding, and emergency food distribution), school feeding, other social assistance programmes, and public works programmes (cash for work and food for work). The overall institutionalization of social access to food is progressing at a slow rate and can be further strengthened by heightened political commitment to end undernourishment and poverty.

Figure 20: Refugee population by host country

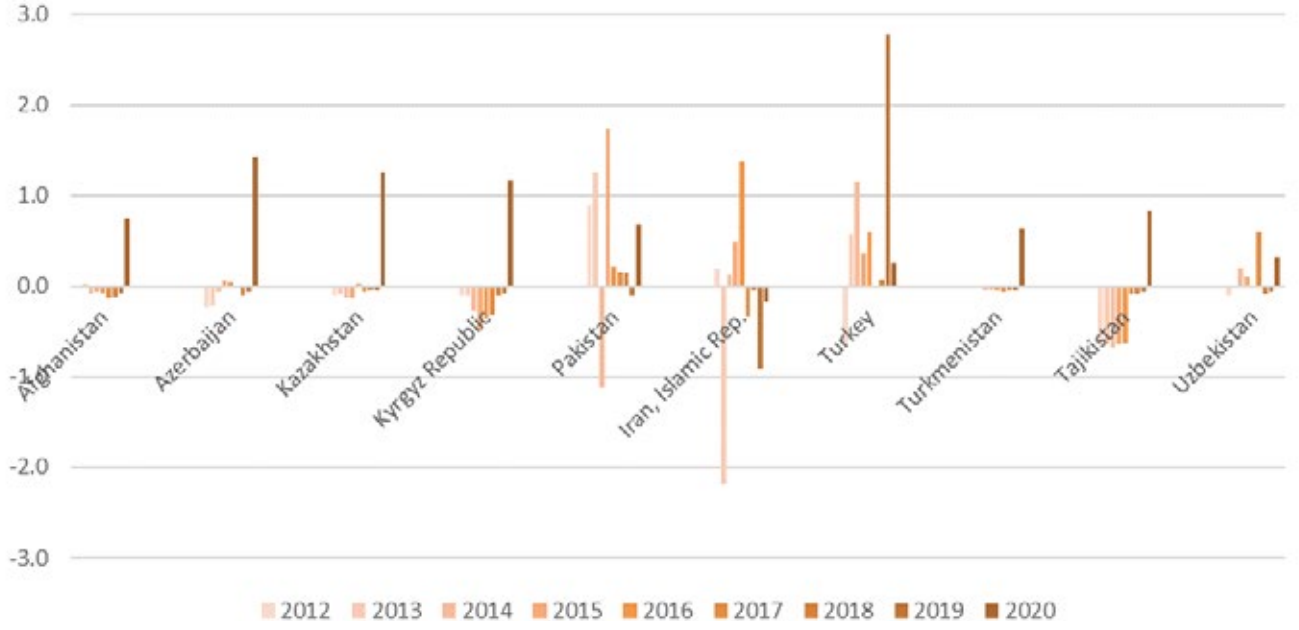


Source: World Bank World Development Indicators.

According to the World Bank data, in ECO member states, overall employment as a percentage of the population did not change much during the period 2012-2019. This suggests that the economic growth observed in ECO countries has been neutral as to its effects on employment creation, and thereby economic access to food. However, as shown in Figure 21, ECO member states faced an employment challenge in 2020, arising from the COVID-19 pandemic, with the unemployment rate estimated to increase in almost all ECO countries. (More detailed analysis is provided in Section 3. Food security under the COVID-19 pandemic.)

Pro-poor and inclusive development projects should promote employment in general and youth employment in particular.

Figure 21: Annual change in unemployment rate (percentage point, 2012-2020)



Source: World Bank World Development Indicators.

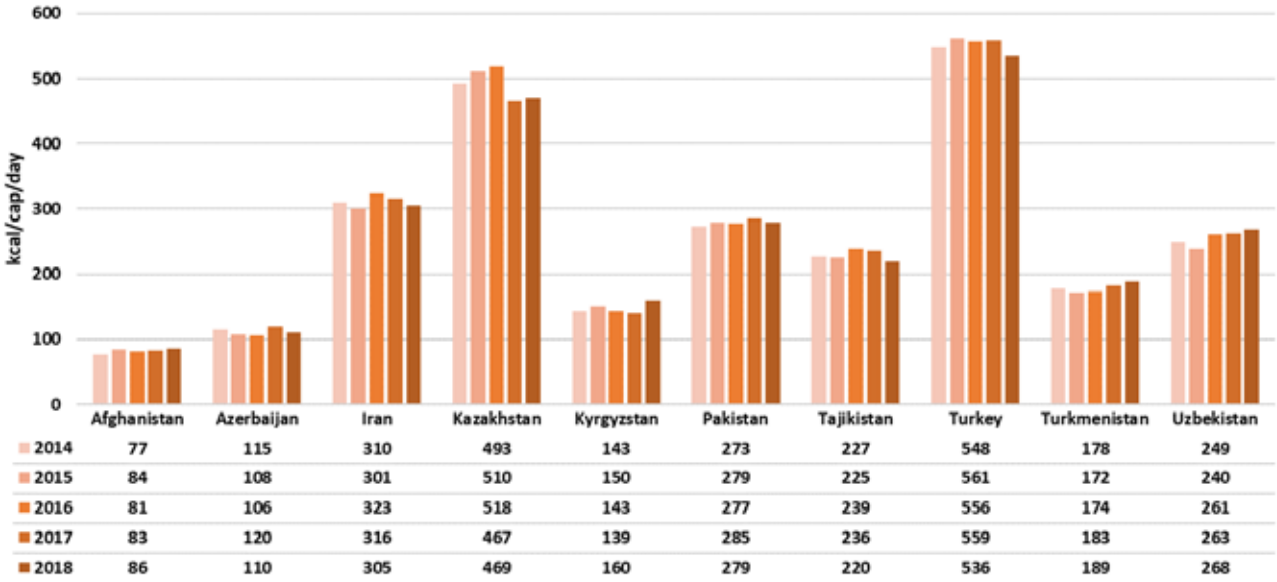
3.2.3. Food utilization

Per capita consumption

Declining undernutrition and continuously rising obesity trends point to the need to promote healthy diets and healthy food consumption environments.

The consumption of safe and balanced food in a healthy consumption environment with safe sanitation and clean water is key for effective utilization. The increasing urbanization, incomes and dominance of conventional long supply chains contribute to the consumption of highly processed food rich in oil, fat, sugar and salt but poor in micro-nutrient content. Furthermore, sedentary lifestyle in urban areas combined with excess and unbalanced nutrient intake (i.e. shifting from cereal-based diet to meat-based diet) underpin rising obesity in the region. Figure (22a) shows that Afghanistan, Kyrgyzstan, Pakistan, Turkmenistan and Uzbekistan witnessed an increasing trend in the per capita supply of vegetable oil during the most recent observation periods from 2014 to 2018. In previous periods, as Figure (22b) shows, all ECO member states experienced fluctuating trends of vegetable oil supply mostly in an upwards direction. In terms of sugar supply (Figure 23a), during the latest period, Azerbaijan and Kazakhstan experienced decreasing trends. However, with the exception of fluctuations in Turkmenistan and Kyrgyzstan, the remaining ECO member states saw slightly increasing trends. Between 2000 and 2013, six out of ten ECO countries, namely Afghanistan, Azerbaijan, Iran, Kyrgyzstan Tajikistan, and Turkey, saw conspicuous increases in sugar supply, while Kazakhstan, Pakistan, Turkmenistan and Uzbekistan witnessed fluctuations (Figure 23b). The high calorie-content of oil and sugar is reflected in the reduction of the PoU, while their adverse effects are partially reflected by rising obesity in the region.

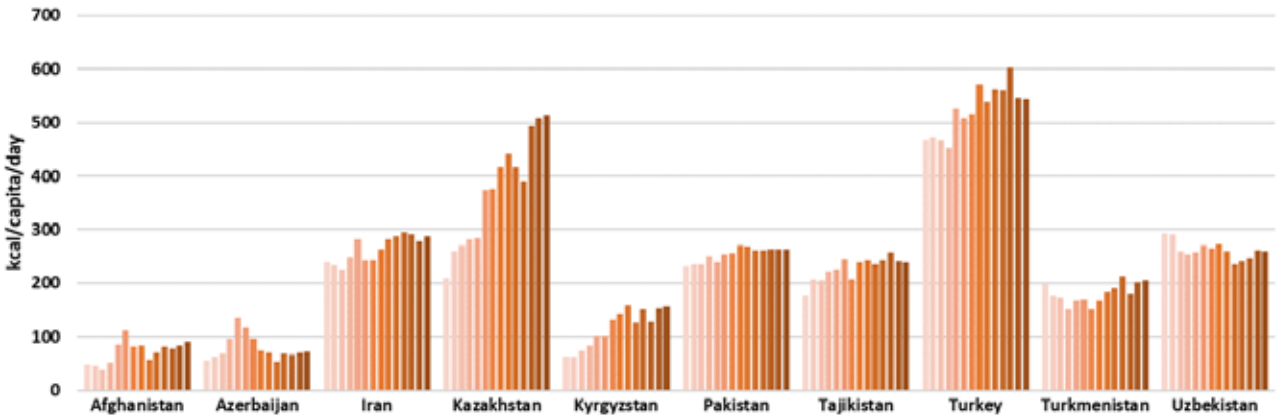
Figure 22a: Vegetable oil supply 2014-2018 (kcal/capita/day)



	Afghanistan	Azerbaijan	Iran	Kazakhstan	Kyrgyzstan	Pakistan	Tajikistan	Turkey	Turkmenistan	Uzbekistan
2014	77	115	310	493	143	273	227	548	178	249
2015	84	108	301	510	150	279	225	561	172	240
2016	81	106	323	518	143	277	239	556	174	261
2017	83	120	316	467	139	285	236	559	183	263
2018	86	110	305	469	160	279	220	536	189	268

Source: FAOSTAT.

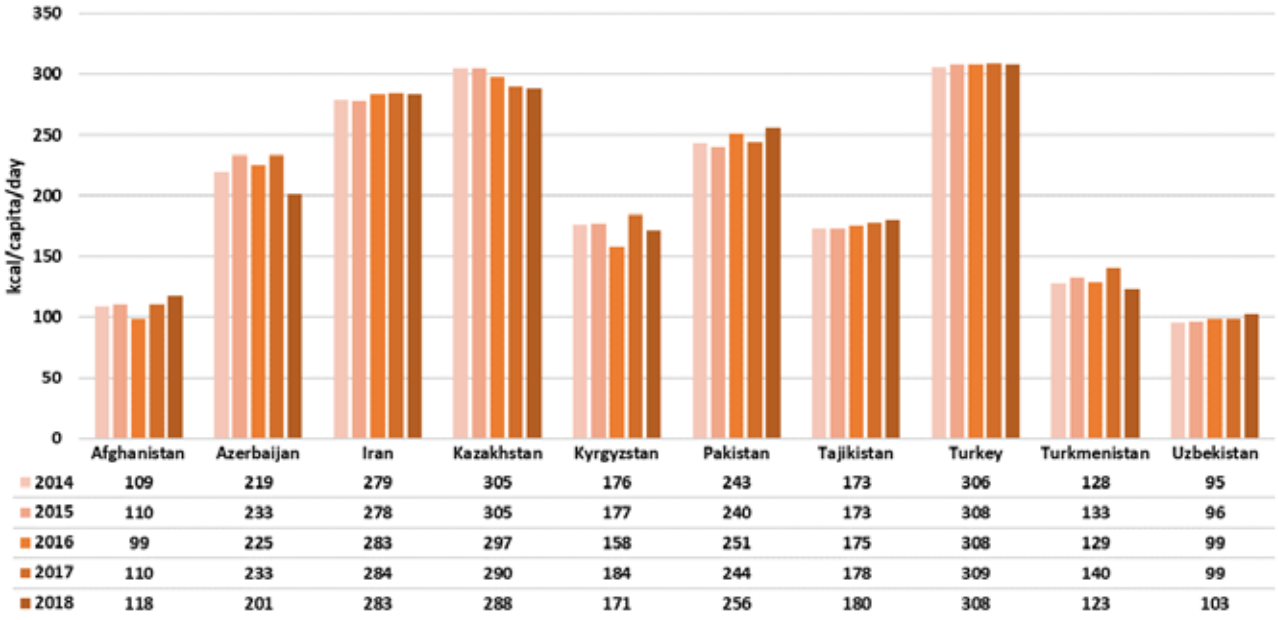
Figure 22b: Vegetable oil supply 2000-2013 (kcal/capita/day)



	Afghanistan	Azerbaijan	Iran	Kazakhstan	Kyrgyzstan	Pakistan	Tajikistan	Turkey	Turkmenistan	Uzbekistan
2000	48	55	238	209	62	232	177	468	198	294
2001	46	63	233	259	62	236	207	473	177	291
2002	38	68	226	271	74	236	206	467	174	260
2003	51	96	249	282	83	250	222	453	150	254
2004	85	135	282	284	102	238	225	525	167	258
2005	112	117	243	373	102	254	245	509	170	271
2006	82	96	242	376	133	255	207	516	151	266
2007	84	74	263	417	143	270	239	570	168	272
2008	58	71	282	441	159	268	242	539	184	259
2009	70	54	288	417	127	262	236	562	190	235
2010	82	69	295	390	151	262	243	560	212	241
2011	77	67	292	493	129	263	258	602	181	247
2012	83	71	278	509	152	264	240	546	201	262
2013	90	73	287	515	157	263	238	545	206	259

Source: FAOSTAT.

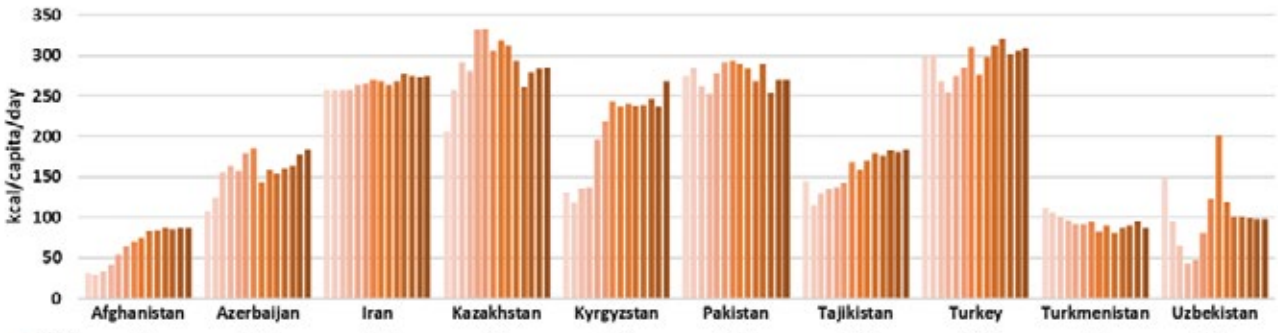
Figure 23a: Sugar supply 2014-2018 (kcal/capita/day)



	Afghanistan	Azerbaijan	Iran	Kazakhstan	Kyrgyzstan	Pakistan	Tajikistan	Turkey	Turkmenistan	Uzbekistan
2014	109	219	279	305	176	243	173	306	128	95
2015	110	233	278	305	177	240	173	308	133	96
2016	99	225	283	297	158	251	175	308	129	99
2017	110	233	284	290	184	244	178	309	140	99
2018	118	201	283	288	171	256	180	308	123	103

Source: FAOSTAT.

Figure 23b: Sugar supply 2000-2013 (kcal/capita/day)



	Afghanistan	Azerbaijan	Iran	Kazakhstan	Kyrgyzstan	Pakistan	Tajikistan	Turkey	Turkmenistan	Uzbekistan
2000	31	108	257	205	130	275	145	298	111	149
2001	30	125	257	257	118	284	115	301	105	96
2002	34	156	258	292	136	262	129	269	101	66
2003	42	164	258	281	138	252	135	255	97	44
2004	54	157	263	331	197	278	137	275	92	47
2005	65	179	265	333	219	292	142	284	92	81
2006	70	186	270	305	244	293	168	311	94	122
2007	75	144	268	318	236	289	159	276	82	200
2008	83	159	264	312	240	283	170	298	90	119
2009	84	153	268	293	238	268	179	312	81	101
2010	87	161	277	261	239	289	176	320	87	101
2011	85	164	275	280	246	254	183	302	91	99
2012	87	177	274	283	236	270	181	305	95	98
2013	87	185	275	284	268	270	185	309	87	98

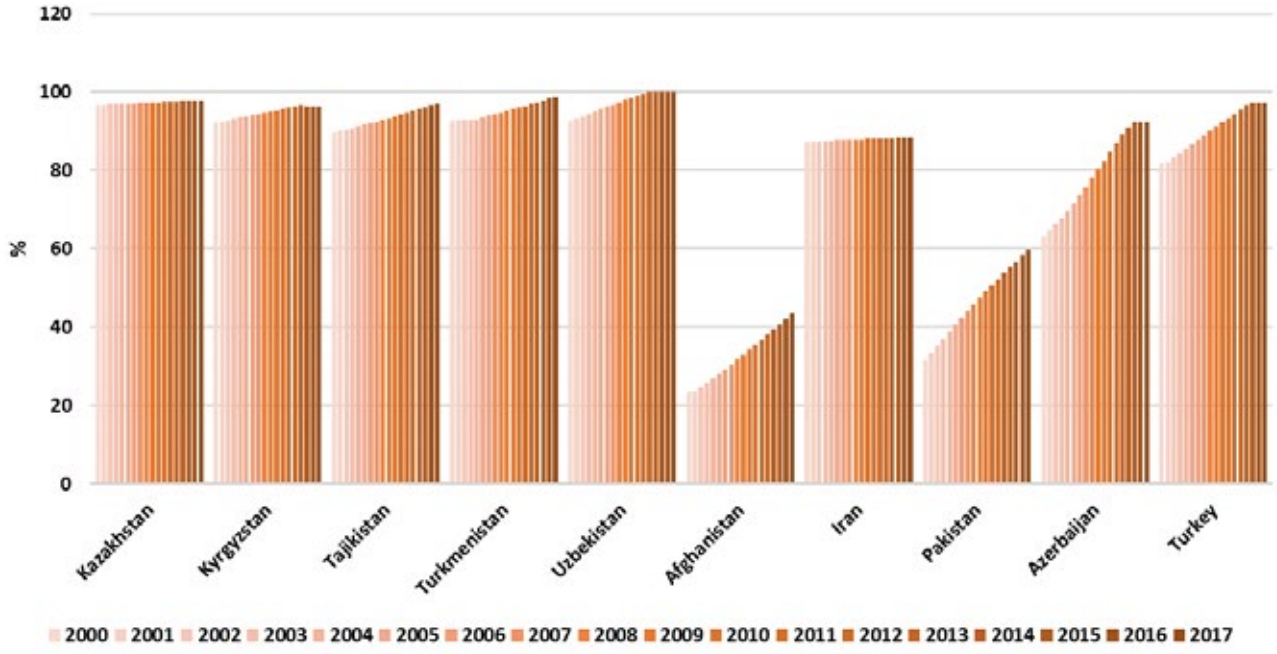
Source: FAOSTAT.

Access to safe water and sanitation

Food consumption environments in ECO member states recorded substantial improvements; however, maintaining the progress made so far requires investment in public health services.

Healthy food consumption environments, including improved hygiene and sanitation, access to safe water and awareness of safe disposal of child faeces, are essential for new generations to grow free of infection and illness. Although trends across ECO member states reflect significant progress in public services, in particular safe sanitation and clean water supply, ample scope exists for Afghanistan and Pakistan to improve sanitation services. Other countries in the region are very close to achieving a level above 95 percent (Figure 24).

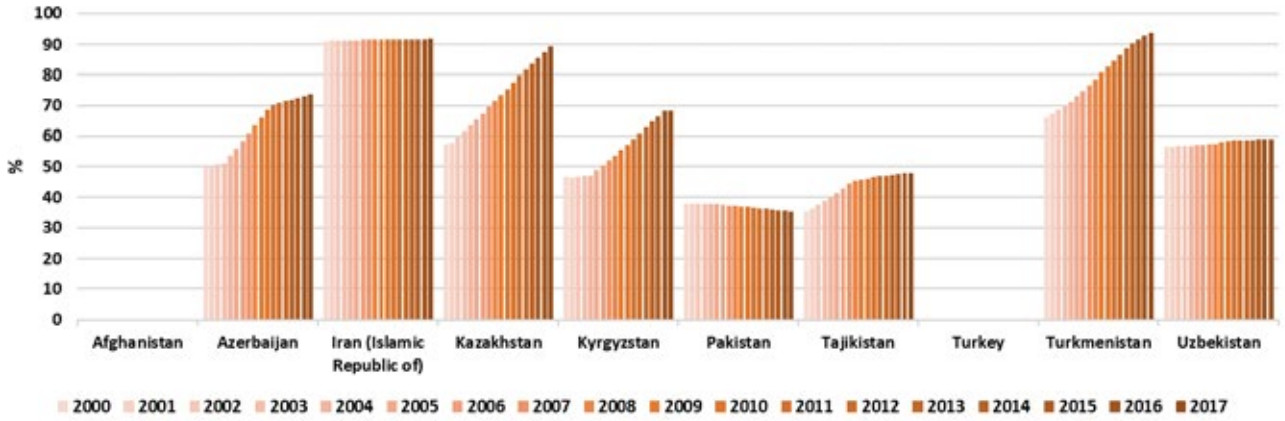
Figure 24: People using safely managed sanitation services (% population)



Progress in the provision of safely managed drinking water services has been slower compared to sanitation service provision (Figure 25). Iran, Turkmenistan and Kazakhstan have achieved safe water availability for about 90 percent of their populations, while other countries, where data are available, ensured safe water in the range of 35 to 70 percent of their populations.

Investing in public health infrastructure is an area with high social and economic returns. Data from the World Bank show that government health expenditures across ECO member states are in general low, and that a noticeable difference across countries exists with respect to the share of government health expenditures in GDP. The most recent available data show that Iran occupies first place with 4.4 percent of its GDP, followed by Turkey with 3.4 percent, while Afghanistan and Pakistan have the lowest health expenditures in the regions. Health expenditures in other ECO countries range between 1.2 and 2.9 percent. From 2010 up to 2017, Turkmenistan has continuously maintained a GNP per capita higher than the world average, however, government health expenditures have stabilized at 1.2 percent of GDP. Average health expenses in ECO member states are about 2 percent, compared to the higher average health expenses of about 10 percent in the European Union.

Figure 25: People using safely managed drinking water services (% population)



Source: FAOSTAT.

3.2.4. Stability

Stability of food security

For half of ECO member states, cereal import dependency is critically high, but for the other half, dependency is not a critical issue, with Kazakhstan and Pakistan being net cereal exporters. Promoting regional trade should reduce the instability of food availability due to import dependency.

Stability concerns the continuity of sustainable food security processes involving food availability, access and utilization. At present, COVID-19 is the key threat to stability, with a high potential to influence every aspect of food systems and hence food security and nutrition. But there are other factors that undermine stability in food systems, including climate change, natural disasters, agricultural resource degradation, structural disruptions in national and global food systems, and changes in world prices. Specific SDG targets aim to establish stability in food security processes. SDG 1 (no poverty) seeks to improve and stabilize food access, while SDG 2.4 (making food systems resilient to climate change), SDG 13 (combating climate change), SDG 2.B (correcting and preventing trade restrictions), SDG 2.A, SDG 9.B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and SDG 11.A (improving infrastructure), SDG 15 (conserving and using land responsibly and halting biodiversity loss) and SDG 17 (enhancing finance, trade and global macroeconomic stability) all contribute to the stability of food availability. SDG 12 (responsible production and consumption) aims to improve the stability of food production and utilization. Last but not least, SDG 16 (promoting peace) aims to enhance the stability of all food security processes.

Factors that cause instability in food systems – production, processing, distribution, marketing and consumption – vary across countries due to their different social, political, economic and natural environments.

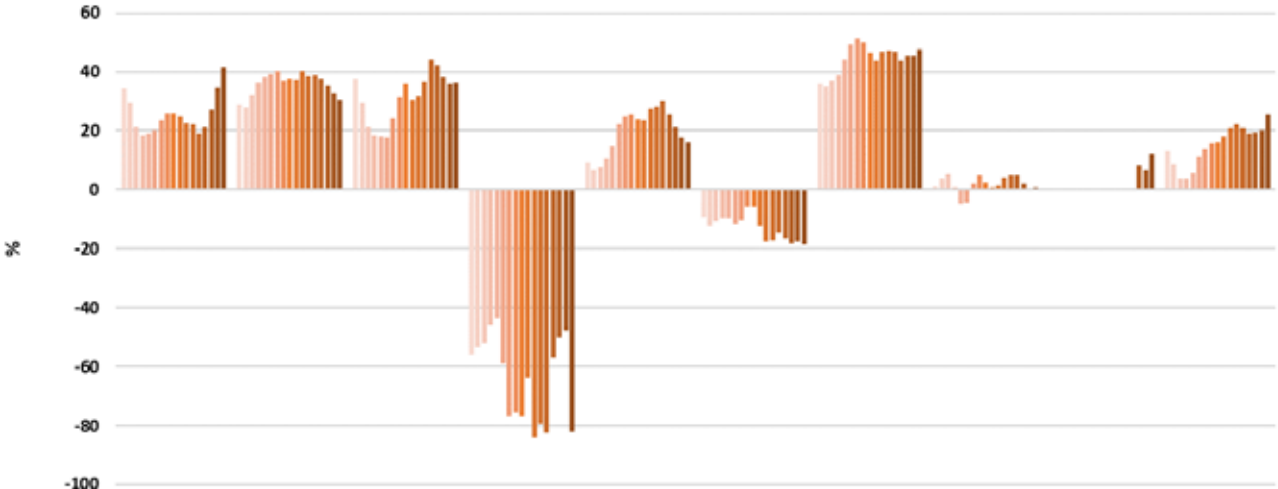
ECO member states have been subject to adversities ranging from dependence on cereal imports, to variability of food production and trade, increasing frequency of climate-related extreme events, shocks to domestic and world food prices, political instability and conflicts.

Cereal import dependency

High cereal import dependency is an important source of instability in food availability (Figure 26); however, ample scope exists for regional trade promotion to reduce this instability. During the period 2014-17, five ECO member states were highly dependent on cereal imports. The dependency of Afghanistan, Tajikistan and Turkmenistan increased continuously reaching 33 percent, 45 percent and 35 percent, respectively. The dependency of Azerbaijan and Iran has declined over time, however, although the current level remains quite high at about 34 percent. The rest of the region has experienced a dependency rate of less than 25 percent. Kyrgyzstan accomplished significant progress in reducing its dependency on cereal imports during 2014-17. With a very low level, Turkey's dependency does not pose an issue for food availability. Kazakhstan and Pakistan have been net exporters of cereals.

With respect to the share of food imports in total exports, the situation in Afghanistan is alarming with very large food imports, followed by Tajikistan with a food import share over 50 percent. The food import and agricultural commodity export dependencies of both Tajikistan and Afghanistan create vulnerability to external shocks on international commodity markets, which have consequences for domestic commodity prices and the affordability of food for the poor and vulnerable. A lower share of food imports is observed in Pakistan and Kyrgyzstan, with opposing trends in which the share has slowly increased in Pakistan and decreased in Kyrgyzstan. The rest of the region witnessed lower shares, indicating an ability to finance food imports for their population (Figure 27). Prevailing low world food and oil prices will benefit import-dependent ECO member states, while hampering the situation in cereal and oil-exporting ECO countries.

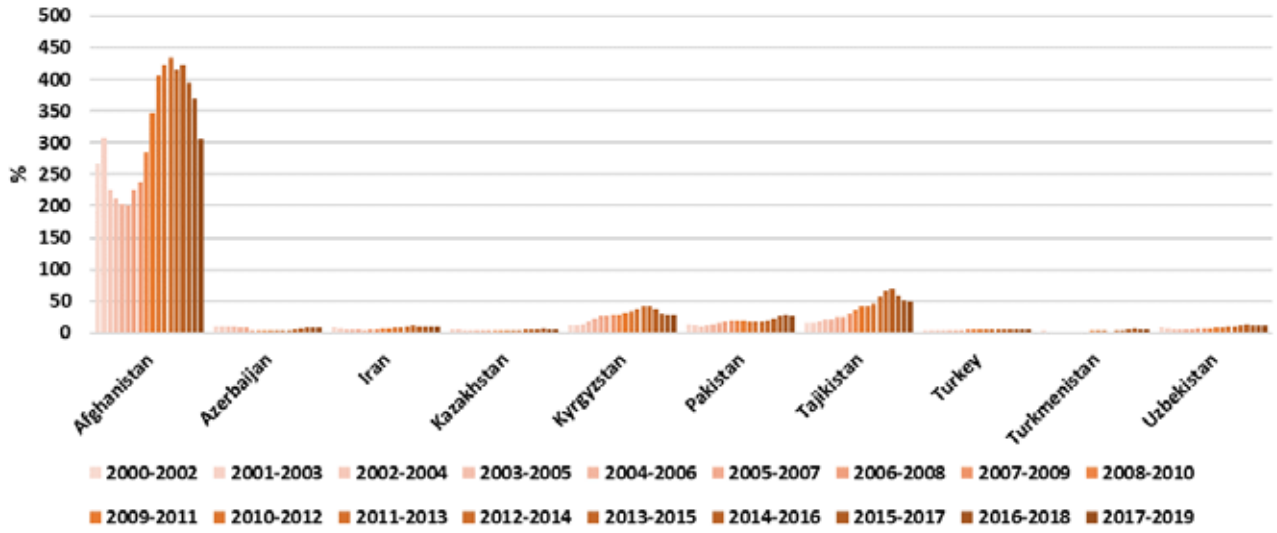
Figure 26: Cereal import dependency ratio (%)



	Afghanistan	Azerbaijan	Iran	Kazakhstan	Kyrgyzstan	Pakistan	Tajikistan	Turkey	Turkmenistan	Uzbekistan
2000-2002	34	29	37	-56	9	-9	36	1		13
2001-2003	30	28	30	-53	7	-12	35	4		9
2002-2004	21	32	21	-52	8	-11	37	6		4
2003-2005	19	36	18	-46	11	-10	39	1		4
2004-2006	19	38	18	-44	15	-9	44	-5		6
2005-2007	20	39	18	-59	22	-12	49	-5		11
2006-2008	24	40	24	-77	25	-10	51	2		14
2007-2009	26	37	31	-75	25	-6	50	5		16
2008-2010	26	37	36	-77	24	-6	46	2		16
2009-2011	25	37	31	-64	24	-12	44	1		18
2010-2012	23	40	32	-84	28	-18	47	1		21
2011-2013	22	38	37	-79	28	-17	47	4		22
2012-2014	19	39	44	-82	30	-15	47	5		21
2013-2015	21	38	42	-57	26	-17	44	5		19
2014-2016	27	35	38	-50	21	-18	46	2	8	20
2015-2017	35	33	36	-48	18	-18	45	0	7	20
2016-2018	42	31	36	-82	16	-19	48	1	12	25

Source: FAOSTAT.

Figure 27: Value of food imports in total merchandise exports (%)



Source: FAOSTAT.

Climate-related disasters

Climate change-related extreme events undermine the stability of food production and consumption; and the state has an important role in reducing disruptions in food systems.

Afghanistan and Pakistan are frequently hit by natural disasters (droughts, floods) that cause damage to agricultural land and soil, and transportation and water infrastructure, resulting in reductions in food supply and access to markets. To a lesser degree, Iran, Kazakhstan, Turkey and Tajikistan have experienced extreme events (Figure 28). Drought frequently affects countries in Central Asia, and is exacerbated by climate change, threatening the water security of countries in the sub-region which share common and limited water resources.

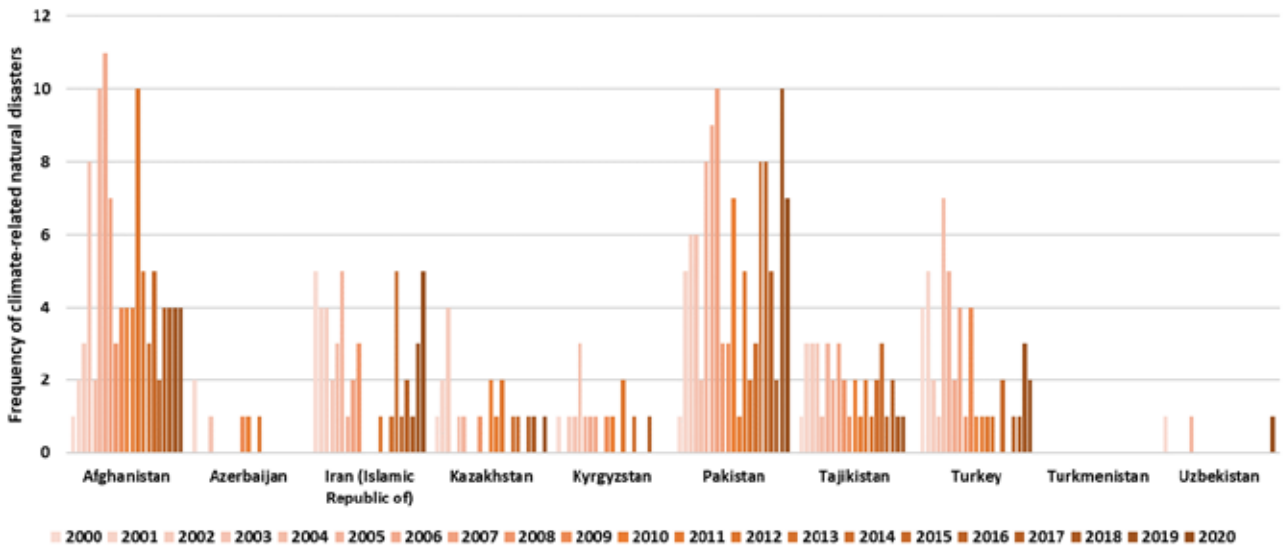
The prevalence of extreme events adds an additional burden to the livelihoods of poor and vulnerable populations, jeopardizing the stability of agricultural production systems. For example, more variable precipitation due to climate change poses challenges for agricultural production. The global cost of climate change adaptation is estimated at about 0.5 percent of GDP per year, which is far below the economic cost of the changes taking place, suggesting that adaptation to climate change should be seen as an efficient public investment area. The impacts of climate change on ECO member states are already significant, and it is likely that these effects will intensify in the future, implying substantial changes in future food production and consumption.

Governments have an important role to play in ensuring the stability of food supply in Afghanistan, Pakistan, Tajikistan and Kyrgyzstan, where natural disasters often disrupt supply channels. They have to ensure the stability of food supply, design incentives for safe food production of adequate nutritional quality, and facilitate access to food by the most vulnerable consumers. Sustaining the stability of food systems not only ensures the availability of sufficient food for consumption, but also ensures stable food prices and guarantees a certain level of food safety and quality, which in turn affects nutrition security and food utilization.

Climate change in Afghanistan is highly likely to hinder agricultural development, as suggested by projections of rising temperatures and frequency of extreme weather, both droughts

and floods. Iran has experienced significant variability of rainfall, floods and droughts that impede agricultural productivity. Pakistan is vulnerable to the impacts of climate change and natural resource degradation, with frequent extreme weather variability leading to droughts and floods. In the face of a rapidly increasing population and extreme weather, agricultural production is at risk. Kyrgyzstan is also vulnerable to the impacts of climate change. Drought and degradation of land, pastures and forest resources take a heavy toll on agriculture and the livelihoods of people. Meanwhile, shortage of water resources and sudden changes in temperature constitute an overall threat to national food security. Tajikistan is considered the most climate-vulnerable country in Central Asia, with flooding and droughts, land erosion, and loss of crops due to heat and frost. A considerable proportion of rural households are already experiencing natural shocks reducing their ability to cope with future natural disasters. Having adopted a National Strategy on Climate Change, Turkmenistan addresses the ongoing and potential impacts of climate change on its national economy and has aligned it with most of the Sustainable Development Goals (SDGs). Turkey's Climate Change Adaptation Strategy and Action Plan, which evolved from the National Climate Change Strategy (2010-2020) and the National Climate Change Action Plan (2011-2023), identifies five vulnerability fields: water resources management; agricultural sector and food security; ecosystem services, biodiversity and forestry; natural disaster risk management; and public health (General Directorate of State Hydraulic Works, Turkey). Climate change is expected to lead to increasingly negative impacts on water and soil resources and rural development that are vital for food production and food safety. For example, in the Gediz and the Greater Menderes Basins on the Aegean coastline, a 50 percent reduction in surface waters is expected towards the end of this century, leading to severe water shortages in agriculture, settlement areas and industry. Furthermore, increasing temperatures and waning water resources in the Mediterranean Region are expected to negatively affect the tourism industry

Figure 28: Frequency of climate-related disasters (floods, landslides, storms, extreme temperature)



Source: Centre for Research on the Epidemiology of Disasters (CRED) the Emergency Events Database (EM-DAT).

Urbanization

Economic and population growth accompanied by rising urbanization places increasing stress on agricultural and food systems. In the case of agricultural and food production, it

Population growth and urbanization demand productive and stable food systems to meet rising food demand.

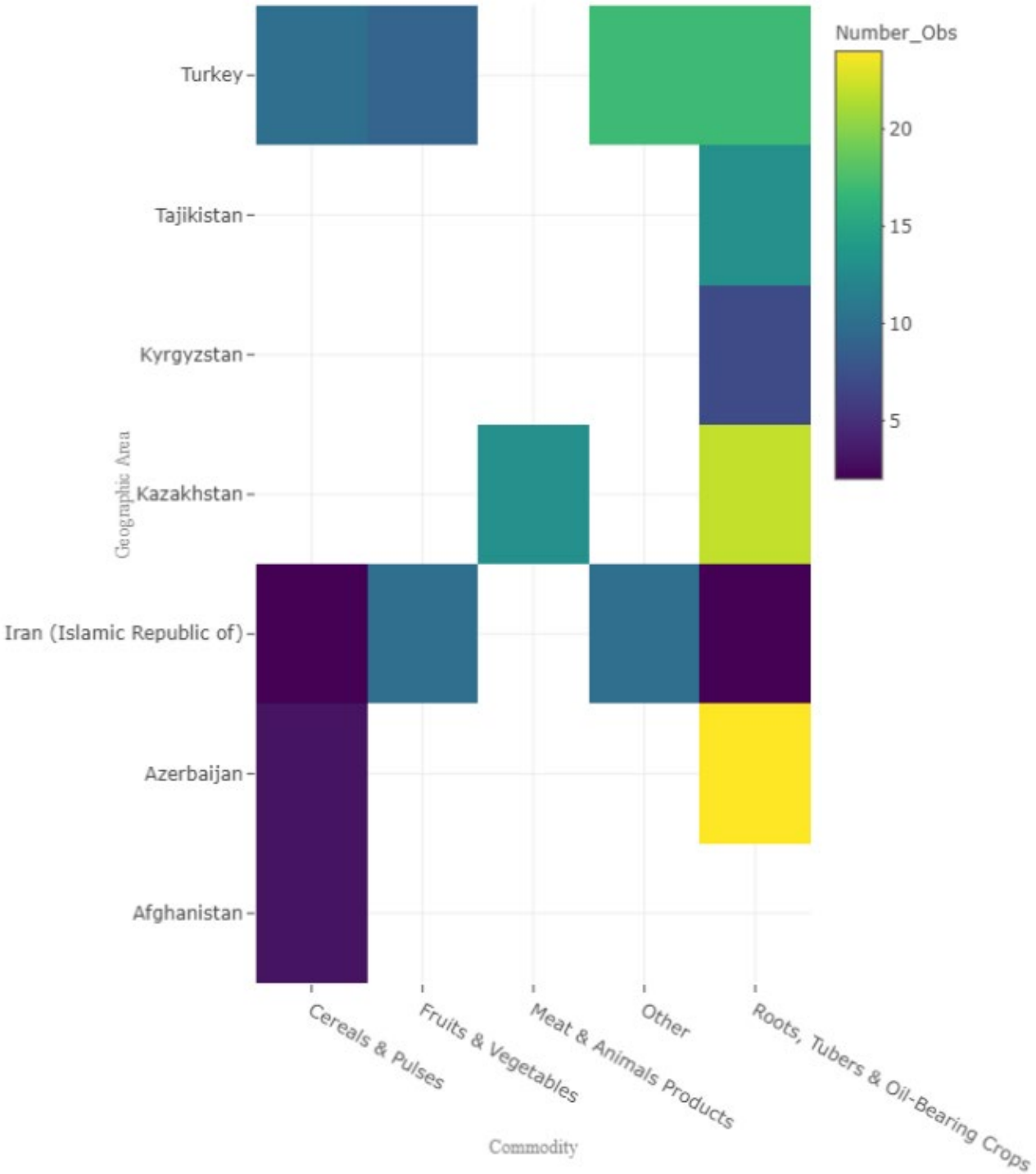
is important to address the negative effects of current production systems and technologies on the environment and natural resources and the impacts of climate change on agricultural production. In regard to consumers, there is a need to control excessive food consumption, adopt more nutritious and varied diets, and reduce food waste and losses and their environmental footprint. Both consumption and production should move towards increasing the economic, social and environmental sustainability of agricultural and food systems. The development of a sustainable food system is key to the stability of food and nutritional security as these systems are geared to meeting the food needs of both present and future generations without jeopardizing their economic, social and environmental bases.

Food loss and waste

It is estimated that around one-third of the world's food is lost or wasted every year. Target 12.3 of the Sustainable Development Goals calls for halving per capita food waste at retail and consumer levels by 2030, as well as reducing food losses along the production and supply chains. Food loss and waste represent losses for all actors along with food systems, including natural resources, producers and consumers. Therefore, food loss and waste are important means for achieving food security, nutrition and sustainable food systems, reducing greenhouse gas emissions and lowering pressure on natural resources.

Recent reports have raised concerns about the high level of food loss and waste along the food supply chain in ECO member states (for instance, UNEP 2021). However, country-level data are limited in most ECO countries and the scale of food loss and waste and its impacts on food security have not been well understood. Figure 29 summarizes the extent of available data on food loss and waste by country and food items. The colour changes with the amount of available information. The graph, therefore, illustrates data scarcity or abundance. In Turkey and Iran, data are available for four out of five food commodity groups, while other ECO member states have data for only one or two commodity groups, mostly cereals or potatoes. Having robust and updated data on food loss and waste is essential in order to prioritize efforts to address this issue.

Figure 29: Extent of available data on food loss and waste by country and commodity (2000-2017)



Source: FAO Food Loss and Waste Database.

4. Food security under the COVID-19 pandemic

4.1. Global macroeconomic effects in 2020

COVID-19 delivered a global economic shock of enormous magnitude, paving the way for heavy recessions in many countries with steep declines in employment, consumer demand and trade. Global growth suffered an estimated 3.3 percent decline in 2020 followed by gradually recovery of about 6 percent in 2021 (IMF, 2021). Disruptions are also projected to reduce growth prospects in emerging markets and developing economies (EMDEs) by about 3 percentage points (including China) and about 4 percentage points (excluding China). For advanced economies, a reduction of 2 percentage points is projected over 2020-2021. Sharply shrinking per capita incomes in EMDEs are likely to push millions of people back into poverty. Effects on low-income households would be severe, jeopardizing the significant gains made since the 1990s. For EMDEs, a speedy recovery requires strong public health care systems and safety nets; however, government budgets are under stress due to large declines in revenues from trade and taxes. Low oil revenues further erode fiscal space, putting pressure on exchange rates and government budgets, and weakening external positions.

Labour markets around the world were disrupted by the COVID-19 pandemic. In 2020, 8.8 percent of global working hours were lost, equivalent to 255 million full-time jobs (ILO, 2021). Young people (aged 15 to 24) are more likely to be unemployed or in worse-quality jobs than adults (aged 25 and above), while the estimated unemployment rate for young women is worse, compared to young men in general. The largest volume of global youth unemployment is projected to take place in the manufacturing, real estate, wholesale and accommodation sectors.

World merchandise trade volume fell in 2020 by 5.3 percent (WTO, 2021), but was is expected to increase by 8.0 percent in 2021. Commercial services trade was most severely affected through the imposition of transport and travel restrictions and the closure of many retail and hospitality establishments. Even in countries where light containment measures were adopted, growth prospects are poor due to the multiplier effects of declining global trade.

4.2. Effects on ECO member states in 2020

Employment and labour markets

The countries of Central Asia experienced employment challenges during the pandemic (ILO, 2021), while increasing demand for health services triggered calls for renewed public support to health systems. Labour migrants returning from the Russian Federation and Kazakhstan due to containment measures exacerbated both the social cost of the pandemic and the loss of government revenues, especially in Tajikistan and Kyrgyzstan where remittances account for around 30 percent of GDP. In terms of hours worked, employment losses were estimated at 9.2 percent in Europe and Central Asia (ILO, 2021). Healthcare systems were also under pressure. Even in countries where health expenditure has been relatively higher, such as Kazakhstan, healthcare system performance has lagged significantly behind OECD standards. Data show that average healthcare spending in Central Asia is about 6.3

percent of GDP, which is significantly below the OECD average of 15 percent. At the sectoral level, governments started to implement stimulus packages to protect labour markets and strengthen healthcare sectors through financial support to micro- and small enterprises and income support for workers.

Exports

Central Asian economies depend heavily on foreign trade, while having high levels of external debt. Regionally, the ratio of trade turnover to GDP is on average about 65 percent, which is higher than the OECD average of 58 percent (OECD, 16 November, 2020). The highly concentrated and undiversified production and export profiles of countries in Central Asia risk the stability of government revenues, employment, investment, productivity and longer-term recovery. Relying on exports of a few extractive commodities (Table 3) makes them especially vulnerable to external shocks. Reduced export earnings, particularly for hydrocarbon exporters such as Kazakhstan and Turkmenistan, due to low oil prices in 2020, hamper public finance aimed at stimulating local demand and businesses and meeting external debt commitments. Some economies in the region have substantial external debt, in particular Kyrgyzstan and Tajikistan. Estimates by the IMF (2020a) suggest an increase in debt-to-GDP ratios in 2020 by 7 percentage points in Tajikistan (to 52 percent of GDP) and 15 percentage points in Kyrgyzstan (to 69 percent of GDP). With relatively large reserves, Kazakhstan and Uzbekistan are situated in a better position with 2 percentage points (to 23 percent of GDP) and 8 percentage points (to 37 percent), respectively. To ensure a speedy recovery from the COVID-19 crisis, regional trade policies must be coordinated.

Table 3: Risk indicators and countries at risk among ECO member states

	Risk indicators by country				Countries at risk	
	Economic stability	Fuels and metals exports: % of merchandise exports	Remittances: % of GDP	Tourism receipts: % of total exports	Chronically food insecure (millions) Un-dernourished	Acute food insecurity (millions)
Afghanistan	0.77	11.7	4.4	3.1	10.6	10.6
Iran	0.29	74	0.3		4.0	
Kyrgyzstan	0.41	35.7	29.6	18.7	0.4	
Pakistan	0.39	4.2	7.9	2.7		
Tajikistan	0.32	52	29.7	15.3		
Turkey	0.30	6.7	0.1	16.6		

Source: Reproduced from Schmidhuber et al. (2020).

Several countries in the countries of ECO have adjusted their export policies on wheat and major food items to protect the livelihoods of their citizens in response to the market shocks and uncertainty due to COVID-19. In the early stages of the pandemic, Kazakhstan and Kyrgyzstan banned exports of some food items and introduced quotas for others. Food import-dependent countries such as Tajikistan and Azerbaijan were most at risk from these developments in food markets, which also experienced increases in average food prices. Kazakhstan later changed its export ban to quotas on wheat and wheat flour, while banning the export of live cattle, sheep and goats (Table 4). Net food importers adopted policies to reduce exports (Kyrgyzstan and Tajikistan) and facilitate imports (Kazakhstan, Turkey) with a view to protecting domestic consumers. Policy measures were implemented to ensure sufficient domestic supplies and avoid price increases of staple foods, including the provision

of agricultural loans and finance in Kazakhstan, Kyrgyzstan and Turkey, the implementation of administrative price controls and market interventions in Kyrgyzstan and Turkey, and the provision of social support to vulnerable populations for food access in Kyrgyzstan (FAO, 2014).

Food supply chains

Food systems experienced the effects of multiple challenges linked to COVID-19. As reported by FAO (27 July, 2020), the pandemic affected transportation, storage, sales, financial situations, input availability and labour markets in several countries of Central Asia. Transportation and storage services in agri-food value chains have been disrupted particularly in Kyrgyzstan and Uzbekistan. Sales declined due to the slowing down of food exports and disruptions in local markets, and severe problems especially in the sale of fruits and vegetables, potatoes and living animal products. Farmers in Tajikistan and Kyrgyzstan declared financial problems, crop farmers reported problems with the availability of seeds and fertilizers, and livestock farmers cited difficulties with access to feed, medicines and veterinary products. These problems concerning input availability signal upcoming difficulties in agricultural production. Regarding labour availability, a reduction in wages was reported in Kyrgyzstan and Uzbekistan due to reduced employment opportunities and/or oversupply of labour following the return of migrants due to COVID-19. Declining capacity for agricultural production and food distribution as well as income generation weakens future availability and the affordability of food. As noted by FAO (27 July, 2020), problems with agricultural input availability pose risks to next season cultivation and livestock farming, therefore, economic measures should respond to potential increases in the prices of imported inputs due to border closures and increasing trade costs.

Food consumption

Concerning food consumption, Tajikistan and Kyrgyzstan experienced significant increases in staple food prices due to COVID-19, which in turn lowered the affordability of normal diets, resulting in negative impacts on food security and nutrition. Under these circumstances, it is also crucial to protect market participants along agri-food value chains, especially the self-employed, wage workers and smallholders. Public support should target self-employed and smallholders to relax the financial constraints they face.

Governments of all ECO member states have responded by designing and implementing economic stimulus packages (Table 4), mainly to sustain economic activities, limit the immediate negative impact on businesses, and keep markets and agri-food supply chains functioning. The livelihood of people in the informal sector could have been supported through social protection programmes but the issue has been so far unaddressed in many countries in the region possibly due to limited public resources as well as the potential difficulties in identifying those working in the informal sector. Expanding existing social protection programmes is vital – including cash and food transfers, access to health care and employment-related guarantees - all of which are essential tools to help families cope with the short-term impacts of the COVID-19 crisis on incomes and consumption. Emergency food assistance provided by local governments (municipalities) in collaboration with civil society organizations, in some countries like Turkey, can help ensure the availability of food for the poor and vulnerable.

Afghanistan

The pandemic has exacerbated food insecurity in Afghanistan. Movement restrictions and market closures prevented nomadic populations from safely moving their flocks to grazing areas and accessing adequate veterinary inputs and animal feed/fresh fodder. Border closures, trade restrictions and a large increase in unemployment threaten availability and access to food (FAO, 2020b). In urban areas, food prices spiked due to declining supply, triggering food and livelihood insecurity. Public support to SMEs, particularly in the agri-business sector, aimed to secure sufficient domestic food supply, which had been interrupted by erratic border closures. In this regard, coordinated trade with neighbouring countries is vital to ensure wheat imports from Kazakhstan, imports of essential goods from India and China, and food imports from Pakistan.

Food price inflation in Afghanistan in 2020 (see Figure 32) shows that price effects of the pandemic have intensified during the period April – July 2020, reaching an all-time high of 17 percent in April of 2020. The average food price inflation during April-December 2020 was about 11 percent, which is twice higher than that in the same period in 2019. The overall inflation rate in the country was also high due mainly to changes in the food prices, fueled by panic-buying domestic demand as households stockpiled ahead of the pandemic. Pakistan's and Kazakhstan's ban on wheat flour exports compounded the price increases. In parallel to price increases, purchasing power for casual laborers deteriorated as lockdown measures reduced employment opportunities. All together combined with declining remittances, the food security situation worsened especially between April and May 2020, with about 11 million people (35 percent of population) being in acute food insecurity and required urgent humanitarian action (FAO, Giews).

Azerbaijan

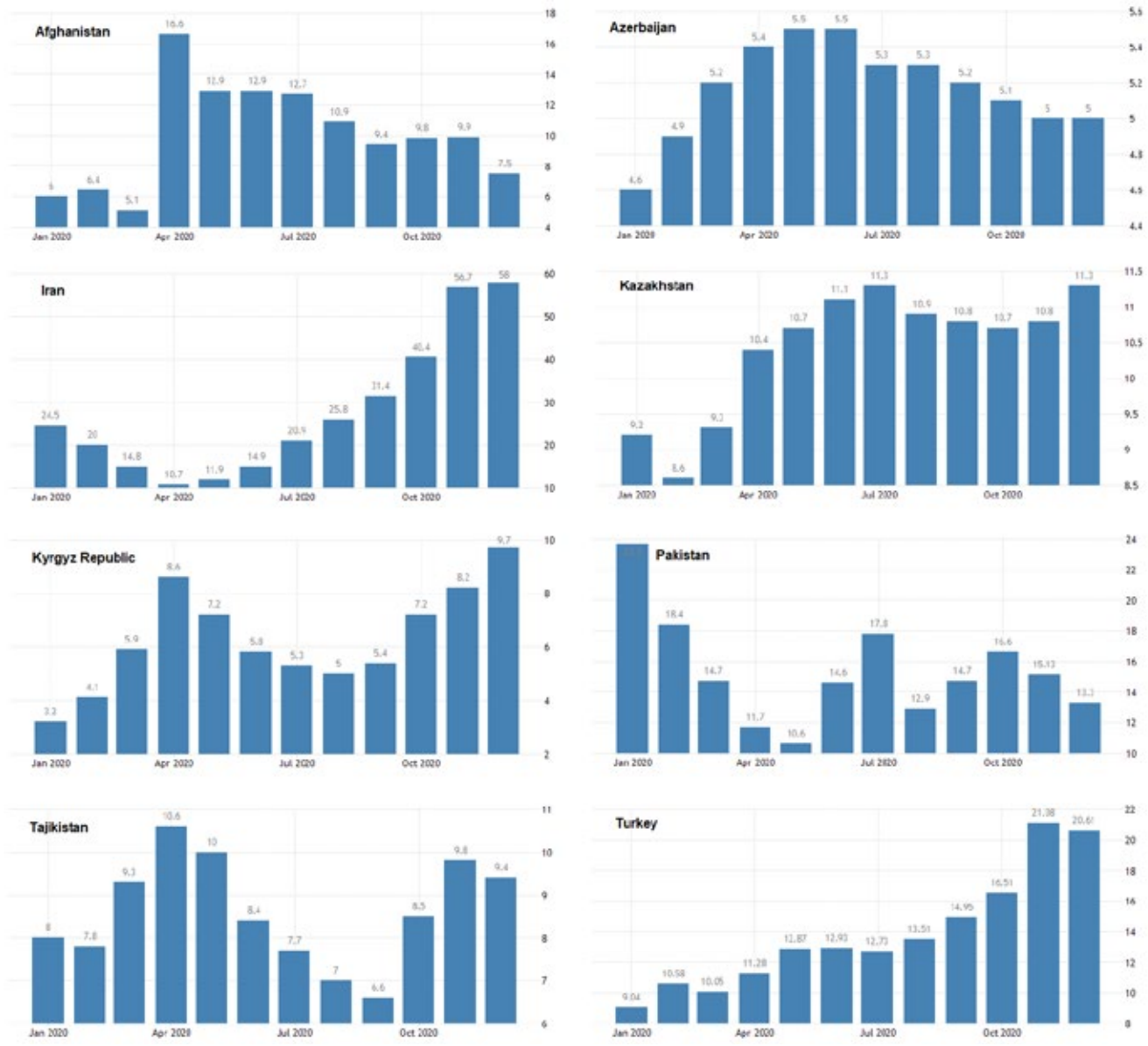
Azerbaijan's most recent growth was driven by oil exports. With low world oil prices throughout 2020 combined with the adverse effects of COVID-19, the country's GDP in 2020 fell by 4.3 percent (ADB, 2021). Substantial efforts are needed to prevent repercussions on the rest of the economy. A compensation programme was initiated to support the economy not only to respond to the immediate demands but also to pave the way for a speedy recovery after the pandemic (Tables 9, 10). Retail prices of potatoes and imported wheat flour have been increasing since February 2020 and increased particularly in April 2020 due to strong consumer demand amid worries over the pandemic. The cost of food in Azerbaijan during 2020 has increased an average of 5 percent (see Figure 32). Cereal harvests finalized in August 2020 remained near the five-year average level.(FAO, Giews)

Iran

Iran faced simultaneous challenges in 2020: the COVID-19 pandemic, frequent floods, and ongoing trade sanctions. Iran's food security policy targets self-sufficiency in major staple crops, however, the trade sanctions combined with smallholders' limited access to land, irrigation water and inadequacy of irrigation systems impede agricultural productivity and the commercialization of agricultural products (FAO, 2012). Government revenue suffers substantial reduction due to the low oil prices and the oil export sanctions, which double the burden on the import capacity of the country. During the COVID-19 pandemic, a universal

cash transfer program, access to food and health services for the most vulnerable groups were also at risk due to potential shortages of critical traded goods (WFP, 2020).

Figure 30: Food inflation in ECO member states (monthly, 2020)



Source: https://tradingeconomics.com/countries

Food price inflation in Iran in 2020 (see Figure 32) jumped from 10.7 percent in April to 58 percent in December 2020. Responding to the price increases of rice following the outbreak of the pandemic, the government lowered the custom duties on rice imports from 25 to 10 percent on 4 June 2020. The COVID-19 containment measures, combined with the economic slowdown and the rapid currency devaluation, especially the incomes of casual laborers suffered.

Kazakhstan

In addition to the adversities due to COVID-19, Kazakhstan's growth suffered from low world energy and commodity prices, driven by hydrocarbon, minerals and commodity exports. The country's GDP in 2020 fell by 2.6 percent (ADB, 2021). The National Social Security Fund (safety net) grants wage subsidies to employees of M/SMEs and partial and/or full support to firms to compensate their fixed costs. Liquidity support, loan guarantees and temporary

tax reliefs are among the instruments employed to help businesses sustain operations and shield employment. To ensure sufficient food for domestic consumption, exports of key food products were restricted, imports of food products and freight were maintained and food price controls introduced.

Food price inflation in Kazakhstan (see Figure 30) increased about 9 percent in February to 11 percent in December 2020. Meanwhile the retail prices of potatoes seasonally decreased between June and September 2020, due to increased market availability following the 2020 harvest. Near-average cereal production was obtained in 2020. Total cereal exports in the 2020/21 marketing year (July/June) are forecast to be well below the average volume, with wheat exports expected to be about 15 percent below the five-year average volume (FAO, Giews).

Kyrgyzstan

In Kyrgyzstan, weakening government finance risks access to food. The current account has deteriorated due to declines in export revenues as border restrictions disrupt international trade channels. An economic slowdown in has deteriorated has also led to declines in government revenues due to falling remittances from labour migrants. On top of these challenges, out of the 2.6 million labour force, an estimated 1.8 million workers were unemployed in 2020 (OECD, 16 November, 2020), while rapidly depleting public finances endanger the continuation of social safety net programmes. The measures undertaken mainly sought to ease business operations, with utility bills deferred, tax penalties cancelled, and liquidity support to SMEs (Table 4).

Food price inflation in Kyrgyzstan (see Figure 30) jumped from 6 percent in January to 16 percent in April, and fluctuated between 9 percent in August to 18 in December 2020. The average annual increase plateaued at about 10 percent in 2020. Retail prices of wheat flour stabilized in late 2020, but were higher than the year before, and prices of potatoes seasonally decreased between June and September 2020 because of domestic supplies from the new harvest. However, prices were well above their values a year before, after the sharp increases recorded in March and April 2020, following an upsurge in consumer demand due to concerns over the COVID-19 pandemic and the export limitations of Kazakhstan.

Pakistan

In Pakistan, agriculture accounts for about 20 percent of GDP and provides employment for 42 percent of the labour force (FAO, 2020b) (FAO, Country Profiles, Pakistan). More than 75 percent of the poor live in rural areas where employment is largely in the informal sector. COVID-19 has impacted rural livelihoods due to the loss of jobs and wages. Day laborers in agriculture and non-agriculture, smallholders, women- and child-headed poor families, displaced people and those suffering from existing health problems are among the most vulnerable groups. The continuity of critical food supply chains is vital for the most acute food insecure and vulnerable populations. Recent observations indicate rising local wheat prices due to an alarmingly low level of wheat stocks, while, stocks and prices for rice remain stable (GoP, 2020). Disruptions in the supply chain are likely to decrease the availability of production inputs, including seeds, fertilizers and other inputs necessary for the next season. The government protected agriculture and farmers by exempting them from confinement

measures to complete the harvest season. However, there is a need for secure transportation of materials and seeds between villages to reseed their fields (UN-OCHA, 2020).

Before the COVID-19 pandemic, food insecurity was already high, with between 40 and 62 million people estimated to be undernourished. In 2019, Around 25 percent of households (around 49 million people) were estimated to be moderately or severely food insecure, whereas 10 percent of households (around 21 million people) were severely food insecure (FAO, 2020b). The emergence of additional challenges linked to the pandemic further complicated the situation in Pakistan. An intensified desert locust infestation also affected the yield of crops during harvest time. Due to the reduced transport of goods and poor access to markets, smallholders faced difficulties in selling their products, which in turn led to wasted stocks and falling prices.

Food price inflation in Pakistan (see Figure 30) varied between 24 percent in January and 13 percent in December 2020. Prices of wheat flour, the country's main staple, showed a steady upward trend throughout 2020. The prices of wheat flour and other important food items, such as milk, onion and chicken, remained high from the beginning of 2020 onwards constraining access to food by the most vulnerable groups (FAO, GIEWS).

Tajikistan

Tajikistan's growth is driven by raw material extraction and remittance-driven consumption, all of which render the economy vulnerable to deterioration in the external environment. Declining exports and returning migrant labour hamper public finances and investment capacity, undermining the country's ability to pay for imports, which are four times larger than exports (OECD, 16 November, 2020). With COVID-19, prices for staple goods increased in the market, partly driven by panic buying. To ensure the price stability of staple goods and to protect vulnerable populations, various measures were introduced, including tax benefits to SMEs and businesses and support for strengthening the capacity of the health system, among others (Table 4). In spite of ongoing uncertainty, domestic food prices in Central Asia have remained fairly stable, but both Tajikistan and Kyrgyzstan have experienced price increases.

Food price inflation in Tajikistan (see Figure 30) jumped from 11 percent in January to 17 percent in April 2020, then steadily declined to 8 percent in August 2020. However, food inflation rose again to 14 percent in November and 14 percent in December 2020. The retail prices of first-grade wheat flour, after remaining relatively stable between June and October 2020, increased in November, with seasonal trends exacerbated by the depreciation of the national currency. Although prices declined in December, they remained well above the levels of a year before, with the latest upward movements compounding the steep increases recorded between March and May 2020 due to an upsurge in consumer demand amid concerns over the COVID-19 pandemic, market disruptions and export restrictions in Kazakhstan, the country's key supplier. The weakened national currency, which lost 17 percent of its value rice against the US dollar during 2020, also supported the strong yearly increase in prices.

Prices of potatoes increased seasonally between November 2019 and March 2020 due to strong demand from consumers, fearing supply shortages due to the pandemic.

Prices showed an overall decreasing trend between April and September and increased over the following two months, reaching in December 2020 levels above those a year before. Cereal imports in 2019/20 were at near-average level, accounting for more than half of domestic consumption of cereals. Wheat represents more than 90 percent of cereal imports.

Turkey

Agricultural activities were regulated to sustain production during the early stages of the pandemic. To ensure uninterrupted marketing and supply of food, various measures were taken to enable farmers and seasonal workers to access farms, greenhouses and markets. In addition, Digital Agriculture Market (DİTAP), a digital market encompassing the entire food supply chain from production to consumption, was established to promote contractual agriculture practices.

Food price inflation in Turkey (see Figure 30) increased steadily from 9 percent in January to 21 percent in November and December 2020. General consumer price inflation also increased due to currency depreciation, and the annual food inflation rate of 21 percent in November 2020 was the highest rate since early 2019. The forecast for cereal imports decreased in 2020/21, while exports are expected to increase. During the 2020/21 marketing year (July/June), aggregate cereal imports – mainly wheat grain for processing – were about 30 percent below the level of the previous year. Cereal exports – mainly wheat flour and wheat products – were forecast at about 20 percent above the level of the previous year.

Turkmenistan

Turkmenistan's growth is driven largely by the export of hydrocarbons, but its highly overvalued currency hampers not only government revenues but also other export-oriented enterprises. According to OECD (16 November, 2020), over 80 percent of exports go to China,

rendering the economy highly sensitive to developments in that country. The immediate impact of COVID-19 in China has already affected Turkmenistan's export revenues, with a 17 percent decline in China's imports of Turkmen natural gas. The 2020 wheat output is estimated at 1.4 million tonnes, well below the 2019 high, due to a 10 percent year-on-year reduction in plantings in favour of more profitable cotton cultivation, but 6 percent above the five-year average, amid the use of high-yield seeds and favourable seasonal weather conditions (FAO, 2020h).

Uzbekistan

Uzbekistan has one of the most diversified export baskets in Central Asia, with a wider range of trade partners than most countries in the region. Over recent years, strong export growth and remittances contributed to the narrowing of the current account deficit. But with the COVID-19 outbreak, the Uzbek economy saw a fall in prices and sales of natural gas to the Russian Federation and China as well as a drop in remittances from workers in the Russian Federation and Kazakhstan. Out of 19 million in the labour force, only 5.7 million are employed in the formal sector, leaving a large number of people vulnerable to the slowdown (OECD, 16 November, 2020). Food price inflation in Uzbekistan increased 17 percent during 2020 (Trading Economics). To prevent further deterioration in economic growth, an Anti-Crisis Fund was established to finance immediate medical and quarantine expenses, distribute social benefits and, interest subsidies, defer loan repayment, issue, guarantees to businesses and develop regional infrastructure. Moreover, excise tax and customs duties for the import of basic consumer goods were suppressed until the end of 2020 (Table 4).

Outlook and prospects for recovery

Overall, macroeconomic conditions under COVID-19 offered a weak outlook for food security in ECO member states. Public resources were allocated to protect food chains, businesses and unemployed citizens in general. There is, however, a rural–urban divide, with relatively less targeting of rural development, although a vast majority of poverty-stricken and vulnerable populations reside in rural areas. Logistic disruptions along agri-food chains, rising unemployment and food price spikes in some countries need to be monitored closely. Negative effects were observed in the fish, milk-dairy and livestock, and perishables supply chains that require timely and safe transportation and storage, as well as the grains and pulses supply chains (FAO, 29 April, 2020). Poor market connectivity (input/output markets and rural/urban markets) has resulted in declining sales of products as the linkages between producers and consumers in urban centres have been disrupted due to implemented health and related economic measures.

Prospects for recovery after the pandemic depend largely on the strength of the recovery of global trade. Coordinated global, regional and sub-regional responses would accelerate the recovery, while individual and isolated national policy responses would not be sufficient to regain growth sufficient to sustain pre-COVID-19 food security levels. Drawing on the most recent developments surrounding the COVID-19 outbreak, policy actions should first target the most fragile elements of food systems. Firstly, along food supply chains, food transport operators and workers in the food manufacturing industry need to be protected to maintain the flow of food. Secondly, liquidity support (loans, credits, cash assistance, debt restructuring) to farmers/firms is required to ensure the effective flow of imported inputs,

especially fertilizers, pesticides, veterinary products and packing materials. This is essential to support preparations for the new farming season and the manufacturing production cycle. Thirdly, market infrastructure and rural-urban connectivity represent potential areas for interventions. Improved capacity utilization of the available cold storage facilities requires new logistical planning, notably for dairy, milk, meat products and perishables, in order to reduce food waste. Furthermore, the combination of safe and improved rural-urban connections and new social protection programmes will help minimize expected food loss and waste from approaching expiration dates.

4.3. Effects on agricultural and food trade in ECO member states

ECO member states are more exposed to agricultural import disruptions (i.e. share of agricultural imports in total imports) relative to export disruptions (i.e. share of agricultural exports in total exports) (Table 2).

Table 2: Exposure of ECO member states to supply and demand shocks

	Exposure - Share of II	Exposure - CFC per employee	Exposure - GO per ag Worker	Exposure - Share of ag export	Overall SUPPLY exposure	Exposure - Share of food exp	Exposure - Share of ag import	Overall DEMAND exposure
Afghanistan	Low	Int. Low	High	High	Int. High		High	
Azerbaijan	Int. High	Int. High	Int. High	Low	Int. Low	High	Int. High	High
Iran	Int. High	Int. High	Int. Low	Int. Low	Int. Low	Int. Low	High	Int. High
Kazakhstan	Int. High	Int. High	Int. Low	Int. Low	Int. Low	Int. Low	Int. Low	Int. Low
Kyrgyzstan	High	Int. Low	Int. High	Int. Low	Int. High	Int. High	Int. Low	Int. Low
Pakistan	Low	Int. Low	Int. High	Int. High	Int. Low	High	Int. High	High
Tajikistan	Low	Int. Low	High	Int. Low	Int. Low	High	Int. High	High
Turkey	Int. High	Int. High	Int. Low	Int. Low	Int. Low	Int. Low	Low	Low
Turkmenistan	Int. Low	Int. Low	Int. High	Low	Low		Int. Low	
Uzbekistan	Int. Low	Int. Low	Int. High	Int. High	Int. Low		Int. Low	

Source: Reproduced from Schmidhuber et al. (2020).

The import exposure of Afghanistan is high, followed by Azerbaijan, Iran, Pakistan and Tajikistan which have an intermediate-high level of exposure. The other five countries demonstrate low exposure to agricultural imports. Concerning export exposure, Afghanistan leads with high exposure, followed by Pakistan and Uzbekistan with intermediate-high level exposure. With high exposure to trade disruptions, Afghanistan is particularly vulnerable to deterioration in food security if recovery from the pandemic is prolonged. The exposure of other countries in the region varies between low and intermediate-low levels.

Global food production and inventories were high in 2020; however, these could be negatively impacted by disruptions in supply chains if governments restrict food exports indiscriminately to protect domestic consumer welfare. Uncooperative trade policies could also magnify the disruptions in global food markets, paving the way for spikes in world food prices.

Model-based forecasts by Espitia et al. (2020) indicate that due to protective export bans global food exports could decline between 6 and 20 percent, which would increase global prices between 2 and 6 percent on average. In ECO member states, food import-dependent countries such as Tajikistan and Azerbaijan are particularly at risk from these developments

in food markets. As one of the largest exporters of wheat and wheat flour, in the early stages of the pandemic, Kazakhstan imposed limits on the amount of wheat to ensure adequate domestic supply. However, starting from 1 June 2020, previously imposed bans on exports have been lifted, and wheat exports to Afghanistan have been secured by bilateral agreement. In this regard, it is important to note that ample scope exists for agricultural trade within the ECO. Trade between net exporters of cereals (Kazakhstan, Pakistan) and cereal import-dependent countries (Afghanistan, Kygystan and Tajikistan) should be promoted to reduce exposure to food insecurity risks.

Stable grain stocks and food prices as well as low oil prices in 2020 left no room for the health crisis to develop into a global food crisis. These conditions are in sharp contrast to those of the 2008-2011 crisis period, which was characterized by low food stocks and high food and oil prices.

However, poor and vulnerable populations in ECO member states may suffer from trade restrictions imposed as an immediate reaction to global crises such as pandemics. The immediate reaction to COVID-19 in most ECO countries has been to put limitations on the amount of food exports on the face of exchange rate depreciation, in order to ensure sufficient food for domestic consumption (Table 4).

If governments also start to progressively reduce health measures and social protection o prevent narrowing of the fiscal space, such reductions could compromise access to food by the poor and vulnerable. Governments now face a trade-off between the level of containment and the weakening of the economy in general, government finance in particular, and need to formulate policies to prevent a domino effect occuring in the rest of society.

The majority of ECO member states are also members of the WTO, but major trade policy differences that prevail across these countries risk undermining potential gains from the food trade. Some aim to integrate into world markets, while others impose trade restrictions, especially on food products of strategic importance. Azerbaijan, Kyrgyzstan and Turkey promote exports, while Uzbekistan implements heavy import duties and import/export limitations on certain strategic products. For wheat, a commodity of strategic importance, Azerbaijan set the import duty at zero. To promote exports, the state has established special institutions that support logistical and cargo handling centres for exports of perishable food products. In general, food safety remains a challenging issue for ECO member states as a whole.

5. Agriculture and nutrition nexus

5.1. Improved nutrition for development in ECO member states

Nutrition should be recognized as a fundamental factor behind quality food, good health, effective learning and economic development. Improved nutritional status is essential to establishing a resilient society since the malnourished are more susceptible to diseases that interrupt development processes. To date, the majority of ECO member states have recorded significant progress in nutritional development, but some are still lagging behind in regard to reducing levels of stunting, obesity, micronutrient deficiencies and diet-related non-communicable diseases. The overview provided in Section 3.1 confirms that limited consumption of nutritious food may significantly impede the future development process in Afghanistan, followed by Kyrgyzstan, Pakistan and Turkmenistan. The incidence of stunting is substantial, especially in Afghanistan, Pakistan and Tajikistan. Obesity is also on the rise in the region, putting strain on government budgets and economic growth due to rising health expenses and income loss from reduced work hours. The current obesity trend in the region also risks the productive capacity of labour due to increasing diet-related non-communicable diseases and disability in adulthood. Turkey, Iran, Kazakhstan and Azerbaijan are off-track with the highest obesity rates. Anemia, an indicator of poor nutrition and poor health, is also rising in ECO member states, threatening the health of future generations and development.

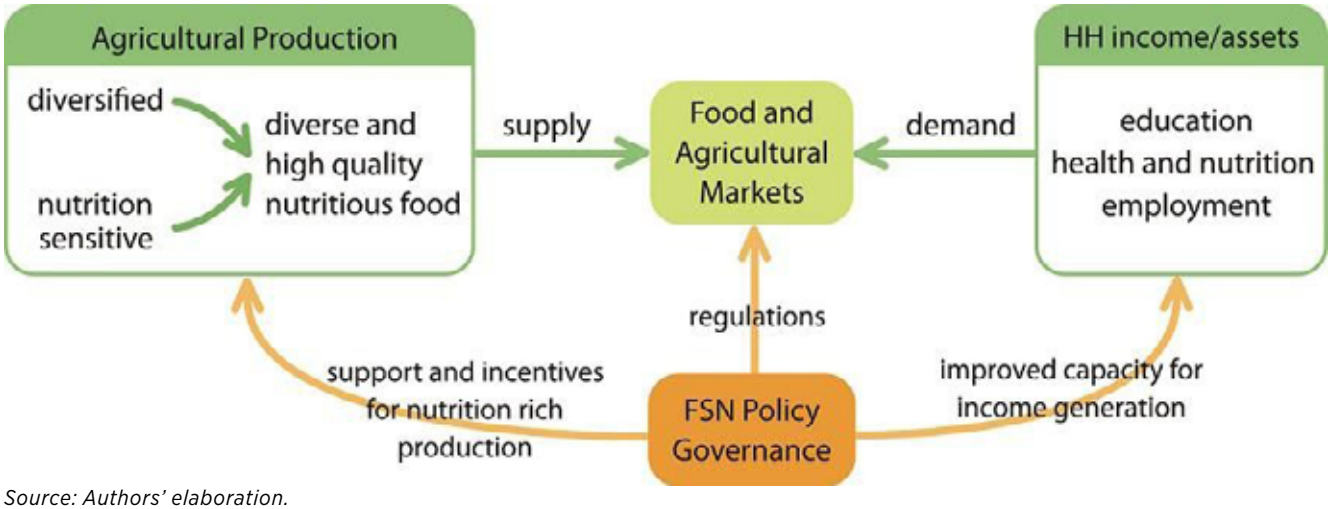
Undernutrition is the underlying cause of nearly half of all deaths in children under 5. In ECO member states, as of 2020, more than 13 million children under 5 were stunted or chronically malnourished. With long-term, harmful effects on physical and intellectual development, stunting is an especially noxious problem compromising future human capital and holding back productivity and economic growth. Poor nutrition in the first 1000 days of a child's life can lead to stunted growth, which is associated with impaired cognitive ability and reduced school and work performance (UNICEF, April 2021). SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-being) specifically aim to step up progress on health and nutrition outcomes to enhance both human and economic development prospects. Undernutrition can also curb growth through declining labour productivity due to premature adult mortality linked to diet-related non-communicable diseases. FAO estimates that an annual investment of USD 1.2 billion to improve the micronutrient supply globally through supplementation, food fortification and/or biofortification of staple crops would result in "better health, fewer deaths and increased future earnings" of up to USD 15.3 billion per year (FAO, 2013a, 2017). Agricultural growth reduces poverty, improves nutrition intake and labour productivity and further promotes growth. Targeting smallholder farmers who account for the majority of the poverty-stricken populations is a viable strategy to increase the consumption of nutritious foods. The evidence further suggests that agricultural growth is at least twice as effective in reducing poverty as GDP growth originating outside agriculture and is therefore pro-poor. Generally speaking, agriculture-led growth would lead to faster declines in undernutrition than non-agricultural growth.

5.2. Cross-sectoral policies at the heart of food security

Food represents the key bridging element between agriculture and nutrition. Agriculture produces food, which in turn provides nutrition. Although the linkage from agriculture to good nutrition and to healthy living is obvious, establishing it in reality calls for policies aimed at ensuring that agricultural practices enable nutritious food production, and that people's health status allows them to benefit from the nutrition contained in the food they consume. At the policy level, the linkage between agriculture and nutrition is undermined by the lack of cross-sectoral collaboration. Instead, agricultural and health policies are designed from a single sector perspective, compromising both food security and nutrition. Conventionally, agriculture and nutrition issues are treated in an isolated manner, and related policies and institutions are governed by two separate ministries: the Ministry of Agriculture and the Ministry of Health. In reality, however, agriculture, food production, nutrition and health are intertwined and inseparable from one other. Concerns over soil fertility, land productivity, irrigation water quality, environmental degradation and so on imply an acknowledgement that agricultural and environmental policies affect nutrition availability. It is also known that certain agricultural practices, including organic farming, ecosystem-based approaches, climate-smart agriculture and biodiversity considerations among others, all favour nutritious and environmentally responsible food production. As the production and consumption of nutritious food is influenced by the nexus of agriculture, environment and health policies, the health outcomes of food consumption should be addressed through the coordinated efforts of multiple sectors, including agriculture, environment, nutrition and health. A food system sensitive to health and nutritional outcomes should be promoted to achieve food security and improved nutrition, and to accomplish that, it is essential to bridge the disconnect between agriculture, health and nutrition policies through cross-sectoral food security and nutrition policies.

About 12 percent of agriculture projects funded in 2012 by the World Bank included nutrition-sensitive elements globally, increasing to 19 percent in 2014 (World Bank Blogs, 15 April, 2015) . This trend rationalizes the design of cross-sector food security and nutrition policy interventions based on the natural linkages between agriculture and nutrition (FAO, EU, WBG, CTA, 2014). Linkages between agriculture, nutrition and health have been known to exist but technological progress, such as innovations in crop and animal breeding and ICT use in agriculture, health and environment, has allowed these linkages to be quantified only recently, providing new scientific evidence for informed cross-sectoral policymaking. New knowledge generation underpins the shift from a single sector to cross-sectoral policy perspective and enables a systemic investigation of factors that determine the state of food security and nutrition. To accommodate the ongoing change in food security and nutrition policy design, new structures, such as food security committees, are required to govern processes involving multiple sectors. As of 2020, some ECO member states have such committees in place to manage cross-sectoral policy processes within the agriculture, environment, health and nutrition sectors. Nutrition-sensitive (like bio-fortified crop farming) and climate-smart agricultural practices, which are advocated in the context of the sustainable development agenda, are both outcomes of adopting a wider perspective that incorporates the contributions of agriculture to healthy livelihoods.

Figure 31: Cross-sector FSN policy domain



Source: Authors' elaboration.

A stronger agriculture-nutrition alliance should pave the way for the effective integration of nutrition-related objectives into agriculture policies and programmes for maximum impact on the poor (FAO, 2021). Kanter et al. (2015), Meeker and Haddad (2013), Pandey, Dev and Jayachandran (2016), and Webb and Kennedy (2014) have documented evidence of an association between agricultural interventions and nutritional outcomes. Specifically, the research shows that the production of targeted nutrition-rich crops, homestead gardens, and the diversification of the agricultural production system towards fruits and vegetables and aquaculture improve nutrient intake and nutritional outcomes. The key role of women in children's access to nutrition also points to the need to empower women through the provision of nutrition knowledge.

5.3. Pathways to improved food security and nutrition

Drawing on the existing evidence-based research, there are five key pathways for targeting food security and nutrition policy interventions (World Bank, 2007; Hawkes and Ruel, 2006, 2008; Haddad, 2010; The World Bank Agriculture and Rural Development Department, 2007):

- Pathway 1 links growth in food consumption to increased own production in cases where producers' market participation is low.

- Pathway 2 links increased food consumption to income growth from the sale of agricultural commodities in cases where producers' market participation is high.

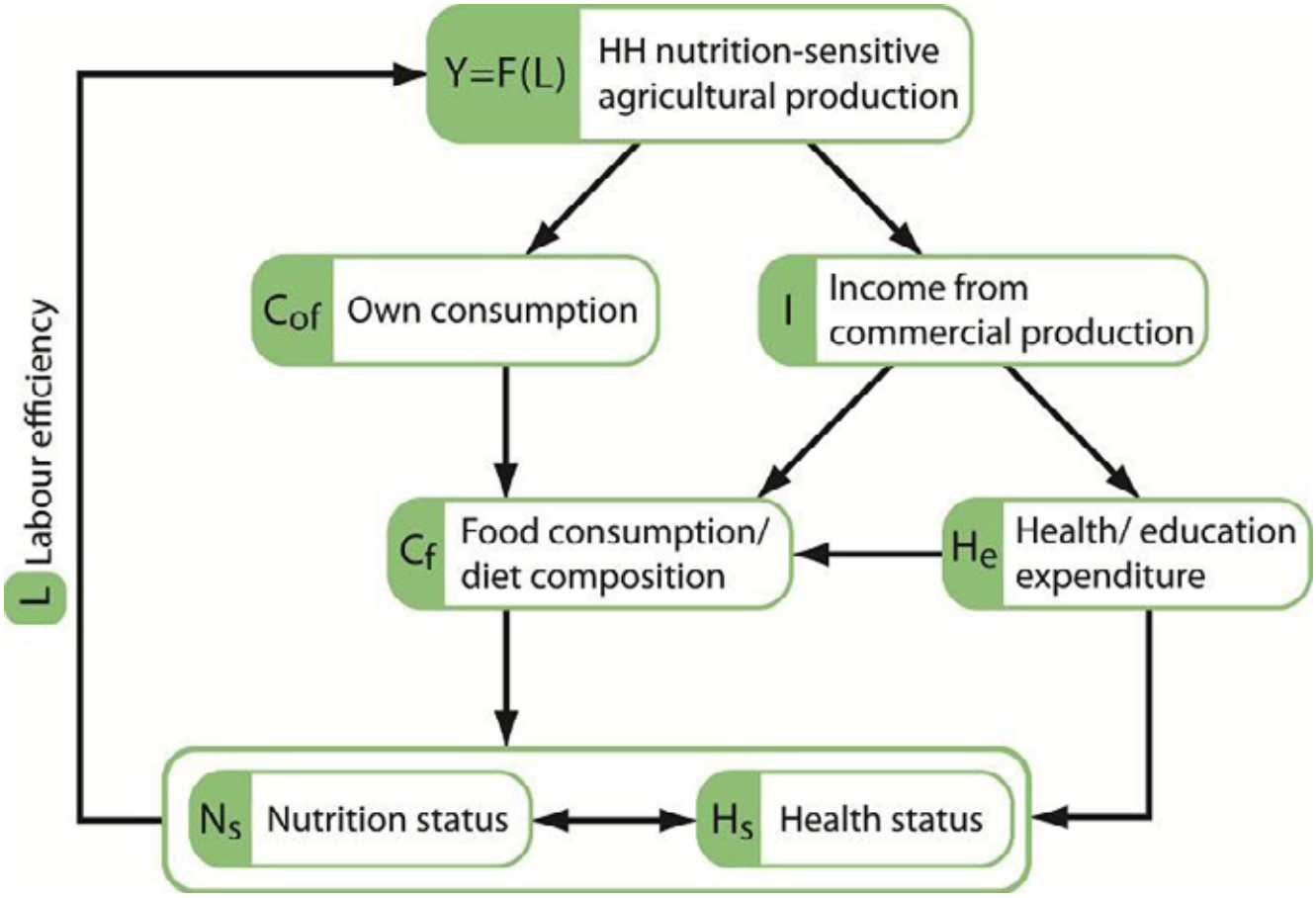
- Pathway 3 links the empowerment of women agriculturalists to improvement in household food security and child nutrition, as women's income has a greater positive effect on food security than that of men. Evidence shows that women are consistently more likely to invest in their children's health, nutrition and education than men.

- Pathway 4 relates increased food production to lower real food prices, and hence to rising real incomes and increased access to food.

- Pathway 5 links agricultural growth to broad improvements in access to food and

nutrition. Evidence suggests that growth in agricultural production results in lower food prices, higher real wages and a related reduction in poverty rates. Figure 32 maps a model structure in which pathways from household production decisions to nutrition and health status (i.e. FSN outcome) create a feedback effect on agricultural production, Y = F (L), through changes in labour efficiency (L = n(FSNoutcome)).

Figure 32: Pathways to FNS



Source: Authors' elaboration.

6. Outlook towards 2030

Food security in ECO member states is under attack from multiple directions. Health, employment and incomes are challenged by the ongoing COVID-19 pandemic; food systems and diets by urbanization, changing consumption patterns and population growth; and agricultural and food production by large-scale degradation of natural resources and climate change-related disasters. These challenges call for coordinated cross-sector policy interventions. The scale of the economic loss expected in the near future makes it necessary to simultaneously under take fiscal, monetary, trade, labour, health and social protection policy measures. The conceptual framework presented in Figure 2 explores the potential linkages between the food security effects of these challenges and the type of policy measures that promise progress towards SDG 2.

6.1. Concerning food availability

COVID-19 has exposed the key structural vulnerabilities of agricultural and food production. In particular, it has exposed the fact that supply chains tend to create large volumes of food loss and waste. In 2020, situation monitoring in some ECO member states reported an increase in unharvested food left in fields, with livestock farmers facing reduced access to animal feed, and decreased slaughterhouse capacity due to containment measures. Short supply chains seem a viable option to minimize the loss and waste, however, these chains contravene hygiene rules and social distancing requirements due to their reliance on informal and open-air markets. In the long term diversified agro-ecological farming, which is less dependent on imported external input use and minimally exposed to trade disruptions, would enhance the resilience of agriculture and food systems to shocks such as COVID-19. Agro-ecological practices can also improve disease resistance by re-localizing and decentralizing the breeding of plants and livestock (IPES-Food, 2020).

In the event of a prolonged COVID-19 pandemic or similar epidemics in the future, the effect on agricultural production would differ across farming systems. Intensive crop farming is highly exposed to disruptions in input supply chains as large numbers of external inputs are needed for farming activities (FAO, 2020f). Livestock farming, on the other hand, is highly labour-intensive, implying that labour shortages due to containment measures will substantially reduce livestock production.

Available economy-wide input-output data can be used to project the output and employment multipliers of a change in intermediate input and labour supply due to COVID-19 containment measures.

Labour shortages and the relaxation of hygiene inspections in the context of a long pandemic can have deleterious effects particularly on livestock and dairy production, risking the achievement of SDG 12.3 (halve per capita global food waste by 2030 at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses). Disruptions in the processing chain would reduce industry demand for livestock and dairy products leading to declines in farmers' income due to lower prices for their products. In the absence of adequate storage facilities, large amounts of meat and

dairy produce are likely to go rotten due to approaching shelf life deadlines. A similar type of loss has already taken place in Pakistan where farmers had to harvest lost produce (that they were previously unable able to harvest) or dump perishables, increasing the cost of farming for smallholders, which in turn weakens their motivation to invest in farming (WFO, 2020). In the medium term, smallholders need favourable loans and credit and easy access to farm inputs (seeds, fertilizers, pesticides). Compared to the scale of expected losses that smallholders would incur in the near future, support to revive primary agricultural production has been limited in ECO member states. Most of the support has targeted M/SMEs along the food supply chains. For example, the government of Afghanistan allocated 1.4 percent of GDP to a short-term employment programme and processing and storage facilities. Iran earmarked 4.4 percent of its GDP as subsidized loans for affected businesses and vulnerable populations. Kazakhstan provided tax incentives to agriculture and SMEs in other hard-hit sectors. Pakistan allocated support to SMEs and the agricultural sector in the form of energy bill deferment, bank lending, subsidies and tax incentives. Support was also provided by accelerating wheat procurement and reductions in regulated fuel prices. Turkey extended social assistance allowances for farmers (see Table 4 for a longer, but still evolving, list of policy interventions across ECO member states).

Economic measures such as a reduction in interest rate for loans need to be consistent with the input structure of sustainable farming systems (Schmidhuber et al., 2020). Capital-intensive farming is most likely to benefit from lower interest rates that would reduce the costs of external inputs such as pesticides used in the fight against the locust outbreak. However, sustainable agricultural practices should be adopted in pest use which is indirectly subsidized by low-interest rates. Labour-intensive farming in low and lower-middle income countries (including low-income Afghanistan and lower-middle-income countries Kyrgyzstan,

Pakistan, Tajikistan and Uzbekistan) is more exposed to direct disruptions in labour supply (World Bank 2016). Liquidity support for labour-intensive farming should stabilize farming operations if a rotating working day scheme is adopted to conform with social distancing measures.

Subsistence farmers and smallholders are likely to suffer the most from increasing scarcity of labour and intermediate inputs as this would lead to failure to plant crops on time an inability to ensure optimal input use, and a drop in harvesting and post-harvesting activities. The effects of a continued pandemic on crop farming would be devastating if crops were left alone in the field due to labour and external input shortages. Regional cooperation is therefore necessary to keep input trade channels safe and operational and to monitor and control cross-border pest activities.

In 2020, a desert locust upsurge threatened vast swathes of crops in Afghanistan, Iran, Pakistan and other Central Asian countries. According to the Ministry of National Food Security of Pakistan, the locust situation worsened in Pakistan after new swarms attacked from Afghanistan and Iran (Swarajya, 2020). The locust situation in Central Asia is also worrying, devastating crops over some 35 000 ha of land in the Kerki district of Turkmenistan. Meanwhile, Uzbekistan's Emergency Situations Ministry is taking measures to battle an invasion of locusts from Turkmenistan. The locusts are also devastating crops in Iran, Pakistan and Afghanistan.

Natural resource degradation strains agricultural and food production. Severe soil erosion and pollution due to the cutting of woody vegetation for fuel represent the key challenges for

Afghanistan. Pollution of the Caspian and Aral seas threatening life undersea in Kazakhstan, soil degradation in Pakistan, and inefficient use of river water for irrigation and excessive use of fertilizer and pesticides in Uzbekistan are among the key challenges that warrant attention. To address resource degradation of all kinds, a comprehensive and integrative investment plan is needed to enhance soil health and restore land, protect water and manage scarcity, mainstream biodiversity conservation and protect ecosystem functions, reduce losses, encourage reuse and recycle, and promote sustainable food consumption (FAO, 2018b).

Climate change limits agriculture's capacity to provide food, while population growth and urbanization generate more demand for food. A two-way interaction between climate change and agriculture calls for policies to promote climate-smart agriculture in order to sustainably increase agricultural productivity and incomes and improve land and water use and forest management (FAO, 2015, 2018b; HLPE, 2012).

Sustainable agriculture and ecosystem-based adaptation represent integral elements of climate-smart agriculture – is one of the most effective strategies to build resilience to climate change effects, while capturing potential mitigation co-benefits. Sustainable agriculture strengthens the conservation, restoration and management of biodiversity, ecosystems and their services, while improving the ability of crops and livestock to maintain crop yields under climate change. However, in order to encourage adaptation to climate change, improvements are also necessary to improve infrastructure, extension, climate information, access to credit and social insurance which are at the heart of rural development (FAO, 2016). Ecosystem-based adaptation strategies address the crucial links between climate change, biodiversity, ecosystem services and sustainable resource management. They improve ecosystem health through strengthening resilience to climate change and reversing the widespread degradation of agriculture's natural resource base – from soil to forests to fisheries – which threatens the sustainability of food production.

Increasing population, urbanization and food demand lead to an increase in the net importation of cereals and livestock meat. To meet increasing demand in ECO member states, enhancing crop and livestock breeding productivity is essential. In this respect, increasing international agriculture and food trade and ensuring accession to the WTO would improve welfare and food availability. However, to achieve this, compliance with WTO standards, especially for exports of processed food products, must be ensured through investment in institutional capacity development.

6.2. Concerning food access

The effective functioning of domestic and international transportation channels is vital to compensate for commodity and food shortages that may arise in the case of a continued COVID-19 pandemic or a similar epidemic in the future. Globally, commodity and food shortages were not an issue in 2020 as food stocks were high, supply channels were functioning well, and oil and food prices were low. However, commodity shortages may occur if transportation lines are broken where food is needed most. Therefore, it is vital to keep food supply/value chains operational and safe especially for high-value commodities (fruits, vegetables, meat and fishery) and staples (wheat, maize, corn, soybeans and oil seeds) (Cullen, 2020; FAO,

2020d; Schmidhuber et al., 2020). Since labour-intensive high-value supply chains are highly vulnerable to disruptions along chains, food policy interventions would need to invest in the development of safe and effective logistics and food storage facilities. The measures taken by ECO member states (Table 4) generally aim to support the most affected key industries and SMEs to prevent the current recession from worsening, but individual countries would need to focus financial and infrastructural support on strengthening logistics and improving storage capacity to backup food stocks in places where food deficiencies are likely to arise in near the future.

COVID-19 acts as a catalyst for deleterious interactions among SDGs. Progress towards SDG 2, which aims to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture by 2030, is at risk, thereby undermining other SDGs affected by SDG 2. For example, deterioration in the nutrition situation would jeopardize the achievement of healthy lives (SDG 3), which would, in turn, depress labour productivity and lower the income-generation capacity of farmers (as illustrated in Figure 31). This in turn would increase poverty (SDG 1), depress economic growth (SDG8) and reduce access to food, but increase demand for food with poor nutrition content. In the medium and long term, the consumption of food with poor nutrition would promote diet-related ill-health, cognitive development and learning deficiency (SDG 4) and food insecurity.

The focus of food security should be the rural poor, both women and men, since almost 80 percent of the world's extreme poor live in rural areas (FAO, 2015; HLPE, 2017). IFPRI projections (2020) suggest that urbanization will continue in Central Asia, but that a considerable share of the population will continue to live in rural areas. Therefore, strengthening market connectivity is vital to promote rural and urban linkages. The transformation of agri-

food systems, the promotion of value chains, the diversification of agriculture, investment in agricultural research, and climate-smart, nutrition-sensitive agricultural innovations all represent individual elements of a wider framework for market connectivity. Furthermore, investment in primary and secondary education and vocational training would help a productive rural labour force to emerge and capture non-farm employment opportunities IFPRI (2020).

Investment in rural and urban market infrastructure would accelerate the connectivity of rural-urban areas and reduce food loss and waste (FAO, 2020a; HLPE, 2014). To establish the required infrastructure, the main objectives must be to improve food storage and transport conditions, introduce technologies for preserving perishable foods (such as satellite technologies to monitor quality, reduce risk and shorten delivery time), and promote processing and packing methods to protect or add nutritional value along food chains (such as improved canning and freezing methods to ensure that perishable foods can reach those vulnerable groups who cannot access or afford fresh products).

Inclusive value chains should be targeted to promote the connectivity of smallholders with markets in traditional and mixed food systems (FAO, 2020e). Smallholders' timely access to market price information and public investment in storage infrastructure, including cold storage, would help them to sell their products in appropriate times and places. As observed in Asia, food markets operate more efficiently when underpinned by wide use of information technology and e-commerce. Accordingly, access by smallholders' to affordable information technology is critical for them to participate in activities along food value chains. Public policy interventions should also support smallholder market integration as the social benefits from market efficiency, reduced poverty and food insecurity are much larger than the social costs of the subsidies required. Furthermore, efforts to integrate rural women and youth into agri-food value chains promise significant improvement in access to food, especially for children under 5. In rural areas, incomes are low at only 70 percent of the average wage. Incomes are even lower for rural women who have limited access to loans (for example, gender-sensitive credit policy in the Kyrgyz Republic) (FAO, 2018a).

COVID-19-related disruptions to agri-food value chains risk access to food, with associated declines in purchasing power and increases in food prices. ECO member states are exposed to both supply and demand shocks at an intermediate-high level (Table 2). Among the most exposed countries are Afghanistan and Tajikistan, followed by Azerbaijan, Pakistan, Kyrgyzstan and Iran. A comparison of supply and demand exposure levels shows that demand exposure is more critical than supply exposure. In other words, access to food is likely to pose a greater problem than availability of food due mostly to sharp declines in purchasing power and increases in food prices.

During lockdown periods, ICTs play a critical role in keeping market channels open. The pandemic in 2020 demonstrated the extent to which ICTs could contribute to the resilience of food economies in stressful times. ICT applications, Internet of Things platforms, BiG Data, and artificial intelligence can all be exploited to gather real-time data in order to improve communication between producers, suppliers and buyers, and simplify the flow of food. To ensure access to food for wholesalers, retailers and consumers', ample scope exists for

policy reforms and investment to promote the development of innovative mechanisms, such as online food delivery platforms to coordinate supplies of fresh produce from farms to distributors, and consumers, and to mitigate productivity losses in the economy.

Large-scale unemployment and reduced work hours in 2020 due to the pandemic reduced incomes and thereby access to food especially for the poor. The unemployment figures show that lockdowns at the global level severely reduce economic activities and working hours in wholesale-retail trade, manufacturing, real estate business, and accommodation and food services sectors, followed by transport-storage-communication and the agriculture, forestry and fishing sectors (ILO, 2020). Such large losses in working hours mean that activities along the food supply and value chains slow down and depress global output (OECD, 2020c). This has at least two implications for food security. Firstly, loss of working hours puts at risk preparations for the next stage in manufacturing and agricultural production cycles, while at the same time forcing labour-intensive industries to substitute cash crops with staple food crops, thereby impacting household incomes and food security. Labour-intensive agricultural production that rely heavily on seasonal farm workers during harvesting, processing or transporting to markets constrain urban markets receiving produce from the rural sector. Therefore, it is critical for policy interventions to target the resilience of rural-urban market linkages to prevent price spikes in urban areas due to food shortages, as well as income loss in rural areas due to disruptions in agricultural production (ASEAN, 2020; ECLAC-FAO, 2020). Secondly, reduced working hours in key sectors spell disaster for the livelihoods of those relying on the informal sector and casual labour in the urban areas of developing countries (FAO, 2020g). In the absence of public support, large numbers of city dwellers are highly likely to return to rural areas, risking the spread of the virus to isolated areas. To address the potential health and food emergencies that may arise in isolated rural areas, there is a need to collect primary information in order to identify target groups and their food needs. Local governments' access to reliable information on target groups should facilitate the design and implementation of interventions aimed at strengthening the resilience of urban food systems while addressing urban governance gaps linking health and food systems in both urban and rural landscapes.

The economic measures taken across ECO member states undermine the importance of strong rural-urban linkages in food price stabilization. Governments seek to protect their economies mainly through SME support packages, and by targeted support to key sectors of the economy. For example, Afghanistan has provided financial support to businesses, market connectivity and the agribusiness sector; Kazakhstan has supported businesses to protect employment and incomes; Kyrgyzstan has prioritized businesses (SMEs in particular) and vulnerable populations; Turkmenistan has allocated support for to SMEs and enterprises producing essential goods; Pakistan, has also supported SMEs through the extension of regulatory limits on credit; and Turkey has provided support to affected firms and farmers (Table 4). Given the contribution of SMEs to overall domestic production, this strategy is understandable as a first reaction to the detrimental economic effects of the health crisis. However, there is a spatial bias in the policies implemented, favouring SMEs operating mostly in highly populated urban areas. There is now a need for policies that specifically target smallholders, employment in rural areas and smallholders' market connectivity. Under COVID-19 conditions, public food procurement through e-commerce or digital platforms (FAO, 2020e,2) and the establishment of safe food collection centres can be used to minimize

economic and food loss, while encouraging smallholders to participate in activities along the food chain. In cases of prolonged disruptions, the ability to resume production would be at risk if public support to smallholders was delayed.

6.3. Concerning nutrition and food utilization

Increasing obesity in the region, particularly among adults and school-age children, represents a new challenge. Life-style changes and increased consumption of food with a high fat and sugar content are significantly associated with obesity. In the countries of Central Asia, the number of overweight children under 5 increased substantially between 2012 and 2020. Except for Tajikistan, the prevalence of overweight has overtaken wasting among children in the region (IFPRI, 2020). In order to address overweight and obesity nutrition interventions are necessary to promote a healthy diet using food-based dietary guidelines (FBDGs), regulate the consumption of salt and industrially produced trans fats, and raise consumer awareness about their health effects. Appropriate use of food fortification in traditional and mixed food systems is another instrument to consider for reducing overweight (HLPE, 2014), delivering nutrients to large segments of the population without requiring radical changes in food consumption patterns, as well as reducing the risk of goiter, low cognitive function and iodine deficiency.

Healthy food environments are necessary to guide people towards safe and nutritious diets. Such environments can be developed by increasing the distribution of nutrition information through food-based dietary guidelines (FBDGs), food labels and food safety certification, by integrating nutrition education into school curricula and nutrition education programmes that target cities, schools, workplaces and food providers, and by developing food-based dietary guidelines for healthy and sustainable diets. These efforts not only create demand for nutritious and healthy foods but also help re-orient conventional agriculture towards nutrition-sensitive agricultural production. Instruments such as public procurement of food, food for work, social safety nets and so on. can be used for tackling existing inequalities at all levels, as well as increasing demand for nutrition-sensitive production, storage and distribution of food.

Enhancing the resilience of food systems is a viable policy intervention to prevent potential nutrition crises (FAO, 2013b,1; HLPE, 2017). Conventional food chains and increasing urbanization lead to greater consumption of heavily processed foods with a longer shelf life, with fresh fruits and vegetables less available in some conventional chains (World Bank Blogs, 13 May, 2020). This results in a vicious cycle where poor nutrient intake produces obesity and diet-related chronic diseases, a weakened immune system, and, in the current context, difficulty recovering from COVID-19. Evidence from the UK indicates that a very large percent of critically ill COVID-19 patients are overweight (HLPE, 2020). Switching to healthier diets and consuming more functional and nutritious foods rich in vitamins is important fortify the body's immune system in order to better ward off diseases and COVID-19 infection (FAO, 2020c; Galanakis, 2020). Such interventions should promote permanent changes in diets, consumer perception, and food choices to improve food system resilience to future outbreaks, life-threatening diseases and nutritional crises (HLPE, 2020; OECD, 2020a). To boost people's resilience to diseases in the short, the water, sanitation, and hygiene (WASH)

requirements should be internalized, in the longer term, eating habits should be re-oriented towards the consumption of nutritious and functional foods. Public awareness activities should urge people to consume healthy and diversified diets, while informed food policies should be integrated into a broader sustainable food production and consumption agenda to promote good health and economic growth.

Current problems facing vulnerable populations are not only concern health, but also access to safe and nutritious foods. While public policies are implemented to support the most affected disadvantaged groups, including mothers, young children and other disadvantaged groups, by cash transfers and direct food deliveries (IFPRI, 2020). There is a risk that people will demand more food over nutritious food. Social safety net programmes for nutrition, such as school feeding programmes, vouchers schemes for and price control of selective food items, subsidies for healthy foods and increasing taxation on unhealthy foods. will pave the way for a transition to healthy diets in low and middle-income countries (ScalingupNutrition, 2020). In the medium and long term, healthy diets would create more resources for health and nutrition interventions to fight infectious diseases like COVID-19, while building resilience for future generations. In the face of the ongoing COVID-19 pandemic and prolonged social distancing, there is also a need to complement existing social protection programmes with innovative digital programmes to support individuals and communities. Innovations in phone and web-based surveillance systems offer new tools for timely monitoring of vulnerable populations to improve targeting and programme design in a time of incomparable uncertainty. Food and nutrition surveillance systems should also be set up or scaled up to identify the scope and scale of health and nutritional crises, especially of fast-moving pandemics such as COVID-19 (UN, 2020).

However, health measures that necessarily slow down economic activities invite new health risks. Labour shortages and social distancing measures tend to relax existing food safety inspections, increasing the risk of widespread viruses or pathogens, for example, in slaughterhouses or food-processing factories. Reduced food quality and certification checks, including those required to facilitate trade, such as physical inspections of goods to certify compliance with sanitary and phytosanitary requirements along food supply chains, increase the potential not only for food-borne diseases to spread but also for food loss and waste (HLPE, 2014,2; OECD, 2020a).

The increasing spread of COVID-19 combined with labour shortages increases the likelihood of new health crises due to the fact that industrial agriculture and food production is highly susceptible to the spread of animal diseases and viruses through intensive livestock production and human-pathogen interactions (IPES-Food, 2020). Relatively speaking, monitoring and enforcing hygiene rules and social distancing requirements are much easier along commercial food chains than on informal markets along short supply chains.

Informed food policy interventions are necessary to respond to nutrition and health risks. The COVID-19 pandemic has all the makings of a perfect storm for health and nutrition. Although the outbreak will hamper the nutritional and health status of millions of people, particularly vulnerable groups, through multiple mechanisms, current policy and research has focused disproportionately on the short/medium-term effects of COVID-19 on the demand and supply

of food. This approach neglects the long-term implications for food quality and safety as well as the healthy consumption environments necessary for sustainable development. It is of the utmost importance to establish cross-sectoral collaborations and mainstream nutrition and health effects in to national development policies. Moreover, nutrition and health monitoring systems should be established or scaled up to inform policies on the scope and scale of potential nutritional and health crises.

7. Key considerations

Drawing on the conceptual framework in Figure 2, this report has elaborated key areas for cross-sector food security policy interventions to achieve SDG 2. The trends discussed in Section 6 in particular suggest the following conclusions.

COVID-19 threatens input supply, production and stocks, while accelerating the negative effects of climate change and natural resource degradation on sustainable agriculture and food systems.

COVID-19 negatively affects the performance of food systems, with production suffering from external input constraints and food trade disruptions. Food distribution bottlenecks induce loss of incomes and price increases, which in turn promote changes in food consumption patterns. Depressed real incomes due to increasing prices and declining incomes not only hamper economic access to food but also induce the poor to prefer more food over quality food. In the medium term, the consumption of low-quality food would lead to nutrition and mineral deficiency, weaker immune systems, malnutrition and disease. The following considerations are broad elements that would help develop a food security strategy.

Smallholders represent the weakest element in agricultural production. Limited availability of external inputs and imported intermediate inputs constrain production possibilities especially of smallholders who need financial support (e.g. subsidized loans or favourable credit) to purchase the inputs they need. In order to sustain agricultural production, policy interventions should take into account three parameters: type of farming system (crop versus livestock), the structure of the supply chain and the input-output features of the system. For example, livestock farming requires significant labour and external inputs such as feed and veterinary material; dairy and processed meat products require compliance with hygiene standards during production, storage and marketing processes; and targeted financial support and veterinary extension services are required for smallholder livestock farming to remain operational under COVID-19.

Natural resource degradation and climate change hamper agricultural production, while population growth and increasing urbanization promote demand for food. To restore natural resources, a comprehensive investment plan is needed to enhance soil health, protect water and manage scarcity, conserve biodiversity and ecosystem functions, and promote sustainable food consumption. To adapt and mitigate climate change impacts, climate-smart agricultural activities should be promoted through improved access to agricultural information, technologies and markets, as well as the implementation of agro-ecological practices and ecosystem-based adaptation strategies. This calls for the public sector to improve rural development conditions in affected areas, including through extension, climate information, access to credit and social insurance.

COVID-19 threatens the functioning of markets and the connectivity of rural and urban sectors.

Markets, both rural and urban, play a central role in access to food. The single most important objective should be to ensure the sustainability of effective market transactions, as well as to maintain the connectivity of rural and urban markets. COVID-19 containment measures introduce inefficiencies and disruptions in market operations due to various logistical problems, especially for perishable food. They also weaken rural-urban linkages that hamper

the flow of food from rural to urban centres. As long as these food supply constraints prevail, food price increases and hence deterioration of food access are unavoidable.

Several challenges hamper rural-urban connectivity, risking access to food by the poor. On the supply side, logistics and transportation channels are disrupted leading to food shortages. It is vital to ensure safe logistics especially for high-value commodities and staples and prevent the disintegration of rural–urban links. Policy interventions should prioritize infrastructure investment in order to strengthen food storage, transport and process conditions. On the demand side, declining formal work time would reduce incomes, especially of the poor residing in rural areas. Reduced formal work hours undermine preparations for manufacturing and agricultural production. This implies substantial loss of incomes for people whose livelihoods rely on the informal sector and casual labour in urban areas.

Smallholders must be targeted to prevent the disintegration of markets and food value chains. Their timely access to market price information and public investment in storage infrastructure are vital for them to sell their products at appropriate times and safe food collection places. Therefore, policies should specifically encourage smallholders to participate in activities along value chains and farm/off-farm employment in rural areas. Public food procurement programmes in favour of smallholder farmers can help revitalize activities in rural-urban markets, inducing demand for food locally produced by smallholders. Public support to ensure input provision to smallholders is also necessary for the continuity of primary production. Unless addressed in time, disruptions in the production of food to markets may lead to sudden food price spikes, which would in turn hinder access to food.

ICT use in agriculture and food production and investment in market development showed that ICT can bridge the gap among producers, wholesalers-retailers and consumers. Policy reforms should target the development of innovative mechanisms, such as online food delivery platforms, to coordinate supplies of fresh produce from farms to distributors and then to consumers in order to reach food insecure populations.

COVID-19 threatens the quality of diets and the development of safe food environments.

A number of challenges related to food utilization indicate the potential for a nutrition crisis. First, declining government revenues due to heavy reliance on extractive commodity exports and remittances put at risk imports of crucial nutritional products.

Second, diet quality has declined due to greater consumption of heavily processed foods with a longer shelf life, with lower availability of fresh fruits and vegetables in some conventional supply chains. Combined with job and income losses, and disruptions in local food supply chains and health and nutrition services, declines in the quality of diets point to an acceleration in malnutrition, both undernutrition and obesity. Furthermore, reduction in the consumption of nutritious food weakens people's resilience to diseases, in particular in environments where clean water, sanitation and hygiene conditions are limited.

Third, if the spread of the virus continues far beyond 2021 and employment does not recover, people will demand more food over nutritious food, which would lead to deteriorating health conditions. Such a scenario calls for social safety nets to support nutrition programmes such

as school feeding and subsidies for healthy foods, but narrowing fiscal space handicaps the implementation of existing social protection programmes.

Fourth, social distancing measures loosen up food safety inspections and sanitary and phytosanitary requirements, accelerating the spread of food-borne diseases.

Evidence-based informed food policy interventions should address rising nutrition and health risks. A disproportionate focus on COVID-19's effects on the demand and supply of food undermines the importance of food quality, safety and healthy consumption environments. Nutrition and health monitoring systems should be strengthened to support policy interventions. Moreover, it is of the utmost importance to strengthen food consumption environments and mainstream their nutrition and health effects in to national development policies. Production and distribution of nutrition information through instruments such as nutrition education, food-based dietary guidelines and food labels are critical to induce demand for nutritious and healthy foods, on the one hand, and promote nutrition-sensitive food production on the other.

Table 4: Economic interventions to respond to containment measures

	Health measures	Fiscal measures	Monetary/Macro-financial measures // Exchange rate/balance of payments measures
Afghanistan	(1) nation-wide lock-down led to trade & transportation disruptions; domestic activity slowed sharply(2) border closures and panic-buying led to temporary spike in prices of some foodstuffs, which abated after private wholesalers boosted supply at the government's request (3) with partial easing of the lock-down but retained restrictions on movements and mass gatherings (4) working hours for government and non-government organizations reduced (5) Pakistan re-opened its border points with Afghanistan	(1) Emergency Committee for COVID-19 prevention established to assess the situation; (2) 0.5% of GDP allocated for emergency pandemic response, 0.1% of GDP for urgent health needs (3) resources needed for social relief package for the affected households, tax deferrals; (4) 1.4% of GDP planned to be allocated for a short-term employment program, processing and storage facilities for agriculture commodities, building industrial parks, purchases of additional hospital beds, and bread distribution to the vulnerable households; (5) 2% of GDP for critical pandemic-related spending during the year, with about 1/3 directed to health; (6) resources needed from development partners for a social relief package (cash transfers or in kind) to support food security among socially vulnerable households; (7) free bread to the needy people, waiving electricity bills, paid utility bills of the past 2 months.	(1) enhanced monitoring of early signs of liquidity stress; (2) banks' business plans reviewed; (3) administrative penalties/fees suspended; (4) frozen loan classifications at the pre-pandemic cut off // (1) flexible exchange rate committed; (2) limiting its foreign interventions to preventing excessive volatility
Azerbaijan	(1) border closures, required quarantine of returning citizens, prohibition of mass gatherings, restriction on domestic movements (2) closure of retail outlets, airports, and transportation hubs (3) social distancing, and disinfection of public spaces	(1) spending on public health increased; (2) COVID Response Fund created; (3) support (4.1% of GDP) to the affected businesses, social protection (creation of public jobs, unemployment insurance payments, payment of utility bills, supporting the training of students from low-income households); (4) tax benefits for businesses, tax exemption for imports of critical products and raw material necessary for food security and medical supplies, income tax deferrals, simplified tax exemptions for SMEs and specific industries	(1) CB left the refinancing rate unchanged, but raised the floor of the interest rate (2) CB lowered the ceiling of interest rate (3) extended the blanket deposit guarantee (manat and foreign currency deposit) (4) CB support to the financial sector: a moratorium on late fees and interest rate penalties, guarantees on insurance premiums, suspension of inspections of credit institutions, preferential loans to businesses to stabilize the banking sector; // (1) CB conducted foreign exchange auctions and satisfied all demands for foreign currency at the announced 1.7 AzN/US$ rate
	Health measures	Fiscal measures	Monetary/Macro-financial measures // Exchange rate/balance of payments measures
Iran	(1) flights stopped from China, closing schools, malls, markets and key religious sites, banning cultural & religious gatherings (2) partial lock-down, closing businesses and government offices for 2 weeks, banning intercity travel (3) int'l borders reopened, except with Turkmenistan, to revive regional trade; mosques & schools reopened, all businesses/major religious sites reopened. A "second wave" of virus now hits Iran.	(1) extra funding for the health sector (2% of GDP); (2) cash transfers to vulnerable households (0.3% of GDP); (3) support to the unemployment insurance fund (0.3% of GDP); (4) subsidized loans for affected businesses & vulnerable HHs (4.4% of GDP); (5) moratorium on tax payments for 3 months (6% of GDP); (6) Govt shares sold in 18 companies to generate income; shares of 4 state-owned oil refineries offered to the public.	(1) CB announced the allocation of funds to import medicine, postponed the repayment of loans, temporary penalty waivers for customers with non-performing loans; CB injected USD 1.5 billion in the foreign exchange market to stabilize the rial
Kazakhstan	(1) changing pattern of health measures; (2) an anti-crisis package announced (9% of GDP); (3) trade restrictions and regulated prices for socially-important goods; (4) cash transfers to vulnerable households, access to medical care for the uninsured, and targeted assistance; (5) economy re-opened since mid-May: (a) enterprises in selected sectors resumed work; (b) shopping malls, hotels, cafes, and restaurants reopened in major cities; (c) domestic flights/trains resumed operations, while int'l ones expected to resume gradually; (d) checkpoints btw cities removed, & road passenger transportation resumed; (e) restrictions on food exports lifted on June 1.	(1) cash payments to the unemployed/self-employed; (2) increase in pension/social benefits, additional health spending, & support for employment & business; (3) subsidized lending to help SMEs; (4) support employment with some large-scale projects to modernize the transportation infrastructure; (5) tax incentives for selected enterprises & individual entrepreneur; (6) further measures to restore economic growth: (a) subsidized mortgage for households with a segment targeting youth specifically; (b) tax incentives to agriculture & hard-hit sectors (civil aviation, tourism); (c) credit support to SMEs/ manufacturing & infrastructure development	(1) policy rate increased to 12% due to the drop of oil prices; (2) cut the base rate to 9.5% to support activity; (3) lowered risk weights (for SME from 75% to 50%), expanded the list of eligible collateral, lowered capital conservation buffer, reduced the liquidity coverage ratio requirement and lowered limits on foreign currency positions; (4) banks encouraged to grant loan repayment deferrals, to freeze their loan classifications at the pre-COVID-19 status; (5) cash withdrawal limits temporarily imposed on legal entities starting early June // (1) tenge allowed to depreciate by over 15%; (2) tenge remains vulnerable to oil price volatility
Kyrgyzstan	(1) closure of borders with China, where 36% of imports of goods originate; (2) border restrictions with Kazakhstan and Uzbekistan; (3) quarantine of people coming from abroad; (4) lockdown of all non-essential activities, a curfew; (5) as a result of measures, tax revenues declined & at the same time, low oil prices resulted in a decline in econ activity in Russia & fall in remittances from Kyrgyz workers in Russia; (6) from June 1, all activities resumed with some restrictions on cultural, sports, family events; entertainment activities, & preschool activities; (7) Dom. And int'l flights & public transport resumed on June 15	(1) safeguard health spending and create space for increasing health spending; (2) postponement of tax payments, time-bound exemptions of property and land taxes, and temporary price controls on 11 essential food items; (3) temporary tax exemptions for SMEs, support food security program to the vulnerable groups, and subsidized credit to banks for funding SMEs; (4) tax revenues dropped widened the budget deficit, invited donor financial support to close the financing gap.	(1) raised the policy interest rate due to global uncertainty and the increase in inflation; (2) liquidity ratio lowered to a minimum of 30% (from the current 45%); (3) liquidity ratio requirements removed; (4) minimum threshold level for mandatory reserve requirements reduced; (5) risk-weights of FX corporate and retail loans reduced // (1) the KGS depreciated by 7.6%; (2) external position weakened as remittances and tourism receipts fall.

Table 4: Economic interventions to respond to containment measures (contd.)

	Health measures	Fiscal measures	Monetary/Macro-financial measures // Exchange rate/balance of payments measures
Pakistan	(1) border closures, travel restrictions, closures of schools, banning of public events, social distancing measures; (2) repatriating seasonal migrant workers stranded in the Gulf countries; (3) gradually easing of lockdowns: allowing 'low-risk industries' to restart operation and 'small retail shops' to reopen; (4) restrictions on travels lifted; (5) educational institutes to restart on July 15.	(1) relief package: import duties eliminated on emergency health equipment, accelerating tax refunds to the export industry, supporting SMEs and the agriculture sector in the form of power bill deferment, bank lending and subsidies and tax incentives; (2) accelerated procurement of wheat, financial support to utility stores, reduction in regulated fuel prices, support for health and food supplies, electricity bill payments relief, an emergency contingency fund, and a transfer to the National Disaster Management Authority for the purchase of COVID-19 related equipment; (3) tariff and custom duty reductions on food items, tax incentives to the construction sector to review employment; (4) cash grants, tax relief and additional health spending for low-income households	(1) cut the policy rate to 8.0%; (2) expanded refinancing facilities: to support hospitals and medical centers to treat COVID-19, stimulate investment in new manufacturing plants, and incentivize businesses to avoid laying off their workers; (3) introduced temp. regulatory measures for sound banking and sustain economic activity: (a) reduced the capital conservation buffer to 1.5%; (b) increased the regulatory limit on extension of credit to SMEs; (c) relaxed the debt burden ratio for consumer loans from 50% to 60%; (d) allowed banks to defer clients' payment of principal on loan obligations by one year; (e) relaxed regulatory criteria for restructured loans for borrowers who require relief; (f) suspended bank dividends to shore up capital // (1) regulatory measures to facilitate the import of COVID-19-related medical equipment and medicine: (a) lifting the limit on import advance payments; (b) allowing banks to approve an Electronic Import Form (EIF) for the import of donated equipment
Tajikistan	(1) sharp drop in remittances and government revenues due to trade/transportation disruptions; (2) June 6 reopening plan: resumed operations in bazaars, cafes, beauty salons, and barber shops along other businesses	(1) disbursement from IMF to close the budget deficit; (2) lump-sum assistance equivalent to minimum wage to vulnerable households and other socially disadvantaged groups; (3) tariff increases on electricity, water, and communal services postponed until end of 2020; (4) free medical care to COVID-19 patients, as well as sick leave and compensation benefits; (5) time-bound tax holidays and relief to targeted industries/small businesses until September 1, 2020.	(1) price control of key consumer goods and medical supplies; (2) cut the policy rate to 11.75%; (3) lowered reserve requirement to boost liquidity; (4) disbursed preferential loans to food and medical supply producing companies; (5) interest rate on bank deposits lowered to 6% until end of 2020 // (1) one-off 5% depreciation of somoni allowed to adjust the official exchange rate with market rate; (2) foreign exchange liquidity provided to banks.
	Health measures	Fiscal measures	Monetary/Macro-financial measures // Exchange rate/balance of payments measures
Turkey	(1) social distancing, curfews, travel bans along with quarantines for returning nationals, and the closures of schools/universities, stores, and entertainment venues; (2) a phased approach to lifting lockdown measures from May to July: (a) removal of travel restrictions between 15 major cities, reopening of restaurants, cafes, sporting facilities and government institutions, and the resumption of domestic flights; (b) the phased resumption of international flights, with plans to fly to 40 countries by the end of June; (c) curfews on people aged below 18 and over 65 were eased; (d) opening times for restaurants, cafes, and similar businesses extended v. opened all of its land borders, with the exception of Iran.	(1) TL100 billion package for fiscal measures: (a) raised minimum pension & cash assistance to families in need; (b) increased empl. protection by loosening short-term work allowance rules; (c) reduced/postponed taxes for affected industries (tourism) & for citizens over 65 or with chronic illnesses; (d) ext. of tax deadlines; (e) easing of households' utility payments to local governments; (f) ban on layoffs; (g) state payment of two-thirds of workers' salaries in affected firms; (h) debt relief for local governments' revenues; (j) additional medical staff hired & performance payments maximized; (k) allowances of social assistance and solidarity foundations increased, including accelerating support for farmers; (l) direct support to Turkish Airlines and other affected entities; (m) Turkey Wealth Fund to buy stakes in distressed firms.	(1) lowered the policy rate to 8.25%; (2) reserve requirements on foreign currency deposits reduced; (3) lending facility set up for SMEs in the export sector; (4) broadened the pool of assets for use as collateral in CBRT transactions
Turkmenistan	(1) closure of borders, flight cancellations and rerouting, and mandatory COVID-19 testing for arriving travelers; (2) foreign nationals barred from crossing the border of Turkmenistan; (3) gyms and sports clubs shut down, restrictions on internal movement, closed roads between some provinces, restricted rail transportation; (4) school holidays extended; (5) a special regime for essential and high-priority imports; (6) efforts to digitalize government services, expand e-commerce, and facilitate online and phone payments by SMEs and SOEs through banks	(1) increased health spending for preventing an outbreak of COVID-19; (2) provide support to businesses (through tax relief, bank loans, and assistance in providing raw materials) affected by the containment measures.	// (1) Exchange restrictions on current international payments and transactions tightened; (2) custom duties on selected goods raised to protect domestic suppliers; (3) export companies required to surrender 100% of their foreign currency income at the official exchange rate to the Stabilization Fund
	Health measures	Fiscal measures	Monetary/Macro-financial measures // Exchange rate/balance of payments measures
Uzbekistan	(1) restricting travel, closing borders (except for trade), closing schools and all stores except grocery stores and pharmacies; (2) lockdown restrictions for public officers	(1) expand funding for healthcare, including for medicines, the costs of quarantines, and a salary supplement for medical employees; (2) increase the number of low-income families receiving social benefits; (3) provide assistance to affected businesses via interest subsidies; (4) finance public works in different regions to improve infrastructure & support employment; (5) temporary reduction of social contributions for individual entrepreneurs, postponing surcharges on tourism, property tax, land tax, extending the moratorium on tax audits, delaying tax declarations; (6) tax reduction by 30% and provide 6-month grace period on paying property tax	(1) banks defer loan payments for firms in sectors affected by COVID-19; (2) state-owned banks extending maturities of loan repayments for the affected sectors; (3) initially CB not changed the policy rate nor requirements for regulatory capital or liquidity, but in April 15, CB reduced the policy rate from 16 to 15% // (1) exchange rate depreciated by 6½% between February 28 and April 15

Source: As of 26 June 2020, governments have taken these economic measures to limit the human and economic impact o[illegible] pandemic (IMF, 2020). see https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19.

Table 4: Economic interventions to respond to containment measures (contd.)

	Containment: (Containment measures // Health support // Income support // Deconfinement)	Macroeconomic and prudential regulations	Fiscal measures (for firms): (Financial // Taxation // Others)
Afghanistan	Closure of all borders (except for food supply); Prohibitions of public gathering and closures of education institutions; Lockdown in 20 provinces; Border screenings & quarantine measures // Building of testing facilities; covid wards; sourcing further medical supply (0.5% of GDP)// Food supply to vulnerable groups// Opening of air corridors for trade; Gradual reopening of economic trade across Pakistani and Iranian borders; Gradual lifting of curfew	CB injecting funds into the currency market; reduction of foreign interventions; allow depreciation; facilitate operations for comm banks; relax asset classification & loan-loss provisions; reduced foreign interventions; relax asset classification	Liquidity support for businesses (development partners) // Deadline extension for tax returns and filing // Simplification of some procedures for businesses Extensions for payments, including salaries and rent Enhancing connectivity: roads/ hydropower dams Financial support to agribusiness sector
Kazakhstan	(1) State of Emergency declared; Border closure for non-citizens; Closure of public places; Quarantine of the main cities; Air and train traffic suspended; Ban on key food exports, food price control // Disinfection of main cities by the army; Free medical service (granted to all citizens until Jul.1); A COVID- specific hospital has been built in Nur-Sultan // Extension of the social safety net with wage and unemployment subsidies ('anti-crisis package'); Additional KZT 1 tn to support employment under the "Employment Roadmap" program; Food baskets for most vulnerable populations // State of emergency lifted on 11 May, quarantine measures maintained but relaxed depending on the local epidemiological situation; Gradual reopening of econ. activity since end of April; Gradual easing of lockdown measures on individuals	Initial increase of the policy rate by the National Bank from 9.25% to 12%, then decrease to 9.5%; Eased refinancing operations of commercial banks; Temporary limits on cash withdrawals by businesses; Eased prudential regulations	Liquidity support for businesses ('anti-crisis package'); KZT 600bn support for SMEs to finance working capital // Temporary tax reliefs as part of the Government anti-crisis package // Overall government 'anti-crisis package' of USD 10bn; Subsidized lending increased from KZT600bn (USD1.5 billion) to KZT11trn, and interest rates cut from 13-15% to 6%; Announcement of Economic Plan to stimulate business activity, support empl & increase incomes
Kyrgyzstan	State of Emergency; Curfew in the capital; Temporary travel ban on foreign nationals; Passenger trains suspended; Closure of schools and public places; Quarantine measures// Health sector contingency plan: enhance testing; trainings for health personnel // Support package for vulnerable groups in society// Three-stage reopening of economic activity starting by beginning of May, to be completed by the third week of May	Policy rate maintained at 5%; Reduction of the minimum threshold level for mandatory reserve requirements for banks; lower liquidity ratio.	Suspension of loan repayment; Liquidity support for businesses // Deadline extension to submit tax decl; Removed penalties; Electronic system of fiscalisation of tax procedures // Extension of the moratorium on SMEs checks; Easing business environment for SMEs; Awareness campaigns for SMEs; Amended state procurement policies; Postpone utility/rents
Tajikistan	Closure of borders and international airspace; Regulations on food markets and price controls; Ban on key food exports; Requirement to wear masks; Closure of schools; Restrictions on mass events // Awareness campaigns; Disinfection of public places	Policy rate increased to 12.75% in Feb & decreased to 11.75% in May; Local currency depreciation; Reduction of required reserves ratio of credit institution	Implementation of the Action Plan; Establishment of permanent headquarters to counter the spread of the virus;

	Containment: (Containment measures // Health support // Income support // Deconfinement)	Macroeconomic and prudential regulations	Fiscal measures (for firms): (Financial // Taxation // Others)
Turkmenistan	Closure of borders; Restrictions on internal movements of people and goods		// // The President on 3 April instructed the government to begin preparing measures to mitigate the economic impact of the pandemic, including support for SMEs and enterprises producing essential goods
Uzbekistan	State of Emergency declared; Closure of borders; Prohibition of public gatherings and closure of public places; Main cities quarantined; Suspension of domestic and urban transport // Construction of 10 hospitals in Tashkent and regions; Medical NGOs allowed to provide medical services; 'Neighbor committees' monitor the respect of health measures; Information portal & map locating confirmed cases // Employment Promotion Fund & Public Works Fund provided employment to approx. 140 000 unemployed; Support to specific sectors; Sponsorship co-ordination centers distributed food and sanitary products to > 200 000 families; 'Kindness and support' movement aims at supporting income and families through businesses // Gradual reopening of economic activity in Tashkent since end of April; Gradual extension to the regions based on a color code assessing the degree of contamination; Gradual easing of lockdown measures on individuals; Economic post-lockdown plan prepared	Policy rate decreased by 1 p.p. to 15%; Repeated refinancing operations of commercial banks to inject liquidity in the economy; Several Uzbek banks have imposed restrictions for buying US dollars after continued depreciation of the currency	Interest-free loans to industries most exposed; Grace period on final loan payments for entrepreneurs; No change in the credit quality classification // 6 months deferral of tax payments for businesses; Reduction of personal income tax rate for entrepreneurs; Moratorium on tax audits; Return of VAT for all textile and cotton for businesses to maintain working capital // Anti-Crisis Fund of USD 1bn, including a budget allocation to the State Fund for Entrepreneurship Support; Re-organisation of government organisations

Source: As of 2 June 2020, governments have taken these economic measures to limit the human and economic impact of the COVID-19 pandemic (OECD, 2020). see http://www.oecd.org/coronavirus/policy-responses/covid-19-crisis-response-in-central-asia-5305f172/.

References

Asian Development Bank. 2021. *Asian Development Outlook 2021: Financing a green and inclusive recovery*. Manila. www.adb.org/sites/default/files/publication/692111/ado2021.pdf.

Association of Southeast Asian Nations. 2020. 1st ASEAN Policy Brief: Economic Impact of COVID-19 Outbreak on ASEAN. Jakarta. https://bit.ly/3GKpXN0.

Development Initiatives. 2020. 2020 Global Nutrition Report: Action on equity to end malnutrition. Bristol, UK. https://globalnutritionreport.org/reports/2020-global-nutrition-report/.

Economic Commission for Latin America and the Caribbean, FAO. 2020. *Preventing the COVID-19 crisis from becoming a food crisis: urgent measures against hunger in Latin America and the Caribbean*. Santiago. https://bit.ly/3sjtqy7.

Emergency Events Database. 2021. *EM-DAT | The international disasters database* [online]. Brussels. www.emdat.be.

Espitia, A., Rocha, N. & Ruta, M. 2020. *Covid-19 and Food Protectionism: The Impact of the Pandemic and Export Restrictions on World Food Markets (English)*. Policy Research working paper no. WPS 9253 COVID-19 (Coronavirus) Washington, D.C.: World Bank Group. https://bit.ly/3e5w2Hz.

FAO. 2020a. *Coronavirus Food Supply Chain Under Strain: What to do?* Text by Torero Cullen, M. Rome. www.fao.org/3/ca8308en/ca8308en.pdf.

FAO. 2013a. *Synthesis of guiding principles on agriculture programming for nutrition*. Rome. www.fao.org/docrep/017/aq194e/aq194e00.htm.

FAO. 2013b. *The state of food and agriculture, food systems for better nutrition*. Rome. www.fao.org/3/i3300e/i3300e.pdf.

FAO. 2014. *Report of FAO Country Programme Framework in the Republic of Kazakhstan, 2014-2017*. Rome. www.fao.org/3/a-bp564e.pdf.

FAO. 2015a. *How can food security interventions contribute to reducing gender-based violence?.* Rome. www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1268183/

FAO. 2015b. *Climate change and food security: Risks and responses*. Rome. www.fao.org/3/a-i5188e.pdf

FAO. 2017a. *Strategic work of FAO for inclusive and efficient food systems*. Rome. www.fao.org/3/a-i6627e.pdf.

FAO. 2017b. *Strengthening sector policies for better food security and nutrition results. Policy Guidance Series*. Rome. www.fao.org/3/a-i7214e.pdf.

FAO. 2018a. *Promoting socially inclusive rural development in Europe and Central Asia: Action for the 2030 agenda*. Budapest. www.fao.org/3/ I7863EN/i7863en.pdf.

FAO. 2018b. *Transforming food and agriculture to achieve SDGs: 20 interconnected actions to guide decision-makers*. Rome. www.fao.org/3/I9900EN/i9900en.pdf.

FAO. 2020b. *Mitigating risks to food systems during COVID-19: Reducing food loss and waste*. Rome. https://doi.org/10.4060/ca9056en.

FAO. 2020c. *Addressing the impacts of COVID-19 in food crises | April–December 2020: FAO's component of the Global COVID-19 Humanitarian Response Plan*. Rome. https://doi.org/10.4060/ca8497en.

FAO. 2020d. *Maintaining a healthy diet during the COVID-19 pandemic*. Rome. https://doi.org/10.4060/ca8380en.

FAO. 2020e. *Responding to the impact of the COVID-19 outbreak on food value chains through efficient logistics*. Rome. www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1270169.

FAO. 2020f. *COVID-19 and smallholder producers' access to markets*. Rome. www.fao.org/family-farming/detail/en/c/1272443.

FAO. 2020g. *Sustainable crop production and COVID-19*. Rome https://doi.org/10.4060/ca8807en.

FAO. 2020h. *Urban food systems and COVID-19: The role of cities and local governments in responding to the emergency*. Rome. www.fao.org/3/ca8600en/CA8600EN.pdf.

FAO. 2020i. *GIEWS Country Brief Turkmenistan*. Rome. www.fao.org/giews/countrybrief/country.jsp?code=TKM&lang=en.

FAO. 2020j. *Europe and Central Asia: Regional food market situation and policy bulletin in response to the COVID-19 pandemic*, 1. Rome. https://doi.org/10.4060/ca8869en.

FAO. 2020k. *GIEWS - Global Information and Early Warning System* [online]. Rome. www.fao.org/giews/countrybrief/index.jsp.

FAO. 2021. FAO Country Profiles: Pakistan. In: *FAO* [online]. Rome. www.fao.org/countryprofiles/index/en/?iso3=PAK.

FAO. 2016. *The State Of Food And Agriculture: Climate Change, Agriculture and Food Security*. Rome. www.fao.org/3/i6030e/i6030e.pdf.

FAO, European Union, World Bank Group & Technical Centre for Agricultural and Rural Cooperation. 2014. *Agriculture and nutrition: A common future* Rome. www.fao.org/policy-support/tools-and-publications/resources-details/en/c/422024/.

FAO, Government of Islamic Republic of Iran, Ministry of Jihad-e-Agriculture. 2012. *Country Programming Framework for Iran's Agriculture Sector*. Rome. www.fao.org/3/bp603e/bp603e.pdf

Galanakis, Charis M. 2020. The Food Systems in the Era of the Coronavirus (COVID-19) Pandemic Crisis. *Foods* 9, no. 4: 523. https://doi.org/10.3390/foods9040523.

Rise Punjab. 2020. *Responsive Investment for Social Protection and Economic Stimulus: Punjab's Post COVID-19 Public Investment Strategy*. Punjab, Pakistan. https://pnd.punjab.gov.pk/system/files/RISEPunjab_Covid-19-Final.pdf.

HLPE. 2012. *Food security and climate change*. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome. https://bit.ly/326gjFq.

HLPE. 2014. *Food losses and waste in the context of sustainable food systems*. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome. www.fao.org/3/a-i3901e.pdf.

HLPE. 2017. *Nutrition and food systems.* A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome. www.fao.org/3/a-i7846e.pdf.

HLPE. 2020a. *Interim Issues Paper on the impact of COVID-19 on food security and nutrition (FSN) by the High-Level Panel of Experts on Food Security and nutrition (HLPE).* Rome. www.fao.org/fileadmin/templates/cfs/Docs1920/Chair/HLPE_English.pdf.

Husain, A., Sandstrom, S., Greb, F. & Agamile, P. 2020. Economic and food security implications of the COVID-19 outbreak: An update focusing on the domestic fallout of local lockdowns. Rome: World Food Programme. https://docs.wfp.org/api/documents/WFP-0000117420/download.

IFPRI. 2020a. *2020 Global Food Policy Report: Building Inclusive Food Systems.* Washington, DC, International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/9780896293670.

IFPRI. 2020b. The COVID-19 nutrition crisis: What to expect and how to protect. In *IFPRI Blog* [online]. Washington, DC, International Food Policy Research Institute (IFPRI). www.ifpri.org/blog/covid-19-nutrition-crisis-what-expect-and-how-protect.

ILO. 2021. *ILO monitor: COVID-19 and the world of work. Seventh edition updated estimates and analysis.* Geneva, International labour Organization. https://bit.ly/3ecnoah.

IMF. 2020a. *Confronting the COVID-19 pandemic in the Middle East and Central Asia*. Washington, DC, International Monetary Fund. https://bit.ly/31ZtOH7.

IMF. 2020b. *Policy responses to COVID-19*. Washington, DC, International Monetary Fund. www.imf.org/en/Topics/imf-and-covid19/ Policy-Responses-to-COVID-19.

IMF. 2021. *World Economic Outlook*. Washington, DC, International Monetary Fund. www.imf.org/en/Publications/WEO/Issues/2021/10/12/world-economic-outlook-october- 2021.

IPES-Food. 2020. *COVID-19 and the crisis in food systems: symptoms, causes, and potential solutions.* Brussels. www.ipes-food.org/_img/upload/files/COVID-19_CommuniqueEN.pdf.

Kanter. R., Walls H. L., Tak. M., Roberts. F. & Waage J. 2015. A conceptual framework for understanding the impacts of agriculture and food system policies on nutrition and health. *Food Security*, 7(4): 767-777.

Meeker, J. & Haddad, L. 2013. A state of the art review of agriculture-nutrition linkages. Cork, Ireland. https://bit.ly/3q1WjMj.

OECD. 2020a. *COVID-19 and the food and agriculture sector: Issues and policy responses.* Paris. https://bit.ly/3m5NGPC.

OECD. 2020b. Economic Outlook No 107 - June 2020 – Single-hit scenario. In *OECD* [online]. Paris. https://stats.oecd.org/Index.aspx?DataSetCode=EO107_INTERNET_1.

OECD. 2020c. *Interim Economic Assessment: Coronavirus: The world economy at risk.* Paris. https://bit.ly/3F5h402.

OECD. 2020d. *COVID-19 crisis response in Central Asia.* Paris. https://bit.ly/3yujYsy.

Pandey, V.L., Mahendra Dev, S. & Jayachandran, U. 2016. Impact of agricultural interventions on the nutritional status in South Asia: A review. *Food Policy*. 62:28-40. doi: 10.1016/j.foodpol.2016.05.002. PMID: 27478297; PMCID: PMC4952527.

Scaling Up Nutrition. 2020. UN Secretary-General launches policy brief on food security. In: *Scaling Up Nutrition* [online]. https://scalingupnutrition.org/news/un-secretary-general-launches-policy-brief-on-food-security/.

Schmidhuber, J., Pound, J. & Qiao, B. 2020. *COVID-19: Channels of transmission to food and agriculture*. Rome, FAO. https://doi.org/10.4060/ca8430en.

State Hydraulic Works. 2011. *Turkey's National Climate Change Adaptation Strategy and Action Plan*. Ankara.

Swarajya. 2020. Locust situation worsens for Pakistan after new swarms attack from Afghanistan. In *Swarajya Magazine* [online]. Tamil Nadu, India. https://swarajyamag.com/insta/locust-situation-worsens-for-pakistan-after-new-swarms-attack-from-afghanistan.

Temel, T. 2005. A systems approach to malaria control: An institutional perspective. *Health Policy*, 71(2):161-80. doi: 10.1016/j.healthpol.2004.06.004. PMID: 15607379.

Temel, T. & Dorjee, K. 2013. A method for assessing food security information system. *Int. J. of Information Systems and Management*. 1. 10.1504/IJISAM.2014.062277.

Temel, T. & Karimov, F. 2018. Information systems model for targeting policies: A graph-theoretic analysis of expert knowledge. *Expert Systems with Applications,* 119, 400-414.

Temel, T., Janssen, W. & Karimov, F. 2003. Systems analysis by graph-theoretic techniques: Assessment of the agricultural innovations system of Azerbaijan. *Agricultural Systems*, 77(2), 91-116.

Trading Economics. 2020. Uzbekistan food inflation. In *Trading Economics* [online]. https://tradingeconomics.com/uzbekistan/food-inflation.

United Nations. 2020. *The impact of COVID-19 on food security and nutrition*. Policy Brief. www.un.org/sites/un2.un.org/files/sg_policy_brief_on_covid_impact_on_food_security.pdf.

United Nations Environment Programme. 2021. *Food Waste Index Report 2021*. Nairobi.

UNICEF. 2021. Malnutrition. In *UNICEF* [online]. New York. https://data.unicef.org/topic/nutrition/malnutrition.

UN-OCHA. 2020. *Pakistan humanitarian response plan for COVID-19 pandemic.* https://bit.ly/3dVXqrk.

World Bank. 2007. *From agriculture to nutrition: Pathways, synergies and outcomes*. Washington, DC, World Bank. https://documents1.worldbank.org/curated/en/241231468201835433/pdf/453630WP00BOX0327425B01PUBLIC1.pdf.

World Bank. 2015. Nutrition and agriculture: Bridging the gap. In *World Bank Blogs* [online]. Washington, DC. https://blogs.worldbank.org/health/nutrition-and-agriculture-bridging-gap.

World Bank. 2016. Low and middle income countries as defined by the World Bank in September 2016. In *World Bank* [online]. https://datahelpdesk.worldbank.org/knowledgebase/articles/906519.

World Bank. 2020a. *Global Economic Prospects, June 2020.* Washington, DC, World Bank. https://openknowledge.worldbank.org/handle/10986/33748 License: CC BY 3.0 IGO.

World Bank. 2020b. How nutrition can protect people's health during COVID-19. In: *World Bank Blogs* [online]. Washington, DC. https://blogs.worldbank.org/voices/how-nutrition-can-protect-peoples-health-during-covid-19.

Webb, P. & Kennedy, E. 2014. Impacts of agriculture on nutrition: Nature of the evidence and research gaps. *Food Nutr Bull*. 35(1):126-32. doi: 10.1177/156482651403500113. PMID: 24791585.

World Farmers' Organisation. 2020. *COVID-19 pandemic outbreak: Overview of the impact on the agricultural sector.* Rome. https://bit.ly/3q3VwKL.

World Trade Organization. 2020. Trade set to plunge as COVID-19 pandemic upends global economy (Press release). Geneva, World Trade Organization. www.wto.org/english/news_e/pres20_e/pr855_e.pdf.

World Trade Organization. 2021. World trade primed for strong but uneven recovery after COVID-19 pandemic shock (Press release). Geneva, World Trade Organization. www.wto.org/english/news_e/pres21_e/pr876_e.htm.

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