



Eurasian Development Bank

Food Security and Agro-Industrial Potential of the Eurasian Region

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FOOD SECURITY AND AGRO-INDUSTRIAL POTENTIAL OF THE EURASIAN REGION

AGRICULTURE — KEY ELEMENT OF THE LONG-TERM ECONOMIC SPECIALISATION OF THE EURASIAN REGION

A potential for intensive and extensive development that is unique in the world:

10% of the world's **agricultural land** is located in the region with only **3% of the world's population**, with prospects to expand

33% share of **rural population** in the region

1.5–2x potential **yield growth**

130 million **labour force**

FOOD SECURITY IS DETERIORATING WORLDWIDE

- ▶ Humanity is falling short of the UN goals to end hunger: the number of people suffering from hunger and malnutrition on our planet is **828 million** in 2022
- ▶ We forecast a prolonged period of **high food prices**

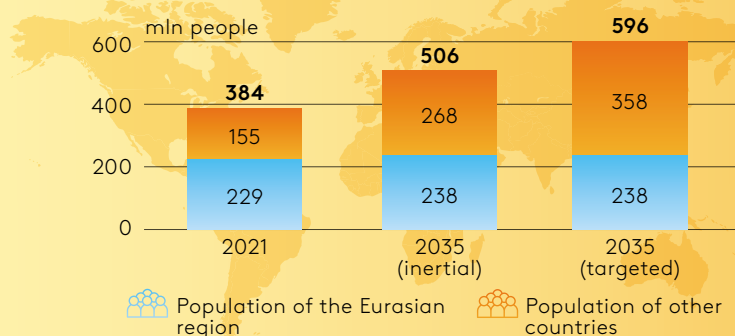
SELF-SUFFICIENCY RATE FOR MOST FOOD PRODUCTS IN THE EURASIAN REGION IS 80–95%

- ▶ However, there are still **significant differences** among countries within the region in both food production and food consumption
- ▶ The **application of a broader concept of food security** assures its achievement in the most effective way through **smooth operation of export and import channels**

EURASIAN REGION WILL BE ABLE TO FEED 600 MILLION PEOPLE BY 2035

42% increase in **food production** by 2035, with an average annual growth rate of **1.5–2.5%**

USD 34 billion increase in **exports** by 2035 (USD 40 billion in 2021). The largest contribution is from: oilseeds and cereal crops, meat and dairy products, vegetables and fruit



MUTUAL TRADE IS THE KEY TO FOOD SECURITY

- ▶ Over the past 20 years, the volume of mutual trade of agro-industrial products among the EAEU countries, Tajikistan, and Uzbekistan has increased **by a factor of 8.5 and reached USD 15.4 billion in 2021**
- ▶ By 2035, the volumes of mutual trade in food will increase by an additional 1.8 times to **USD 27.1 billion** (an increase of USD12 billion). The expansion of mutual trade will contribute to ensuring **economic and physical availability** of food in the Eurasian region

REALIZING THE POTENTIAL OF THE AGRO-INDUSTRIAL COMPLEX

- ▶ Development of **agrologistics and storage systems** (formation of the Eurasian Commodity Distribution Network), transportation logistics in the eastern and southern directions (International North-South Transport Corridor), port infrastructure, etc.
- ▶ **Accelerated development of the science and technology base** of the agricultural sector (genetics and selective breeding, seed production and pedigree livestock breeding, water saving technologies, etc.), and **digitalization in agriculture**
- ▶ **Import substitution in mechanical engineering** (rolling stock, merchant fleet, agricultural machinery and equipment)
- ▶ Support of **large producers** (including incentives for the cooperation among small farms) at the national level and the level of the EAEU
- ▶ **Lifting barriers and restrictions** between the countries of the Eurasian region
- ▶ Effective **regulation** and coordinated investment policy within the Central Asian water and energy complex
- ▶ Strengthening **the financial infrastructure** to support the activities of the agro-industrial sector

Vinokurov, E. (ed.), Ahunbaev, A., Chuyev, S., Usmanov, N., Zaboev, A., Malakhov, A., Pereboev, V., Ksenofontov, M., Polzиков, D., Potapenko, V., Shalimov, V. (2023) *Food Security and Agro-Industrial Potential of the Eurasian Region*. Reports and Working Papers 23/1. Almaty: Eurasian Development Bank.

Based on the balance approach, the report analyses the production, resource, and export potential of the agro-industrial complexes of the EAEU countries, Tajikistan, and Uzbekistan for the period until 2035. The resource potential for extensive and intensive growth of production of key agri-food products is estimated for two scenarios, taking into account the prospects of agricultural lands expansion and improving yields and productivity. Consumer demand models are used for scenario-based estimation of potential domestic consumption of agro-industrial products, including for food and other purposes. Export potential estimates are based on the logic of the balance approach. In addition, the paper identifies potential markets for food products; offers estimates of the macroeconomic effects of the realisation of the resource, production, and export potential of the agro-industrial complex made by applying multipliers, calculated based on input-output tables; examines the factors hindering development of the agro-industrial complex; offers ways to tap the potential; and defines the principle aspects of food policy in the region.

Keywords: food security, Eurasian region, Central Asia, Eurasian Economic Union, food exports, mutual trade, export potential.

JEL: F15, F17, F52, L66, Q11, Q18

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SUMMARY

Agriculture and the agro-industrial complex are key elements of the long-term economic specialisation of the Eurasian region¹. The region has one of the most significant production, resource, and export potentials in the world due to the following factors:

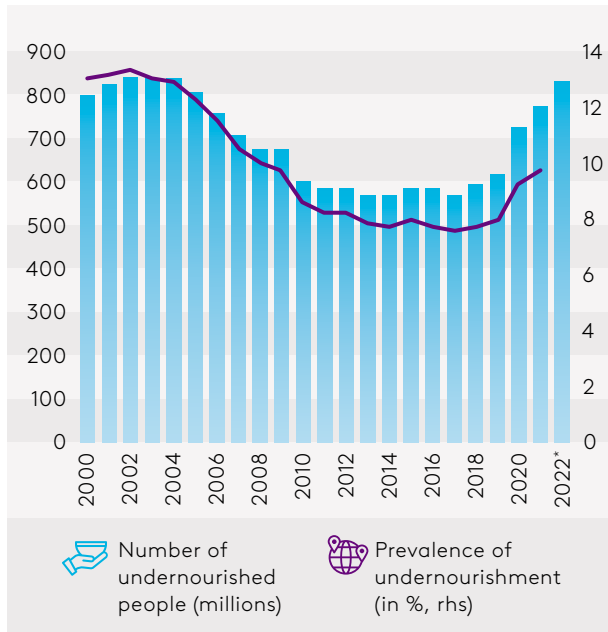
- **Specialisation in agriculture.** Historically, agriculture has been one of the basic elements of the economic specialisation of the Eurasian countries. The region has a culturally and historically shaped and well-established ecosystem of production factors, socio-economic links, and other basic elements vital for the functioning of the agro-industrial complex.
- **The region has 480 million hectares of agricultural land, or 10.1%** of the world's agricultural land, while the population comprises about **3%** of the world's population. At the same time, the region is characterised by a low rate of utilisation of arable land; it is possible to reintegrate the land previously withdrawn from the economic cycle — a drop from 165 million ha to 115 million ha over 1990–2021.
- **Potential yield growth by a factor of 1.5–2.** The yields of most crops in the Eurasian countries fall short of those in developed countries, among other things due to less fertilizer application and insufficient agricultural machinery.
- **Significant labour resources — more than 130 million** able-bodied people, making up **33.1%** of the rural population.
- **Proximity of lucrative sales markets** — the largest food consumers, with a total population of more than **3 billion**, primarily China, India, countries in Africa and the Middle East. In the medium term, it is estimated that China will account for **41% and 34%** of the additional global demand for fish and meat, respectively, and **about 50%** of the additional global demand for fresh dairy products is expected to come from India.

The food security situation is deteriorating worldwide, with **one out of every nine people on Earth going hungry or undernourished**. Hunger remains one of humanity's main challenges, while the world is moving farther away rather than closer to the goal of ending hunger by 2030, which was adopted by the UN in 2015. The number of people suffering from hunger and malnutrition on our planet is **projected to reach 828 million by end-2022**, which is about 150 million more than before the outbreak of the COVID-19 pandemic (Figure A). If the trend does not change, the number will grow further, exceeding 840 million by 2030, or 9.8% of the world's population.

Food is the “new oil” — the political importance of food exports will be growing. The cost of food has risen significantly, first under the impact of the coronavirus pandemic and the measures to combat it and, then due to a surge in geopolitical tensions, sanctions, destruction of global supply chains, a fuel and energy crisis, higher production costs — in particular as a result of rising energy and fertilizer costs — and an increase in the number of food trade restrictions (Figure B). The food price index has increased by **46.5%** over the past two years — the FAO index was **98.1** in 2020, **125.7** in 2021, and **143.7** in 2022. Food prices have hit record highs, entering uncharted territory and despite some decrease since the second half of 2022, they still remain significantly higher than in 2021.

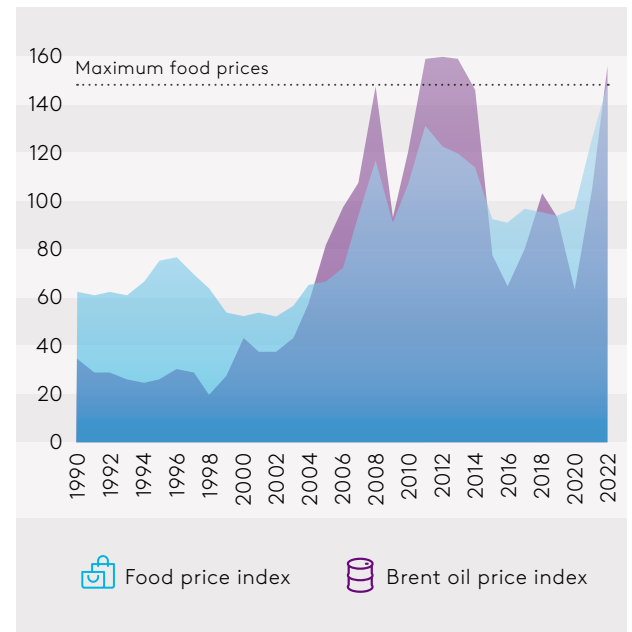
¹ EAEU countries, Uzbekistan, and Tajikistan.

↓ Figure A. Number of Undernourished People and Prevalence of Undernourishment in the World



Note: * estimated value.
Source: FAO.

↓ Figure B. Food and Oil Price Indices

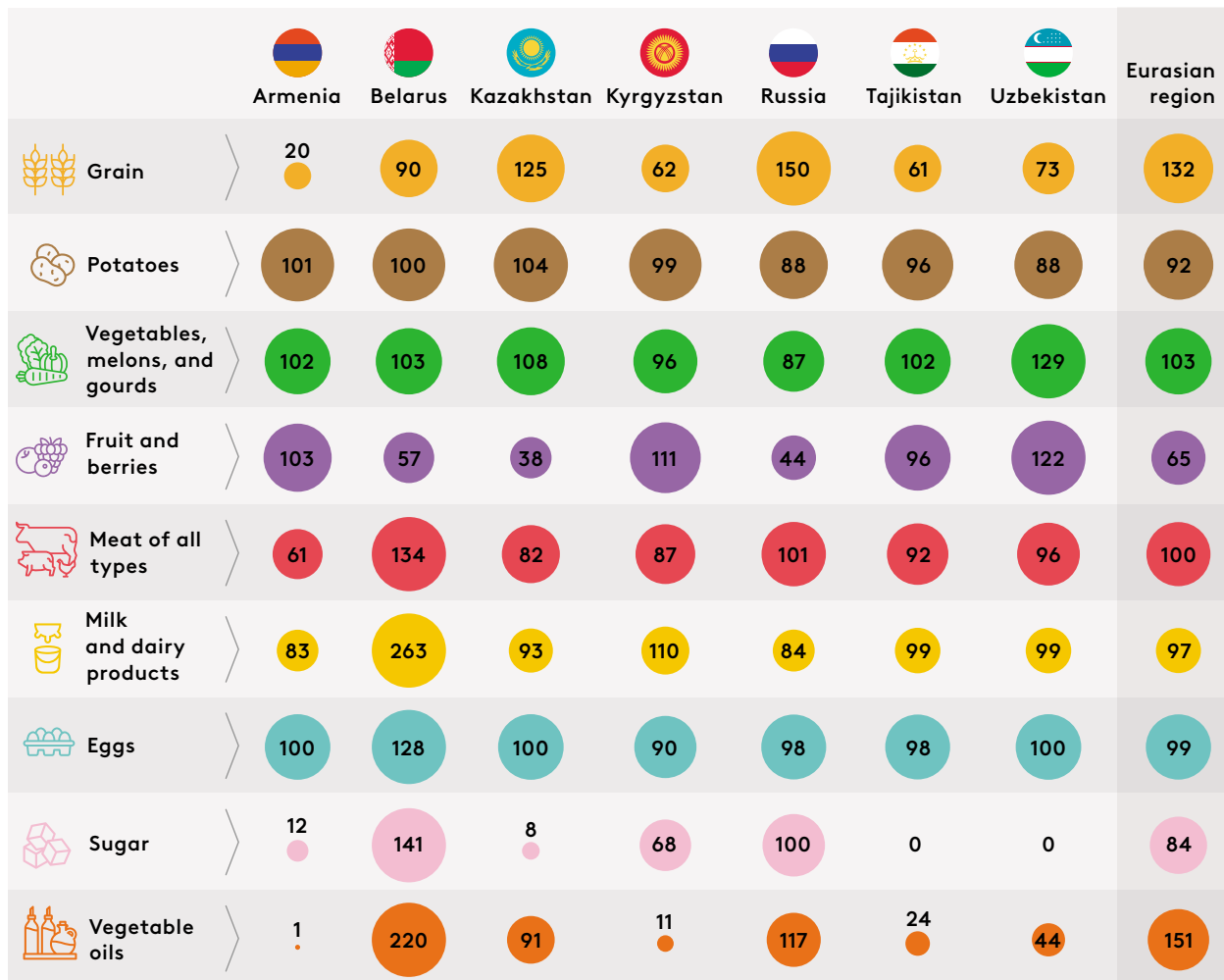


Note: 100 = the average for 2014–2016.
Source: UN, WB.

We forecast a prolonged period of high food prices. This will be driven by: world population growth; high prices on energy and energy derivative products (including fertilizers made from natural gas); scarcity of skilled labour; higher energy value of the average diet in rapidly developing countries; limited prospects of opening new lands up for farming in many regions of the world (this option remains open mainly in countries of the former Soviet Union, China, the United States, and Canada); and projected adverse effects of climate change. The value of food resources increases as the accessibility of food declines.

The Eurasian region as a whole ensures its food security. The level of self-sufficiency for most products exceeds **80–95%** in the Eurasian region — the level established to define the concept of “food independence”. The highest levels of self-sufficiency are for cereal crops and oilseeds, and the lowest for fruit (Figure C).

↓ Figure C. Level of Self-Sufficiency in the Eurasian Region (%)

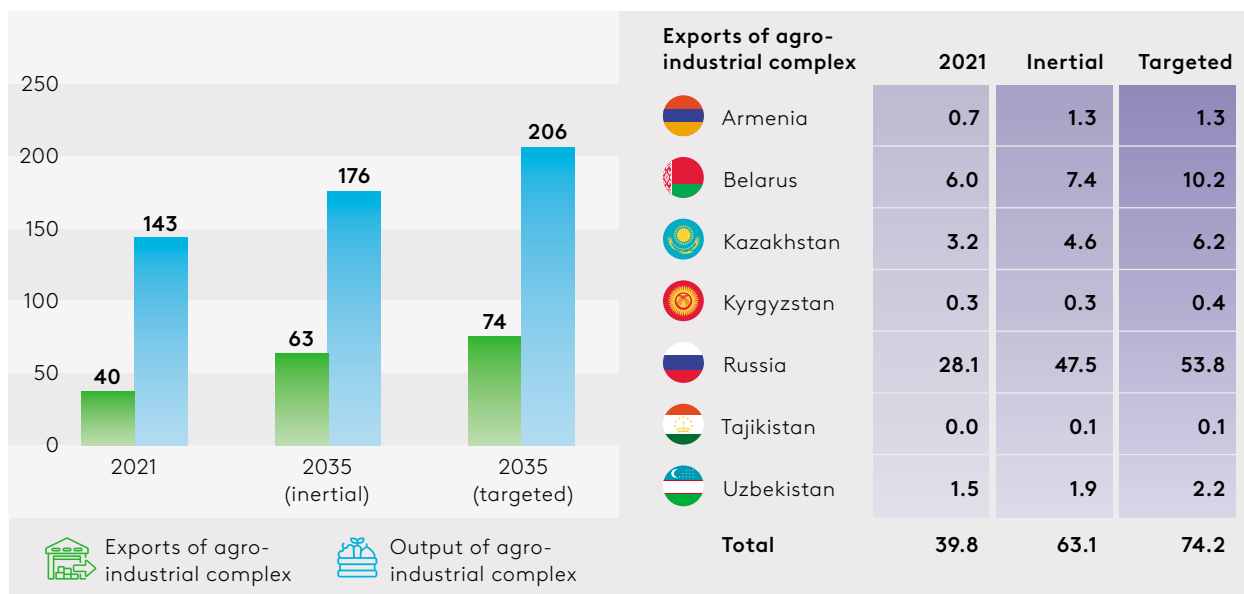


Source: EDB calculations.

The realisation of the **production and resource potential of the agro-industrial complex** will generate the following positive effects for the Eurasian countries by 2035:

- **agricultural output will increase by USD 29 billion (+20%)** under the inertial scenario and **by USD 59 billion (+40%)** under the targeted scenario compared to the current value;
- **gross output** in the economy **will increase by USD 55 billion** and **USD 112 billion** under the inertial and the targeted scenarios, respectively, as a result of multiplier effects, taking into account direct and indirect effects on related industries and the economy in general;
- **production multipliers** for gross output in the agricultural sector (USD per 1 USD of output in the sector), calculated based on “input-output” tables, are estimated at (in order of importance): **2.62** for Russia, **2.49** for Kyrgyzstan, **2.49** for Tajikistan, **2.44** for Belarus, **1.95** for Kazakhstan, **1.95** for Uzbekistan, and **1.77** for Armenia;
- **food exports will almost double** in value terms, going up from **USD 40 billion** (at 2020 prices) in 2021 to **USD 64–74 billion**, depending on the scenario, in 2035 (Figure D).

↓ Figure D. Food Production and Export in the Eurasian Region (USD billions)



Source: EDB calculations.

Box A. Methodology for Preparing Scenario-Based Calculations

We considered two main forecast scenarios for the agro-industrial complex development in the countries of the region: an inertial scenario and a targeted one. The **inertial scenario** is based on the assumption that the current trends in the development of the agricultural sector would remain unchanged, ensuring moderate growth of domestic production due to constraints related to capital, management resources and skilled labour, technologies, agricultural machinery, equipment, and other resources needed for investment and current production purposes².

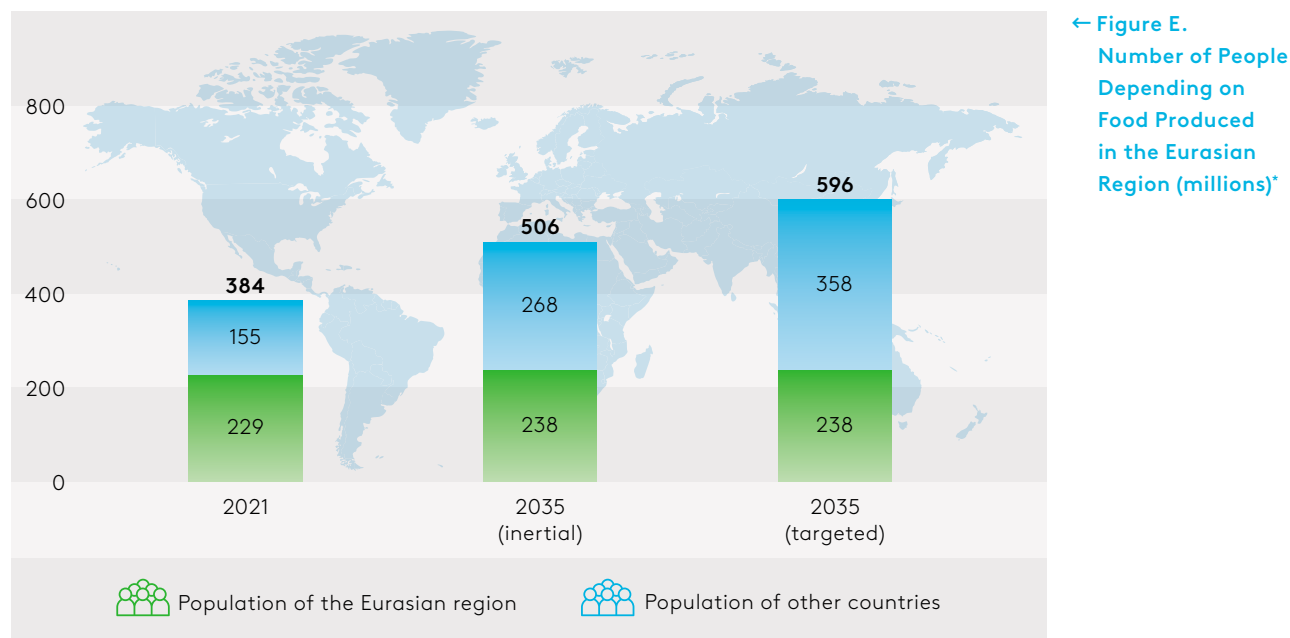
The **targeted scenario** is based on the planned indicators of agro-industrial development established in policy documents of the Eurasian countries, or the self-sufficiency rates prescribed in strategic documents on food security³. The balance of mutual trade and production plans of the countries in the region is also taken into account. This scenario assumes that the countries of the Eurasian region would focus more on self-sufficiency in those basic food products that are characterised by high dependence of the domestic market on imports, but where resources are available to expand their domestic production. The scenario also assumes a more significant increase in per capita consumption — up to the level of developed countries for many products — as a result of state support and rising household incomes.

Under each scenario, **export potential** is estimated based on projected balances of domestic production of basic foodstuffs and imports of agri-food products less domestic consumption for food and production purposes. The estimate of the **potential number of people** that the region could feed is based on the forecast of food production in calorie equivalent divided by the average caloric value of the diet per person.

² A more detailed description of the scenarios is on page 47.

³ If the rates did not exceed the potential of extensive and intensive growth of domestic production.

The Eurasian region will be able to feed 600 million people. If the region realises its production, resource, and export potential, it will be able to feed **240 million** of its own population and an additional **360 million** in third countries (Figure E). In the context of rapid growth of the world's population and limited production and resource potential of other macroregions, the aggregate position of the Eurasian countries on the international food market will improve significantly.



Note: * calculations as at 31 August 2022.

Source: EDB calculations.

Ensuring food security is a top priority of the agro-food policy in the Eurasian countries. At the same time, **increasing agricultural exports** will allow for greater realization of existing resource potential (without compromising food security) and will have a positive impact on the overall economic and socio-economic situation in rural areas.

However, there are still significant differences among countries within the Eurasian region in both food production and food consumption. In 2018, the share of households with consumer expenditure below the cost of a food basket based on rational standards, was 45–50% in Russia, 40–45% in Belarus, 65–70% in Armenia, 70–75% in Kazakhstan and Kyrgyzstan, with lower national standards for rational consumption in Armenia and Kyrgyzstan. This indicates low purchasing power of household disposable incomes and insufficient affordability of adequate quantities and assortment of food products. The problem of ensuring the affordability of food for all citizens is far from being solved, and the diet remains unbalanced. A broader concept of food security should be applied to assure its achievement in all countries in the region.

Box B. Food Security Is Assured in the Most Effective Way through Smooth Operation of Export and Import Channels

According to the definition adopted by the UN Food and Agriculture Organisation (FAO), food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. At present, about 80% of the global population lives in countries that are net importers of food. Therefore, there is no need for domestic production of all types of food to ensure the food security of a given country. Depending on the climatic and other conditions, it may be unprofitable or impossible to produce certain types of food in adequate quantities. Effective foreign trade mechanisms, on the other hand, make it possible to obtain earnings from exports of surplus food with the highest profitability and, in exchange, to import the required quantities at prices that are lower than they would have been if produced domestically.

The expansion of mutual trade and cooperation among the Eurasian countries and maintaining smooth operation of international trade mechanisms are important elements in ensuring food security in the region. Mutual trade among the EAEU countries, Tajikistan, and Uzbekistan has been growing steadily and reached USD 15.4 billion in 2021, which is 33.6% of the region's agro-industrial exports. **Over the past 20 years, the volume of mutual exports of agro-industrial products has increased by a factor of 8.5.** Developing mutual trade between countries in the Eurasian region allows, first, for building partnership relationships within the Union and, second, for focusing efforts not on achieving food independence, but on **improving economic and physical availability of food products**, including by expanding supplies from neighboring countries.

Transport and logistics constraints are the main factors impeding realisation of the region's agro-industrial potential. For example, the losses of domestic agricultural products due to underdeveloped logistics and storage systems within the countries of the Eurasian region reach 40%. According to the World Bank's Logistics Performance Index⁴, the development of logistics systems remains at a relatively low level in the region — the Eurasian countries are in the below-average group (ranking from 77th to 147th). As a result, about 70% of food that could be produced in the countries of the Eurasian region is imported from third countries.

To remove those constraints, **it is necessary to have a cohesive transport infrastructure** in the form of motorways and railways, seaports, border crossing points, wholesale distribution centres, agrologistics facilities, etc. Therefore, comprehensive development of a **unified Eurasian Transport Framework** gains in importance. Logistics development should be based primarily on modern digital technologies. The solution will be to create a **Eurasian Commodity Distribution Network** that would improve planning accuracy and reduce delivery times, ensure product safety, enhance the efficiency of payment services and increase the promptness of ordering and returning goods.

⁴ Logistics Performance Index, LPI.

China, the Middle East, North Africa, and India are lucrative markets for the countries of the Eurasian region. Based on the FAO-OECD long-term forecast of the volume of imports of agro-industrial products by the largest importing countries, as well as on the historical pattern of the EAEU's share in agricultural imports of those countries, the most promising destinations for realisation of the agricultural export potential are Southeast Asia and the Middle East, in particular Saudi Arabia, Iran, Egypt, China, India, and Vietnam. The analysis also revealed that the potential capacity for food imports from those countries exceeds the projected volumes of exports by the EAEU countries, Uzbekistan, and Tajikistan, which points to additional opportunities for expanding exports to foreign markets.

To access lucrative markets, logistics along the southward and the eastward routes should be enhanced. Taking into account the persistently high risks to food security and the significant number of undernourished people in India, most countries in Asia, the Middle East, and North Africa, **the role of the International North-South Transport Corridor in food delivery will increase.** It is also necessary to develop new logistics routes via Central Asia and establish new routes to China or expand the capacity of existing ones.

Box C. Development of Logistics along Eastward and Southward Routes Is a Condition for Realising the Export Potential of the Eurasian Region

Addressing logistics problems along the southward and eastward routes is key to realising the export potential of the Eurasian region. However, unlike the eastward route, which is quite well-developed and continues to improve along the Transsib and TRACECA corridors, the southward route is still not operating successfully along its entire length and has so far failed to attract significant freight traffic. The North-South International Transport Corridor (ITC) connects the northwestern part of the EAEU with the states of Central Asia, the Persian Gulf, and the Indian Ocean. A comprehensive solution for food exports is to develop that corridor, which provides access to the most lucrative sales markets in China, the Middle East, and India, ensuring the shortest haulage distances for food transportation.

Food will become one of the most widespread types of cargo that will be transported in both the southern and northern directions of the North-South ITC. Notably, cargo in this group needs to be transported using specialised rolling stock (insulated rail cars and refrigerated containers), as a significant part of food cargo is perishable. By 2030, the North-South ITC could attract up to 25% of all freight traffic ([Vinokurov, Ahunbaev, Shashkenov et al., 2021](#)).

To realize the potential of the agro-industrial complex, it is expedient to encourage the development of large Eurasian players both at the national level and at the level of the EAEU. Such players should include participants throughout the entire chain of food production and export, including direct production, processing and handling, transportation and storage (including refrigeration), trading, retail, export logistics, and other areas. That would raise productivity and enhance the competitiveness of food products produced in the Eurasian region in export markets, as well as reduce losses by improving logistics. The engagement of major players will significantly simplify the development of a commodity distribution network in the region, as it will be much easier for them to build a network of logistics centres and saturate the industry with modern vehicles.

However, the emergence of major and effective market players is a challenge and could take considerable time, especially in the Central Asian countries and Armenia. **Creating incentives for the cooperation among small farms** should therefore be another vital theme. Cooperation can be developed by building special institutions, which would help mitigate the problem of small-scale production, for example, through the formation of an effective procurement system for agricultural products, a network of machine and tractor stations, service and procurement centres, etc.

For Central Asian countries, the main structural constraint is water scarcity. In the future, the scarcity will intensify in countries with an arid climate, limiting the potential expansion of the agricultural land. The solution to the issue of food security is, therefore, strongly linked to improving the efficient management of the **water and energy complex of Central Asia** and the use of moisture-saving technologies.

Box D. Linkages with Development of the Water and Energy Complex of Central Asia

The economies of Central Asia are characterised by a high level of energy and water intensity of various economic sectors, primarily agriculture and manufacturing. The social and economic development of the Central Asian countries in the Aral Sea basin has been accompanied by depletion of water resources for a long time, and that factor determines the key vector of interstate relations among the countries. The water shortage in the region is largely attributable to poor management of water use in agriculture and manufacturing, the unsatisfactory state of water management facilities, and insufficient funding for their maintenance and development.

Water withdrawal per capita has generally halved in Central Asia since the Soviet period, going down from 3,500 m³ to 1,540.7 m³ in 2018. The Central Asian countries continue to experience water shortages, and, under the international classification, they fall in the category of “water stressed” countries, with a threshold of 1,000 to 1,700 m³/person/year. Under the moderate scenario of developments in Central Asia, this trend will persist over the long term. In case of insufficient regional economic cooperation, including unsatisfactory water and energy integration, the Central Asian countries may approach a state of “water scarcity” by 2050 (1,296 m³/person/year, while the threshold is 1,000 m³/person/year).

Critical scarcity of water resources, their uneven distribution among the countries, and mounting environmental problems in the region call for concerted efforts and economic integration on the basis of shared interests (Vinokurov, Ahunbaev, Usmanov et al., 2022).

The high dependence of the agro-industrial complex in the Eurasian region on imports of investment and intermediate goods can also become a challenge in maintaining the region’s food security. The countries applying sanctions against Russia and Belarus supplied agricultural machinery and components (up to 50–100% for certain types), and seeds (in the Russian Federation — 98% for sugar beets; 89% for winter rapeseeds; 88% for potatoes; 73% for sunflowers; 58% for corn; and 53% for peas and spring rapeseeds). A decrease in imports in response to sanctions could lead to a sharp reduction in the sown area and/or lower yields. In animal husbandry, the rate of dependence on imports of hatching eggs and chickens was 95–100% for table poultry production and 75–80% for egg production.

The share of imports was also high for supplies of breeding stock and pedigree material, equipment for animal husbandry, feed additives, and veterinary drugs. In the near future (2023–2024), it is essential to secure uninterrupted supply of those materials to the region.

To address the problem in the long term, it is necessary to **accelerate development of the technological base of the agro-industrial complex with state support**, including by relying on existing players, in the following areas: seed production; pedigree livestock breeding; production of complex fertilizers, veterinary drugs, and feed additives; and measures to develop agricultural science. Close attention should be paid to reviving domestic selective breeding and genetics.

Import substitution in mechanical engineering is also a vital area of development. It is becoming critical to develop the production of agricultural machinery, including equipment for animal husbandry, poultry farming, pig breeding, and dairy cattle breeding, including high-tech segments, as well as the production of rolling stock for railways (refrigerator vehicles, carriages and containers, tanks for transporting vegetable oil, etc.) and the fleet for marine shipping, including a merchant fleet.

A separate set of measures should be focused on the creation of a favourable regulatory environment: designing policies aimed at stimulating the domestic demand to mitigate the risks of overproduction (procurement interventions, targeted social assistance to low-income people, etc.); and elimination of barriers and restrictions within the EAEU (in technical regulation, transport policy, public procurement, and tax policy). Certain risks for the development of the agro-industrial complex are arising in some countries of the Eurasian region (Belarus, Uzbekistan, Kazakhstan) due to the measures taken to achieve import substitution and food independence at the national level, which are regularly used in all countries of the Eurasian region. Even at the level of the EAEU, the adopted principles of economic integration are not always followed by member countries in case of conflicts with their national interests.

Forecast calculations show that, despite significant potential for growth in domestic consumption, **internal competition among producers in the Eurasian region may intensify in the future on markets for grain products, dairy products, meat, vegetables, and fruits.** In these circumstances, countries with a large national market (Russia, Kazakhstan, Uzbekistan) could pursue a relatively soft policy of regulating imports and focus on developing those sectors of agriculture that have the greatest prospects for exports to third countries.

Another important area is **accelerated enhancement of the financial infrastructure to support the agro-industrial sector**, including the development of mutual settlements in local currencies, creation of a unified insurance and reinsurance infrastructure to support export operations, etc.

Accelerating development in this direction will also be facilitated by **increasing the role of regional commodity exchanges.**