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Infrastructure in Eurasia: Short-Term and Medium-Term Trends

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INFRASTRUCTURE IN EURASIA: SHORT-TERM AND MEDIUM-TERM TRENDS

KEY CONCLUSIONS

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The goal of this report is to examine the main trends in infrastructure development in the Eurasian region. The report analyses the state of infrastructure in key sectors of interest to multilateral development banks (MDBs), including the EDB (transport, logistics, energy, water, telecommunications, etc.). It focuses on strategic areas for future infrastructure development that will contribute to greater economic integration in the region. Based on the identified trends in infrastructure development, the report suggests promising areas of activity for major investment market actors (including the forms of investment used) and helps to track institutional changes and define government priorities for further development. In the current environment, the Central Asian region has grown in importance and is the focus of interest for key political and economic actors, and is therefore accorded the greatest attention in the report.

Keywords: Eurasian region, Central Asia, infrastructure, transport corridors, logistics, digital transition, urbanisation, irrigation, food security, multilateral development banks, investment.

JEL: F15, F18, H54, L90, O13, O18.

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INTRODUCTORY REMARKS BY NIKOLAI PODGUZOV



Nikolai Podguzov, Chairman of the Management Board, Eurasian Development Bank

Global infrastructure investment needs are estimated at \$90 trillion by 2040. Coupled with an \$18 trillion investment gap, there is an urgent call to increase annual infrastructure investment. Infrastructure frequently grapples with inefficiencies, obsolescence, and shortfalls.

In this context, the importance of properly designed and well-developed infrastructure cannot be overstated when it comes to nurturing sustainable economic growth and driving the progress of nations. It serves as a foundation of growth. It enables economies of scale, streamlines production processes, and ensures smooth flow of goods and services.

Recently, Christine Lagarde, President of the European Central Bank, highlighted a crucial observation: economists often confine themselves too much to theoretical models. The lack of interdisciplinary collaboration with experts from other fields compromises the depth and accuracy of their forecasts. At the EDB, we endorse this interdisciplinary approach. Such multidimensional dialogue is the key solution to bridge the current divide between theoretical knowledge and practical applications.

I believe that understanding the nuances of infrastructure trends, their economic and social impact, is fundamental to this approach. With a strategic objective to foster sustainable economic growth among member countries and bolster regional economic cooperation, infrastructure development forms a cornerstone of our project portfolio. Projects such as the Almaty BAKAD bypass road in Kazakhstan, the Kulanak Hydro Power Plant in Kyrgyzstan, and the Hrazdan Thermal Power Station in Armenia are examples of our commitment in this domain.

To sustain this momentum, we invest significant efforts in cultivating a robust knowledge base in connectivity, electric power, and water. Our latest report delves into the crucial trends in the Eurasian infrastructure sector. It demonstrates a wide spectrum of investment opportunities, in particular across Central Asia. I hope that it will capture the attention across various stakeholders.

Multilateral development institutions, including the EDB, play a pivotal role in steering infrastructure development. Our track record underscores the value of our financial, technical, and research contributions in catalyzing infrastructure projects on a global scale.

INTRODUCTION

The Eurasian region¹ is on the path to inclusive growth and sustainable development. The countries of the region have integrated the UN Sustainable Development Goals (SDGs) to be achieved by 2030 into their economic policies. However, they all share a feature common to most developing countries. They suffer from a severe infrastructure shortage and wear and tear in transport and logistics, energy, telecommunications, irrigation, water supply and sanitation, etc. The main reason for this is underinvestment in infrastructure.

The lack of sustainable infrastructure is a major obstacle to achieving the SDGs. In particular, it interferes with the provision of access to water and sanitation for all (SDG 6), access to electricity (SDG 7), and making cities sustainable (SDG 11), it creates barriers to food security (SDG 2), and it hinders sustainable industrialisation and innovation (SDG 9). The infrastructure shortage limits opportunities to expand production capacity and improve trade and investment links between countries in the region, hampers economic growth and social development, and reduces the potential to respond in a timely manner to environmental and climate risks. The countries of the region will not be able to meet their SDG commitments without addressing the infrastructure gaps.

The infrastructure needs of the Eurasian region are only going to increase. In the coming decades, its wear and tear will become even more pronounced. Rapid urbanisation will generate significant demand for new infrastructure. Climate change and the rise of new technologies also bring new needs. The direction of trade flows in the region is changing, and new transport corridors and energy links are emerging. Therefore, all countries in the Eurasian region seek to implement both national programmes and regional initiatives to improve their infrastructure. Regulatory and institutional agendas are being updated and new areas of regional and international cooperation are opening up.

The objective of this report is to identify the key short-term and medium-term investment and institutional trends in infrastructure that are emerging in the Eurasian region today. These trends will determine the vectors of infrastructure development, over a two- to threeyear horizon. They reflect the significant challenges that multilateral development banks (MDBs), including the Eurasian Development Bank (EDB), are mandated to address. These financial institutions play an important role in the processes under review, providing longterm financing, technical assistance and policy advice to the countries of the region. The report focuses in particular on Central Asia (CA), which is the focus of growing interest from key political and economic actors. The ten trends identified in the report are presented in order of strategic importance for the Eurasian region in general. Each trend is detailed in a dedicated section.

¹ For the purpose of this report and analysis, the Eurasian region comprises the following countries: Armenia, Belarus, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, and Uzbekistan.

TREND



LINKS BETWEEN THE EAST-WEST AND NORTH-SOUTH CORRIDORS CREATE SYNERGIES IN TRANSPORTATION AND LOGISTICS The Eurasian Transport Framework has entered a phase of intensive development. Freight traffic to the east and south is growing. There has been a dramatic increase in pressure on the transport and logistics infrastructure of the North and Central Eurasian Corridors. The countries of the region have identified priority investments and launched great construction projects. Initiatives are being put forward to create new East-West and North– South International Transport Corridors (ITCs), which will call for an expansion of the framework architecture. There is a pressing need for digital solutions and seamless freight traffic. The urgency for infrastructure investment will remain high in the coming years and will be a priority for development banks, including multilateral ones. The creation of efficient ITCs will bring great progress to the Eurasian region, especially to landlocked countries. The key expected effects include: enhanced transport and economic connectivity, lower costs for exporters and importers, and increased mobility of the population.

1

The creation of efficient ITCs is of great importance for all Eurasian countries. ITCs ensure the integrity of export-import logistics chains and promote integrated spatial development of the region's territories. The potential of transport corridors increases substantially due to their interconnectivity on different routes, which provides additional opportunities for transport operators and cargo owners to reduce the time and costs of international freight traffic. The implementation of transport infrastructure development projects included in the Eurasian Transport Framework, the concept of which was developed by the EDB (Vinokurov et al., 2021), contributes to enhanced synergies of interconnected transport corridors for all countries.

The structural transformation of Eurasian transport links started during the COVID-19 pandemic and intensified significantly in 2023. During the COVID-19 pandemic, Eurasian railway corridors became particularly attractive compared to sea and road transportation, which was disrupted by the introduction of anti-epidemic measures.

The switch of freight traffic to the east and south, which started in 2022, has changed the geography of transport network operations. In 2023, the Central and North Eurasian Corridors, including ports in the Far East Basin, contributed 46% (300 million tonnes, +11% compared to 2021) of the total volume (more than 650 million tonnes) of international freight traffic along the corridors of the Eurasian Transport Framework, ports in the Azov–Black Sea basin (ABB) accounted for 34% (220 million tonnes, +24%), and the North-South Corridor accounted for 3% (19 million tonnes, +38%) (RF Government, 2024). International freight traffic to ports in the Baltic Sea basin added 15% (about 100 million tonnes) to that. This was accompanied by a substantial increase in the share of the North and Central Eurasian Corridors, the routes reaching the ABB ports, and the North-South ITC. The share of the route going to the Baltic ports decreased significantly (in 2021 it was more than 20%).



↓ Figure 1. Volume of Freight Traffic along Eurasian Transport Framework Routes, million tonnes

Source: estimates and forecasts of the RF Government.

On the eastbound routes, the priority is to improve transport capacity as increased trade with China and other Asian countries requires this. By 2023, more than USD 15 billion had been invested in the development of the Eastern Range infrastructure (connecting the Transsib Railway and the Baikal-Amur Mainline and providing access to ports in the Far East Basin) as part of the investment programme of Russian Railways OJSC (RZhD OJSC) (second running lines, crossings, bridges, electrification, digital solutions, etc.). New specialised transport and logistics centres and auxiliary back areas have been created. The upgrading of more than 140 facilities has been completed or is nearing completion. As a result, carrying capacity has increased to 173 million tonnes (155 million tonnes in 2022), with plans to reach 180 million tonnes in 2024 and 255 million tonnes by 2032. More than 30 transport and logistics centres will be built along the North Eurasian Corridor. In terms of road infrastructure, investment in Russia's longest new motorway, the M-12 Moscow-Kazan, which became fully operational in December 2023, totals more than USD 10 billion. In CA, the number of initiatives to develop latitudinal transport corridors has increased sharply in the last year. The focus is on the traditional east-west transport routes, including the Central Eurasian Corridor, and the TRACECA ITC, including the Trans-Caspian International Transport Route (TITR). All key stakeholders are interested in their development: Russia, China, Iran, India, Turkey, Pakistan, European countries, and the United States.

The development of transport links between Eurasia and world markets depends on the efficiency of the ABB ports and land-based access to them. The port of Novorossiysk and the ports of the Azov Sea are used to ship the largest quantities of grain, as well as fertilisers, metals, oil, and other minerals. The handling capacity of the seaports is generally adequate. The ports are able to cope with the growing freight turnover. The focus along this route is on projects and measures to improve the capacity of railways, motorways, and border crossing points. The RZhD OJSC investment programme envisages the rebuilding of some railways that will increase the carrying capacity (including passenger traffic among other items) of the routes to the ABB ports. Road projects are also a priority. Efficient transport and logistics infrastructure in the ABB is essential for all Eurasian countries. It is the place where latitudinal routes (Samara-Volgograd-Novorossiysk and Volgograd-Rostov, which are key for freight access to the ABB from Kazakhstan and other CA countries) are linked to meridional routes (Moscow-Voronezh-Rostov-Novorossiysk and the Volga-Don waterway). Establishing links between such routes has the potential to create a great synergy effect for freight traffic. In this case, Belarus will be able to redirect its exports to Russian ABB ports.

In 2023, the North-South ITC took a special place in the new configuration

of Eurasian transport corridors. During the year, agreements were signed on the completion of the last critical railway section of the western route (North–South – Rasht – Astara in Iran) at a cost of EUR 1.6 billion (a loan from the Russian Federation accounted for EUR 1.3 billion, while the rest came from the Iranian side and infrastructure banks). The project is scheduled to start in 2024 and works are expected to be completed in 2027. Projects to expand the capacity of the seaports of Olya, Aktau, Kuryk, etc. are being implemented. Work is underway to create a union of special economic zones. In order to promote traffic, transit countries offer privileges for container traffic with uniform discounted rates for the use of infrastructure. For example, RZhD OJSC has announced the conclusion of agreements with partners on discounts on the eastern route of the North–South ITC (40% in Kazakhstan for transportation of basic goods, and 40–50% in Turkmenistan).



By 2030, potential North–South ITC freight traffic is likely to increase to 30 million tonnes or more. North–South ITC freight traffic is growing rapidly. The volumes are still lower than on other international traffic routes, but they have great potential for growth. In 2022, the volume of traffic was about 16 million tonnes, and in 2023 it is estimated at 19 million tonnes. The growth was far beyond expectations. Under the best-case scenario prepared by the EDB in 2021, potential ITC freight traffic was expected to reach 24.7 million tonnes by 2030 (Vinokurov et al., 2021). This volume is likely to be reached much sooner, and many estimates are being revised upward.

The North–South ITC is of exceptional importance for the implementation of plans to realign Eurasian routes. It is an integrated transport route linking the north-western part of the Eurasian Economic Union (EAEU) with the CA states, the Persian Gulf region, and the Indian Ocean countries. The corridor encompasses several modes of transport: railways, motorways, and inland waterways. The ITC infrastructure offers flexibility and diversity of transport routes, facilitating international trade and promoting cooperation between the regions it connects. The improvement of soft infrastructure, in particular the harmonisation of border crossing procedures, the coordination of tariff policies, and the introduction of digital tools, is crucial for the development of the corridor (Vinokurov et al., 2022).





Meridional transport corridors are essential for all Eurasian **states**. During the past year, a number of options have been proposed to improve the transport links of CA with the North-South ITC. First, a potential new corridor linking Belarus, Russia, Kazakhstan, Uzbekistan, Afghanistan, and Pakistan is under consideration. Secondly, Kyrgyzstan, Russia, Turkmenistan, and Uzbekistan have agreed to build a multimodal Southern Transport Corridor between CA and Russia. The route will run from southern Kyrgyzstan to Uzbekistan, then to Turkmenistan, to the port of Turkmenbashi on the Caspian Sea, and then north to Astrakhan. It is planned to switch part of the freight traffic of the CA region to the North-South ITC route to the port of Astrakhan. Armenia is also interested in the development of the North-South ITC, implementing projects to restore and build a route between Iran and Georgia running through its territory.

The unique direction of the North–South ITC enables **links** to other global and regional east-west transport corridors: the Transsib Eurasian Corridor and its components — OSJD Corridors No. 1 and 2, and the Europe–Western China (EWC) International Transport Route; OSJD Corridors No. 5 and No. 8 connecting China and CA to countries of Central and Eastern Europe (CEE); the TRACECA ITC and the coaxial Lapis Lazuli ITC and Black Sea — Caspian Sea (BSCS) international route; CAREC Transport Corridor No. 2; the Southern Eurasian Transport Corridor connecting the countries of Southeast Asia to India, Pakistan, Iran, and Turkey (currently only the Iran– Turkey section and, to a much lesser degree, the Pakistan– Iran sections are functional). The vast mosaic of links to other transport corridors creates extensive opportunities for delivery of cargo among various countries within the Eurasian space.

TREND 2

GAS TRANSPORT INFRASTRUCTURE IS TURNING EASTWARDS



In 2023, intra-regional and international cooperation in the Eurasian region intensified to rebuild and expand the connecting gas transmission infrastructure. Investment projects are being implemented. New gas supply routes are being developed. This is a long-term trend with great importance for all countries in the Eurasian region. It involves the implementation of investment projects in the following areas: renovation of existing and construction of new gas pipelines, as well as development of gas distribution networks, gas storage facilities, liquefied natural gas (LNG) production facilities and regasification terminals, gas chemical facilities, and so on.



Global gas markets are in a structural change phase. One of the key trends is the shift in natural gas demand towards the Asia-Pacific region (APR). After a decline of 1.5% in 2022, natural gas demand in the APR reverted to growth in 2023 and is estimated to have increased by 2.5%. This growth is mainly driven by China, India, and some emerging Asian economies (IEA, 2024). According to the International Energy Agency (IEA), the region's gas import needs are estimated at 372 billion m³ in 2026 (150 billion m³ more than in 2022), accounting for 35% of domestic consumption. The consumption growth rate will be 2-3 times higher than the global average and the region's share in global demand will increase to 25% (22% in 2022). China will account for half of the increase in global gas demand (IEA, 2023).



billion m³

400

350

300

250

200

150

100

50

0

2020

212

245

2021



236

222

↓ Figure 3. Natural Gas Price Index (2010 = 100)



Source: International Energy Agency.

Import needs, billion m³

2022 2023

Source: World Bank.

Increasing LNG production remains an important trend. The increase in global LNG production in 2022 and 2023 stabilised global gas markets and significantly reduced prices. Between 2022 and 2026, global LNG supply is expected to increase by 24% (or 130 billion m^3 per year) to more than 670 billion m³ (IEA, 2023). The conversion of natural gas to LNG brings flexibility to gas markets and reduces their fragmentation. LNG enables the creation of "virtual gas pipelines". They eliminate the need to build gas pipeline infrastructure and facilitate geographic diversification of supply.

These trends will have a decisive impact on the gas industry across Eurasia in the near future. There is a major refocusing of the main gas transmission infrastructure towards the Asia-Pacific region, as well as an expansion of LNG production capacity.

In **Russia**, amid declining gas production (-5.5% y-o-y, to 636.7 billion m³) and exports (-29.9% y-o-y for pipeline gas, to 99.6 billion m3, and -1.9% y-o-y for LNG, to 45.4 billion m³) in 2023 (Vedomosti, 2024a), pipeline gas and LNG exports have begun to shift to the **east and south**.

- Gas exports to **China** via the **Power of Siberia pipeline** increased by a factor of 1.5 compared to 2022 (15.5 billion m³) and are estimated at 23.2 billion m³ (22 billion m³ under the contract). An increase to 30 billion m³ is planned for 2024. The pipeline is expected to reach its design capacity of 38 billion m³ in 2025. It follows from statements of GAZPROM JSC that the Far East route will be launched in 2027–2028. Contracts with China envisage a total of 48 billion m³ to be delivered by 2030. These volumes are reflected in China's development strategy (FIEF, 2024).
- According to Chinese customs statistics, **LNG** exports to **China** increased by 23% y-o-y in 2023 to 8 million tonnes (TASS, 2024), making China the leading export destination for the year.
- LNG supplies to **Turkey** and **India** also grew (by 1.4 times to 814,000 tonnes and 1.5 times to 432,000 tonnes, respectively) (Vedomosti, 2024b).
- Work is under way with **Iran, Qatar,** and **Turkmenistan** to create a gas hub in the Persian Gulf on the territory of Iran. Prospects and arrangements for swap gas supplies to international markets are being explored.
- Participation in the creation of a gas hub in **Turkey** remains on the agenda. Preconditions for this to happen are in place. Russia supplies gas to Turkey through the Blue Stream and TurkStream pipelines across the Black Sea. TurkStream gas is then exported to Southern and Eastern Europe, including Hungary, Greece, Bosnia and Herzegovina, Romania, and Serbia. Turkey has extensive infrastructure for LNG imports and is currently working on the prospects of liquefying gas on its territory. A project to create an electronic gas trading platform in the Istanbul financial centre is also under consideration.



A key development for the Eurasian region was the conclusion of a trilateral cooperation agreement between Kazakhstan, Uzbekistan and Russia in June 2023 to develop gas infrastructure in CA. This agreement facilitates the efforts of the three countries in upgrading gas transmission infrastructure to expand both intra-regional and international gas trade. The cooperation entails the supply of 2.8 billion m³ of gas from Russia to Uzbekistan through the Central Asia–Centre oil and gas pipeline (*which previously carried gas from Turkmenistan and Uzbekistan to Russia*) via Kazakhstan for two years. Renovation work has been carried out. One of the oil and gas pipelines has been reversed. The possibility of increasing gas supplies to Uzbekistan to 15 billion m³ per year is being explored, among other reasons to enable gas supplies to Kyrgyzstan by extending the pipeline to the Kyrgyz-Tajik border and connecting it to the Bukhara–Bishkek–Almaty pipeline.

Such cooperation helps Kazakhstan to develop its transit potential and improve the reliability of gas supplies. Connecting the Saryarka gas pipeline to the Russian gas pipeline system for gasification of the northern and eastern regions of the country is being explored. Once the pipeline route and the gas price are approved, the optimal gasification option will be determined. Among the potential gas pipeline routes is Barnaul–Rubtsovsk– Semey–Ust-Kamenogorsk going further to the Chinese city of Alashankou for supplies to China, with a branch extending to Pavlodar. The Omsk– Pavlodar–Semey route, with a branch to Ust-Kamenogorsk and going further to Alashankou, is under consideration.





Trilateral cooperation stabilises gas supplies to CA. Given the emerging domestic gas scarcity in Kazakhstan and Uzbekistan, the agreement will help the countries to fully meet their domestic needs and free up additional volumes of produced gas to meet their export commitments to China. In December 2023, gas deliveries to Uzbekistan were twice the daily contractual obligations due to increased demand during a period of severe cold weather.

Turkmenistan is implementing a strategy to diversify its gas export routes. The core project is the construction of a fourth line of the D gas pipeline to China (*through the territory of Kyrgyzstan and Tajikistan*). It is planned to increase the volume of gas supplies to China by 25 billion m³ per year. This volume will come from the second stage of development of the Galkynysh field. TAPI (*Turkmenistan–Afghanistan– Pakistan–India*) and Trans-Caspian gas pipelines are being developed. Agreements have been reached with Iran on the annual transit of up to 9 billion m³ of gas to Iraq. Options for gas swaps with Hungary through the Trans-Adriatic and Trans-Anatolian gas pipelines are being studied. Negotiations are under way with Turkey.

For Russia, cooperation with CA opens up access to the Central Asia-China gas pipeline for gas exports to China and, in the longer term, may open up access to South Asia, provided that other CA projects aimed at developing gas transport infrastructure (e.g. the TAPI gas pipeline) are implemented.

LNG production and transportation projects are an emerging priority. Major projects include Yamal LNG (a 16.5 million tonne facility and the seaport of Sabetta for loading products onto LNG tankers), as well as Novatek and Rosneft projects: Ob LNG (5-6 million tonnes per year), Baltic LNG in Ust-Luga (13.3 million tonnes), Yakutsk LNG (17.7 million tonnes), Far East LNG on Sakhalin (16.2 million tonnes), Kara LNG on the Kara Sea shelf (30 million tonnes), and Taimyr LNG in the Krasnoyarsk Region (35-50 million tonnes). The Cryo-LNG tank container project in the Moscow Region is a landmark one. Russian supplies account for about 8% of the world's LNG market and the country is the fourth-largest LNG exporter after the United States, Qatar, and Australia. It plans to increase production to 100 million tonnes by 2030 and capture 20% of the market.

TREND 3

THE INFRASTRUCTURE OF FOOD PRODUCTION AND LOGISTICS IS EXPANDING

The Eurasian region continues to show positive results in developing the agricultural sector. The region also has some of the highest agribusiness development potential in the world, which will allow it to expand its role significantly in ensuring global food security in the future. Eurasian countries have significant food export potential. To realise this potential, the construction and upgrading of transport and logistics infrastructure will increase significantly in the near future, and the development of new supply routes will accelerate. In addition, the region's proximity to the largest consumers offers alternative land routes for food supplies, which can enhance the stability of global agricultural supplies in the face of growing risks of disruption to conventional maritime routes. Enhanced competitiveness of the region's products against the backdrop of high global inflation and volatile global food prices will play an important role in realising the region's prospects.



The Eurasian region is rapidly expanding its food exports. In 2023, agricultural exports from Russia exceeded USD 45 billion for the first time ever. Cereal crops and oilseeds and their derived products traditionally remain the key export commodities. Exports of livestock products, especially meat (pork) and poultry, are also growing. The top 5 destinations for Russia's exports in 2023 included Iran, India, Libya, Germany, and Uzbekistan (Tadviser, 2024). Overall, Russian exports of agro-industrial products have doubled since early 2018. Kazakhstan, another major food exporter in the region, has also doubled its agricultural exports over the same period.





↓ Figure 4. Food Exports by Key Exporters in the Region, USD billion

Figure 5. World Container Index (WCI) (USD/per 40-foot container)

* preliminary estimates.
Source: National statistical offices, EDB experts' estimates

Source: Drewry.

The unique opportunities of the Eurasian region will further strengthen its position in the global export market. The region has one of the most significant production, resource, and export potentials in the agribusiness sector. It already has a culturally and historically shaped and well-established ecosystem of production factors, socio-economic links, and other basic systems vital for the functioning of the agribusiness sector. The combined position of the Eurasian countries in the international food market will continue to strengthen in the face of deteriorating global food security, the growing world population, and the limited production and resource potential of other macro-regions (Vinokurov et al., 2023).

Prospects for expanding food exports with a focus on major markets. The region is located in close proximity to the largest promising food markets with a total population of more than 3 billion people. If the Eurasian region realises its agro-industrial potential, it will be able to fully meet the food needs of 600 million people by 2035, including 240 million of its own population and an additional 360 million in third countries. In the future, against the background of the increasing importance of food in the world and the generally sufficient level of its own food security, the Eurasian region may almost double its food exports — from USD 40 billion in 2021 to USD 74 billion in 2035. China, the Middle East, North Africa, and India are the most promising export destinations (Vinokurov et al., 2023).

↓ Figure 6. Food Price Index

160 140 120 100 80 60 40 20 0 2015 2017 2019 2021 2003 2009 2013 2023 2001 2005 2007 201

↓ Figure 7. Main Bottlenecks of Maritime Shipping and their Shares



Note: 100 = average for 2014–2016. **Source:** UN.

Source: Lincoln Pratson (Duke University).

Rising production costs boost the competitiveness of the region's products. The cost of food has risen significantly, first driven by the COVID-19 pandemic and countermeasures, and later by the sharply intensified geopolitical tensions, sanctions, and the fuel and energy crisis. Despite the decline in the index in 2023, the risk of price hikes in response to crises in the global economy remains. Factors such as population and consumption growth (especially in fast-growing economies) as well as rising food costs will keep prices high. High prices for energy and energy derivative products (including fertilizers made from natural gas); scarcity of skilled labour; limited prospects of making new lands available for farming (this option remains open mainly in countries of the former Soviet Union, China, the United States, and Canada); and adverse effects of climate change are the main drivers of rising costs. Access to raw materials for fertiliser production gives the region a global competitive advantage (Vinokurov et al., 2023).

Increased competitiveness of land routes for food transport. The shallowing of the Panama Canal, which has reduced its capacity by 30%, and the disruption of freight traffic in the Red Sea due to the threat of missile attacks in the Yemen region, have led to a reformatting of global logistics. As a result, international shipping costs, which returned to normal after the COVID and Ukraine crises, have risen sharply. This enhances the competitiveness of continental meridional and latitudinal routes, where the cost of delivery becomes more attractive at such points in time. As the processes of regionalisation of the global economy deepen, the number of points of tension in the world may increase, leading to further disruptions of conventional food supply routes. An important factor will be the ability to ensure uninterrupted supplies of staple foods through both domestic production and stable imports. In this environment, the competitiveness of alternative land routes, in particular the North–South ITC currently widely used for food transport, will increase substantially.

Improvement of southward and eastward transport routes. The need to expand access to the most promising markets will stimulate the integrated development of a unified Eurasian Transport Framework — motorways and railways, seaports, transport and logistics centres, border checkpoints, etc. The role of the North–South ITC will continue to grow with a potential increase in food transport volumes to India, China and other countries in Asia, the Middle East and North Africa.

Expanding agro-logistics and warehousing systems. Growing volumes are driving the need for active commissioning of trade and logistics centres (TLCs), in particular, Class A warehouses. The formation of the Eurasian Commodity Distribution Network (ECDN) will facilitate the realisation of the internal transport and logistics potential of the Eurasian region. Logistics development should be based on modern digital technologies. The ECDN will help improve the accuracy of planning and reduce delivery times, ensure the safety of products, and improve the efficiency of payment services and the speed of ordering and returning goods.

One of the current projects is the Eurasian Agroexpress, which envisages the development of transport and logistics services and infrastructure for agribusiness. The project is being implemented along three key routes — Central Asian, Chinese, and the North–South ITC. 1,200 self-contained refrigerated containers are used in this project. At present, the main destination is China. For the first time ever, a corridor to India and Iran has opened. A pilot shipment to Uzbekistan has been made and shipments to the UAE are being prepared. In 2023, high-margin food exports under this initiative increased by 6%. The total volume of traffic under the Eurasian Agroexpress project exceeded 450,000 tonnes in 2023. The main list of cargo included oils and fats, fruit and vegetables, canned goods, grain legumes, as well as chicken meat and beef. Exports of grain legumes more than quadrupled, while exports of oils and fats grew by about 20% (eaeunion.org, 2024).

The most **promising areas of investment** in the context of this trend will be projects involving food production, storage, transport, processing, and trade. In addition to hard infrastructure, the development of digital components and other intangible assets will play an important role.

The EDB is actively involved in financing projects involving food security and the development of export potential in the Eurasian region. In addition, EDB analysts have published a report called "Food Security and Agro-Industrial Potential of the Eurasian Region", which contains practical steps to be taken to realise the available potential. The steps include:

- Reduced dependence on imports of investment and intermediate goods (agricultural machinery and components, seeds of sugar beets, winter rapeseeds, potatoes, sunflowers, corn and peas, hatching eggs and chickens, as well as pedigree livestock, livestock breeding equipment, feed additives and veterinary drugs);
- Development of seed production, pedigree livestock breeding, and revival of domestic breeding and genetics;
- Import substitution in mechanical engineering, including high-tech segments, focusing on renewal of the fleet for motorways, rolling stock for railways (refrigerator vehicles, carriages and containers, tanks for transporting vegetable oil, etc.), and the marine shipping fleet;
- Enhanced financial infrastructure to support the agro-industrial sector, including the development of regional commodity exchanges, mutual settlements in local currencies, creation of unified insurance and reinsurance infrastructure to support export operations, etc.

TREND 4

RAPID URBANISATION BOOSTS DEMAND FOR SUSTAINABLE URBAN INFRASTRUCTURE IN CENTRAL ASIA

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1. " (I 11 " (I The Eurasian region is experiencing increasing rates of urbanisation, in particular, in CA countries. The catch-up growth of the region's cities will continue, stimulating the development of modern housing and urban infrastructure that meets the needs of citizens and businesses and aims to make efficient use of available resources. Urbanisation will create new requirements for infrastructure development in cities and urban agglomerations. In this context, the effective development and management of modern housing and utilities infrastructure will be crucial to ensure comfortable living conditions and a high quality of life. The growing number of urban residents requires higher investment in urban civil engineering (energy, water, heat supply, (a comfortable environment, etc.), and digital management technologies. The upgrading and construction of urban infrastructure in CA is a structural challenge comparable in importance to efficient management of water and energy resources in CA.



Urbanisation in the Eurasian region is a growing trend. According to preliminary estimates, 66% of the region's population lived in cities in 2023. Armenia, Belarus, Kazakhstan, and Russia are above the global average of 57%. This trend is particularly relevant for CA. While cities are currently home to 49% of its population, the urban population increased by 9.5–16% between 2018 and 2023, a much higher rate than in other countries in the region. The main reason is internal migration: surplus labour is moving from rural to urban areas due to low incomes. The CA urban population is expected to grow from 39 million to 45 million by 2035.





 $\ensuremath{\textbf{Source:}}\xspace$ EDB experts' estimates based on World Bank and UN data.

Source: EDB experts' estimates based on World Bank and UN data.

The urban population and the areas of cities are growing in the region, but **this process is not accompanied by adequate development of sustainable urban civil engineering** (efficient water supply and sanitation, sustainable energy and heat supply, waste disposal, transport including public transport, etc.), **social infrastructure** (health and education facilities, public spaces, parks, sports and cultural facilities), or housing stock (affordable and quality housing). Large CA cities are often characterised by unregulated land development (CER, 2013). The consequences of such urbanisation include: increased pressure on urban labour markets, excessive wear and tear of civil engineering infrastructure, limited access to social infrastructure, and high vulnerability to climate change, natural disasters, and environmental risks (Astana, Almaty, Bishkek, Dushanbe, and Tashkent are regularly at the top of world rankings for air pollution in winter).

The wear and tear of infrastructure is causing a growing number of emergencies. There are problems in the heating sector in CA: wear and tear of heat-generating equipment and heating networks, as well as equipment operating in excess of its statutory service life. This is manifested in failures of heat supply systems in large cities, resulting in serious losses of heat energy and heat carriers. In the town of Ridder (Kazakhstan), an industrial emergency regime was introduced in November 2022 due to a breakdown at the combined heat and power plant (CHP). In the spring of 2023, Astana experienced a shortage of rated capacity to supply drinking water to residents due to population growth and rapid development of the capital city. Kyrgyzstan had to introduce a schedule of rotating outages in the autumn and winter of 2022/2023 due to a sharp drop in temperatures and a resulting shortage of generation capacity. In Uzbekistan and Tajikistan, low temperatures also led to rotating outages in the autumn and winter of 2022/2023, leading to water supply disruptions.

However, rapid urbanisation creates both risks and opportunities. Efficient urban management can achieve significant economies of scale, facilitate rapid diffusion of knowledge and technology, and ensure the realisation of network externalities inherent in urban agglomerations. The ability of cities to generate added value is a major driver of global growth -57% of the world's population live in cities, which generate 80% of global GDP (World Bank, 2023).

Growth of the urban population drives high demand for efficient and sustainable infrastructure, which is a source of growth for any city. The availability and quality of infrastructure is at the heart of many challenges faced by cities undergoing urbanisation in developing countries.

In order to unlock and fully exploit the positive effects of urbanisation, it is necessary to intensify the **construction and upgrading of basic civil engineering and social infrastructure** in CA: networks of urban roads and railways, airports, water supply systems, energy and heat supply systems, telecommunications, schools and hospitals, etc. Here are some examples.



- Kazakhstan is working on projects to build new CHPs in Kokshetau and Semey, and to upgrade the energy complex in Almaty. In particular, a feasibility study is being developed for the construction of CHP-3 in Semey with the following provisional characteristics: electrical output — 320 MW and thermal output — 1,200 Gcal/h. An agreement has been reached with Atrafin Bank (USA), World Vision Solutions, and Greenlight Business Ventures (Israel) on a pilot project for the construction of tanks to collect up to 5 million m³ of rain, melt water, and treated wastewater. In the Mangistau Region, construction of a desalination plant with a capacity of 50,000 m³ per day has started, in order to meet the needs of the population of Zhanaozen.
- The World Bank has provided USD 143 million for the Clean Energy for Buildings project in **Uzbekistan** for 30 years, with a 5-year grace period. The project will upgrade more than 800 pre-school, school, and health facilities.
- The Government of **Tajikistan** has received USD 6.5 million worth of electrical equipment from USAID as technical assistance for the capital city, Dushanbe, and the regions. Some 59 containers of transformers and other industrial equipment will help improve the energy efficiency of the electrical power supply system.





An important area is investment projects to create a comfortable urban environment for urban mobility (including car sharing and bicycle and electric scooter rental). In 2023, Kazakhstan prepared a master plan for the development of the transport framework of the city of Almaty (Kazakhstan), which includes the construction of a BRT line - 17 km in 2024, and an LRT line - 26 km in 2026. An electricity network development plan has been drafted for Almaty for the period up to 2030 with an outlook to 2040 (the length of the electricity networks in Almaty is 8,600 km, and its wear and tear is 65%). Kazakhstan has adopted a roadmap to build essential infrastructure for electric vehicles in all major cities by 2029. Incentive instruments are to be introduced. The Ministry of Transport of Tajikistan and the Export-Import Bank of South Korea have signed a Memorandum of Understanding to finance a feasibility study for the construction of a light rail system in Dushanbe.

The implementation of digital technologies for urban infrastructure management is a priority area for investment. As urbanisation and digital transitions intensify, there is a growing need for new methods of planning, implementing urban infrastructure projects, and managing completed systems. Smart city technologies aim to monitor and manage the performance of urban infrastructure. These tools include: smart traffic management systems, energy efficient lighting, waste management systems, digital security systems, and many others. In 2023, the Mayor's Office of Tashkent (Uzbekistan) studied the prospects of engaging Rusatom Infrastructure Solutions LLC (part of Rosatom Group) to implement joint projects in the field of municipal infrastructure. The company specialises in upgrading critical urban infrastructure as part of the Smart City and Clean Water solutions.

The investment needs of CA to develop sustainable urban infrastructure are high. The scale of investment required to enable CA cities to build infrastructure that meets the needs of low-carbon and climate-resilient development, addressing environmental and climate challenges while ensuring a decent quality of life, is significant. Upgrading and building urban infrastructure in CA is a real structural challenge, comparable in importance to efficient water and energy management in CA.

TREND5 DEVELOPMENT OF DIGITAL COMPONENTS

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OF RETAIL FINANCIAL SERVICES AND PUBLIC SECTOR SERVICES IS ACCELERATING



The active development of both mobile and fibre-optic communication systems, as well as the expansion of Internet access, has provided a solid foundation for accelerating the region's digitalisation. Digital transformation is expected to intensify, including the development of digital ecosystems and platforms, new applications and cross-border digital services. The digital economy, supported by both private and public initiatives as well as integration projects, plays a key role in the growth of regional economies. Some countries in the region already have a relatively high level of digital development, enabling the export of IT services. In addition to the development of traditional sectors of the digital economy (public services, social security, and Internet banking), digital transformation is intensifying in almost all sectors of the economy. The goal is to create sectoral ecosystems, seamless transport corridors, and smart energy networks, ensure efficient water use, and balance the pressure on urban infrastructure. The realisation of the region's potential will be accompanied by the deployment of related infrastructure, opening up huge opportunities for investment in online services and supporting industries.



The Eurasian countries show positive momentum in the development of digital technologies. According to UN data, most countries in the region are ahead of the global average in terms of the E-Government Development Index (EGDI). The leading position is held by Kazakhstan (ranked 28th out of 193 countries). The top three countries in the region also include Russia (ranked 42nd) and Armenia (ranked 64th). The EGDI is a composite measure of three important dimensions of e-government, namely: the provision of online services, telecommunication connectivity, and human capacity. Along with the assessment of website development patterns, the index incorporates access characteristics (infrastructure and educational levels) and reflects how a country uses information technologies to promote access and inclusion for its people (UN, 2023).



↓ Figure 11. Broadband Coverage and Internet

↓ Figure 10. UN E-Government Ranking of Eurasian Countries, 2022

Source: UN study: E-Government 2022, Digital 2023 (Global Overview Report).

The Eurasian countries are growing exports of digital solutions. Armenia is a leader in exports of digital services, with more than 90% of IT companies' services being exported. This indicator increased in 2023 from 82% to 92% of exports of IT products, solutions, and services, with the volume of exports also doubling, from USD 258 million to USD 524 million. Growth in exports of digital services was recorded in Kazakhstan (+USD 136.7 million for the first 6 months of 2023) and Uzbekistan (+USD 149.5 million for the first 9 months of 2023). At the same time, exports of IT services from Russia fell by more than half in the first six months of 2023 – from USD 3 billion to USD 1.3 billion. This is due to the relocation of IT companies to Armenia, Kazakhstan, Georgia, and other countries.

Digitalisation has driven financial innovation in many aspects of life, transforming traditional financial services into multi-platform ecosystems. Financial institutions were the first to adopt digital tools: mobile applications for account and investment management, and digital wallets. At the same time, digitalisation has enabled the expansion of the range of services offered — integration of government services into their own platforms enhances the ability of users to address a wide range of issues. For example, Kaspi (Kazakhstan) has introduced an online car registration service that enables the remote sale, purchase, and re-registration of cars, payment of required fees and charges, and selection of a licence plate number. The Central Banks of Kazakhstan and Russia are piloting the use of local currencies for settlements between their economic entities.

Digitalisation and digital transformation in the region are actively supported by integration projects. Since 2010, the EAEU has developed the Union Integrated System (eaeunion.org), which aims to create common information resources for member states, implement common processes, and support the activities of the EAEU bodies. In 2017, the EAEU Digital Agenda up to 2025 was adopted. It is being implemented at the supranational level in the region, in parallel with national digitalisation / digital transformation programmes. Since 2018, a number of projects on digital traceability of the movement of goods have been implemented (for a growing list of commodity groups). In addition, the countries of the region have taken significant steps towards mutual recognition of digital signatures and the development of paperless trade mechanisms within the EAEU. A platform (or a set of digital platforms) for an EAEU goods distribution network aimed at bringing together stakeholders in trade operations, including manufacturers, transport companies, retailers, as well as financial institutions, insurance companies, and government agencies, could become one of the main projects in the region. The Digital Initiatives Fund is mandated to promote digitalisation in the economy. The Fund is actively involved in digital projects across economic sectors, including medicine, jewellery production and textiles, as well as in the areas of skills development and migration. The implemented applications "Travelling without COVID-19" and "Working in the EAEU" have become highly popular and appreciated by users.



International cooperation on digitalisation is growing. In February 2022, the Central Asia Regional Economic Cooperation (CAREC) Digital Strategy 2030 was adopted. This initiative aims to expand the use of digital technologies in the region, to promote socio-economic progress following the COVID-19 pandemic, and to support the growth of promising technologies. The strategy outlines specific activities to improve digital infrastructure, develop people's digital skills, support innovative projects, and mobilise investment in the digital technology sector. The move is also an example of the countries' interest in digitalisation.

The implementation of digital projects requires rapid deployment of infrastructure and regulatory support. Ensuring sustainable Internet connectivity is becoming one of the key elements in the expansion of digitalisation. Therefore, projects such as the Digital Silk Road, the laying of a fibre-optic cable under the Caspian Sea, and the TEA NEXT aim to ensure connectivity between countries, including China, Europe, and CA countries. The President of Kazakhstan has supported the laying of a new fibre-optic cable from Russia to Iran, which highlights the drive to develop information technology in the region. These initiatives demonstrate commitment to improving the availability of information and communications and creating modern digital infrastructure that is likely to have a significant impact on the socio-economic development of the region. The building of digital infrastructure is also gaining in importance for the implementation of crossborder digital projects.





The region has significant potential to continue deepening digitalisation. Digitalisation will accelerate in the region as the coverage and technological level of communication increases, new data centres are built, and local processes are automated. In addition to the development of traditional sectors of the digital economy (public services, social security, and banking), further efforts will be made to digitalise all sectors of the economy, in order to ensure seamless transport corridors, smart energy networks, and efficient use of water, as well as to balance the pressure on urban infrastructure. Statista predicts that broadband coverage will exceed 75% and the number of mobile Internet users in CA will increase. Between now and 2030, the focus will be on the digitalisation of services, including the active development of telemedicine, which will improve access to medical consultations. In the travel industry, digital tools will make it easier for holidaymakers to manage a variety of aspects and to improve their knowledge of destinations. In banking, the focus will be on interoperability of payment systems and assessing potential customers across the region. At the same time, the greatest potential will remain in the digitalisation of industry, agriculture, transport, and logistics, urban management and territorial development, as well as in the creation of new cooperation models and underlying digital platforms.
TREND 6

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BOOMING CONSTRUCTION OF WAREHOUSING AND LOGISTICS INFRASTRUCTURE DRIVEN BY THE GROWTH OF E-COMMERCE

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E-commerce in the Eurasian region is experiencing explosive growth, expanding penetration into previously untapped or underdeveloped territories and market segments and driving the emergence the lack of transport and logistics infrastructure hampers service expansion, alternative networks owned by major marketplaces are emerging. Having tapped their domestic markets and taken the lead, large companies are looking to extend their logistics network expertise to cover previously hard-to-reach areas, in particular, in neighbouring countries. This strong growth in the region will lead to a multi-fold increase in the number of multi-disciplinary handling, picking, processing and storage centres in particular, and a significant improvement in the logistics sector in general. As a result, the region will see a boom in the construction of sorting and storage facilities for consumer goods, especially high-end warehouses, as well that will improve the speed of delivery and the overall quality of service.



Explosive growth of e-commerce in the Eurasian region. The online sales market in Russia is estimated to have grown by 44% to RUB 8.2 trillion in 2023. The main driver is the continued shift from traditional offline to online retail. In addition, the recovery of cross-border trade as a result of the weakening of transport shocks faced in 2022 has also had an effect (Tadviser, 2024). A surge has been seen in Kazakhstan, where e-commerce growth reached 80% in 2023, with an estimated market size of USD 5 billion. The volume of e-commerce in Belarus is estimated at USD 1.1 billion in 2023, having grown by 16.1%, and in Uzbekistan it is estimated to have increased by 40%.





↓ Figure 12. Share of Population (15 Years and Older) Making Online Payments

↓ Figure 13. Share of E-Commerce

Source: PWC, Freedom, Digital 2023.

Russia (15%) and Kazakhstan (13%) lead the region in terms of e-commerce share. In Belarus, it is 6%, while in other countries in the region the shares do not exceed 5%. Kyrgyzstan and Tajikistan, although clearly lagging behind in e-commerce, can get a boost from major platforms in neighbouring countries, such as Kaspi and Uzum Market. The main online retailers are Alibaba (China), Wildberries and Ozon (both — Russia), Kaspi (Kazakhstan), Uzum (Uzbekistan), and Svetofor (Kyrgyzstan). In Russia and Belarus, Wildberries and Ozon dominate the market, accounting for over 40% of total online sales.

↓ Figure 14. Share of E-Commerce and Major Players



Source: EDB.

Source: PWC, Freedom, Digital 2023.

In 2023, the accelerated growth of marketplaces' market share due to improved logistics efficiency had a significant effect on trends in both the e-commerce market and the e-commerce delivery market. According to industry experts, the efficiency of marketplaces is evidenced by the fact that, while Russian Post and CDEK handle more than 100 million parcels per year, Wildberries and Ozon handle the same number of parcels per month. The share of the two market leaders (Wildberries and Ozon) reached 81% in September 2023 (Data Insight, NF Group Research, 2023).

Potential for the share of e-commerce in Eurasia to grow to global and regional averages. Given the high level of digitalisation of financial services (the share of online payments exceeds 60% in Russia, Belarus and Kazakhstan; Armenia and Uzbekistan also have a relatively high share), the Eurasian countries have every opportunity to bring the volume of e-commerce into line with the global average. This is particularly true for those countries that are already leading in this respect, while other countries (with a less developed e-commerce sector) will strive to match the performance of the regional leaders, whose major players are penetrating local markets and bringing their tried-and-tested practices. Having tapped their domestic markets and taken the lead, major companies will be looking to extend their logistics network expertise to cover previously hard-toreach areas, in particular, in neighbouring countries. E-commerce in the CIS countries is expected to grow by 11.7% annually between now and 2028, reaching a total of 91.4 million users making purchases worth USD 62.8 billion. At the same time, President Tokayev of Kazakhstan estimates the region's potential to be even greater — he believes that the volume of e-commerce could reach USD 160 billion.

The development of e-commerce and the refocusing of logistics are driving demand for warehousing infrastructure. The region's warehousing market has changed substantially under the impact of Western sanctions. The overall approach to logistics is changing: the demand for warehouses has fallen in the western regions of Russia, while it has risen significantly in the east and in neighbouring CA countries. Belarus is also experiencing a refocusing of transport routes and logistics centres from west to east. The increased demand for warehousing facilities in the CIS countries has led to their severe shortages. In Kazakhstan, Georgia, Armenia, Kyrgyzstan, and Tajikistan, there are almost no vacant facilities left. In Kazakhstan in particular, their share reached a record low of 1% in 2023. In Belarus, only 2.8% of the 1.6 million existent facilities are vacant, while in Uzbekistan it is 4.5% of the existent 207,000 m².

Significant potential for the development of high-quality warehousing infrastructure. In Q3 2023, the total area of warehousing facilities in Russia was 47.3 million m². Then, in October, 2.1 million m² of Class A and B warehouses were commissioned (Accent, 2024). The warehousing markets of other countries in the region show much lower figures — their total supply is estimated at 3.3 million m², which is less than 10% of Russia's amount (NF Group, 2023). Despite Russia's substantial absolute values and its leading position among the countries of the region in terms of storage availability,

it again lags far behind the rest of the world in terms of this parameter. In response to explosive demand from logistics operators and retailers, 470,000 m² of high-quality warehousing facilities are being built in Kazakhstan. This is more than a third of the available supply (1.3 million m²) (Kursiv, 2023).



↓ Availability of Warehousing, m² per capita, 2023

Source: NF Group Research, EDB calculations.

Russian marketplaces are actively expanding in the region. In 2023, Ozon and Wildberries significantly expanded their presence outside Russia. The companies are constantly looking for new warehouses to speed up deliveries in Belarus, Kazakhstan, Uzbekistan, and other countries. They rent and build logistics and sorting complexes in Belarus, Kazakhstan, and Uzbekistan. Local online retailers also have long-term development plans. Uzum Market is building a new logistics centre with a total area of 112,000 m², the first phase of which (around 25,000 m²) is expected to be operational by mid-2024. In **Kazakhstan**, Kazpochta JSC is also building warehouse complexes in Aktobe and in the Turkestan and Almaty regions. In **Belarus,** the EDB has participated in the construction of a large logistics centre, Prilesie Logistics, consisting of Class A facilities occupying 97 hectares and including ready-touse warehousing, administrative, civil engineering, and transport structures. A new 15,000 m² RosLogist facility is planned in **Kyrgyzstan.** There are also long-term plans to build a large Class A logistics centre — Asia Park in Bishkek with a total area of around 160,000 m².

Modern transport and logistics infrastructure is essential for the development of e-commerce. It would enable an increase in the volume of international freight, mail, and express delivery services. Such infrastructure includes freight terminal complexes at airports (e.g. projects to construct multimodal terminals for cargo consolidation and distribution at the airports of Almaty, Astana, Shymkent, and Aktobe). There are plans to develop a terminal network on the railways of the EAEU countries to increase the intensity of fast mail trains and improve the efficiency of interaction between railways and other modes of transport.

Delivery efficiency is enhanced by improving logistics methods. Motorways and railways are the leading modes of transport in the region, with railways embracing new methods such as consolidated container transport and express delivery. At the same time, lower air freight prices allow for diversification of delivery methods and shorter delivery times (according to the Baltic Exchange Air Freight Index (BAI), air freight prices have fallen from a peak of USD 8 per kg in December 2021 to USD 3.73 per kg in June 2023).

The e-commerce sector is becoming increasingly technologically integrated with related sectors. As the share of e-commerce in retail sales increases, a stack of new technologies and standards is beginning to emerge for hubs in logistics networks, including treatment, sorting, storage, handling, and processing centres. This is being accompanied by the development of specialisations, such as in terms of commodity groups and speed of their turnover, as well as the usage, shares and importance of hubs in logistics networks at local, regional, and macro-regional levels. Major marketplaces are elements of digital ecosystems that link economic actors from all sectors of the economy. The key characteristics of the entire end-to-end online shopping process are customer satisfaction, delivery time, packaging quality, and trying on and return options. And while the latter parameters depend entirely on the network of collection points and delivery services, the time and conditions of delivery depend on the entire chain. This defines the principles for selecting participants and raises the standards for integration and seamless processes, temperatures and other modes throughout the supply chain. Large logistics and warehousing infrastructure hubs are also characterised by gradual robotisation. The increasing technological complexity of such hubs will require additional investment in their upgrading.

TREND 7 REDUCTION IN TRANSIT IS OFFSET BY EXPANSION OF CARGO TURNOVER

REDUCTION IN TRANSIT IS OFFSET BY EXPANSION OF CARGO TURNOVER WITH CHINA

The rapid growth of trade between the Eurasian region and China requires both the upgrading of existing and construction of new transport and logistics infrastructure. Among the main areas for investment are: the North and Central Eurasian Corridors (China-EAEU and China-EU links), the Trans-Caspian International Transport Route (China-Turkey link), new routes and border checkpoints in the Eastern Range (Russia-China link), possibly a new China-Kyrgyzstan-Uzbekistan corridor (*China*-CA *link*), and other latitudinal initiatives. Improvement of logistics infrastructure (TLCs, dry ports, container terminals) will become a particular priority. This will stimulate the development of container services and increase the volume of container traffic with China.





The key driver of the large-scale restructuring of transport and logistics routes in the Eurasian space (see Trend No. 1) has been the **rapid development of trade between Eurasian countries and China.** The main reason for this is the substitution of goods previously shipped from Europe with Chinese goods, especially in the Russian market.

2023 was a record year for trade between the Eurasian region and China. In the first 10 months of 2023, the region's trade turnover with China increased by 16% y-o-y and totalled USD 277 billion. This is more than in the whole of 2022 (USD 267 billion). Significant growth in trade turnover was recorded for almost all countries in the region. The largest growth was recorded in Russia according to preliminary data from the Chinese customs authorities, trade turnover between the two countries increased by 26% y-o-y to USD 240 billion (USD 190 billion in 2022). For the first time ever, the volume of shipments from China exceeded the total exports to Russia of the 27 European Union countries. The composition of deliveries is diversified: 60% consist of equipment, cars and their components, household appliances and electronics.



↓ Figure 16. Trade between Eurasian Region and China, USD billion

Source: Trade Map.

The sharp increase in trade has led to **significant changes in the structure of freight traffic in the Eurasian region.**

- First, the capacity of the Eastern Range of the Russian railway network was practically exhausted. Trade flows in north-west Russia declined, and most of the traffic was moved by rail through the Eastern Range and the ports of the Far East Basin, resulting in high utilisation of the mainline network, as well as sea terminals, rail access to ports, and land rail checkpoints. Containers began to pile up in ports in the Far East and other cargo was held up on approaches to ports, causing delays in delivery and transhipment. Train stoppages at land rail checkpoints on the Russian-Chinese border increased significantly. Given the shortage of rail infrastructure in the Eastern Range, new sea container lines were opened in late 2023 and there was a recovery in container imports through the north-western ports.
- Second, stronger growth of imports (+32% y-o-y in the first 10 months of 2023) compared to exports (+3% y-o-y in the first 10 months of 2023) caused an imbalance in freight traffic. The imbalance in export-import container freight traffic led to the accumulation of a significant number of empty 40-foot containers in the European part of Russia, including at the terminals of the Moscow transport hub. The accumulation of containers in turn resulted in overfilling of sites, economic damage due to equipment downtime, and the need to reduce rates for the return of empty containers (at end-2023, the price of a 40-foot container in Russia was just over half the world average) (ERAI, 2023a).





↓ Figure 18. ERAI Composite and WCI Drewry, USD/FEU



* Forecast of ULTC ERA JSC **Source:** ERAI. Источник: ERAI.

• Third, there has been a reduction in transit traffic on China–Europe routes. For example, in 2023, the volume of container traffic on the China–Europe– China route along the Central Eurasian Corridor used by UTLC ERA JSC was almost halved (this was also driven by the reversal of the cost advantage from rail to sea — the WCI Drewry index for sea container traffic fell to half of the ERAI railway container transportation index for Eurasia). At the same time, there was a significant (81% y-o-y) increase in the volume of traffic on the China–EAEU–China route. The company adapted to the changed conditions by offering new services and developing new routes (71 new routes were added in 2023) (ERAI, 2023b).

Part of the China-Europe freight traffic has been redirected to alternative

latitudinal routes. Against this background, the importance of CA in strengthening and shaping alternative Eurasian transport routes has increased. These corridors are necessary to maintain land channels for the delivery of goods. The focus is on the traditional East-West transport routes, including the Central Eurasian Corridor and the TRACECA ITC, including the Trans-Caspian International Transport Route (TITR). All major players have an interest in their development: CA and South Caucasus countries, Russia, China, Iran, Turkey, European countries, and the United States.



The TITR is an alternative trade route that enjoyed special attention in 2023. The importance of TITR's development is increasing in the context of the rapid growth of trade between China and Turkey. To develop and improve the efficiency of the corridor, Azerbaijan, Georgia, Kazakhstan, and Turkey signed a roadmap in November 2022 to prioritise investment and identify necessary measures to improve soft infrastructure. In June 2023, Azerbaijan, Georgia, and Kazakhstan agreed to establish a single logistics operator. At the same time, international financial institutions such as the World Bank, the European Union, the European Bank for Reconstruction and Development, and the Asian Development Bank have expressed their support and willingness to provide technical assistance and investment. The development of this route is hampered by two main factors: infrastructure bottlenecks and multiple border crossing points that require a change of mode of transport, causing delays and increasing transport costs.

In 2023, China opened a new international multimodal trade and transport corridor with Afghanistan through Kyrgyzstan and Uzbekistan. The length of the mixed rail and road route is about 3,125 km. The railway starts in the city of Lanzhou (Gansu Province) and runs west through Kashgar in the Xinjiang Uygur Autonomous Region (XUAR) of the PRC to the border with Kyrgyzstan. The corridor then continues as a superhighway to Uzbekistan, where it becomes a railway corridor and terminates at the Afghan border town of Hairatan (Balkh Province).



The China-Kyrgyzstan-Uzbekistan route is also under development. It is expected to complement existing eastwest corridors and provide new opportunities for CA countries to access Asia-Pacific markets. The route is approximately 328 km long and will be a continuation of the Uzbekistan-Turkmenistan railway line, which is part of the TRACECA ITC, leading to the port of Turkmenbashi on the Caspian Sea and the Turkmen-Iranian land rail checkpoints. Thanks to the Turkmenbashi-Baku (Alyat) ferry line, the corridor will enable the delivery of goods from China to the markets of Georgia, Turkey, and other countries in the Black Sea region. Through its connection to the North-South ITC, the corridor will facilitate trade between China and Iran. To date, a feasibility study has been completed. Construction is expected to begin in 2024.

Kazakhstan is the main beneficiary of the increase in trade turnover between the countries of the region and China. In the first 11 months of 2023, transit traffic through its territory increased by 19% y-o-y to 24.8 million tonnes of cargo. The freight turnover in the ports of Aktau and Kuryk within the TITR increased by a factor of 1.86 in 2023 to 2.8 million tonnes (1.5 million tonnes in 2022). To enhance the transit potential, the construction of a second track on the Dostyk-Moyinty section continues. The construction of a new railway line Darbaza-Maktaaral has started. As part of this project, a new checkpoint will be opened at the Kazakh-Uzbek state border. Construction of a bypass railway around Almaty railway station has begun. The new line will speed up the transit of goods destined for Central Asia, Europe, and Caspian Sea ports. It is planned to start work on a new Bakhty-Ayagoz railway line with access to the third international junction with China (it will increase the capacity of Kazakhstan's infrastructure to China by another 20 million tonnes per year). By 2029, it is planned to increase transit volumes in the West-East and North-South routes to 35 million tonnes.

TREND 8

CENTRAL ASIA IS DEEPENING COOPERATION WITH CHINA IN THE POWER GENERATION SECTOR

In 2023, China upgraded the status of its cooperation with CA countries and set out its main priorities in the Xi'an Declaration. China is keen to secure access to inland energy resources (oil, gas, and coal), uranium raw material and renewable energy sources, as well as to maintain the momentum of economic development in its northwestern provinces. CA countries need foreign investment to develop their oil and gas resources. They also need to increase their power generation capacity (CHPs, hydroelectric power plants (HPPs), renewable energy sources, and nuclear power plants (NPPs)), as well as to upgrade power transmission lines and build new ones (including cross-border ones). The convergence of interests and opportunities for mutually beneficial cooperation results in significant Chinese investment in the power sector and a large number of investment agreements being signed.



In 2023, China upgraded the status of its cooperation with CA countries. On 19 May, the first China-Central Asia Summit in the 5+1 format, chaired by PRC President Xi Jinping, was held in Xi'an, Shaanxi Province. It was attended by President of Kazakhstan Kassym-Jomart Tokayev, President of Kyrgyzstan Sadyr Japarov, President of Tajikistan Emomali Rahmon, President of Turkmenistan Serdar Berdimuhamedov, and President of Uzbekistan Shavkat Mirziyoyev.



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Paragraph 9 of the Xi'an Declaration, signed at the Summit, sets out the priorities for cooperation in the power sector. The key areas are: broadening and deepening cooperation along the entire production chain, in the sphere of conventional energy sources (*oil, natural gas, and coal*), hydropower, solar, wind and other renewable energy sources, in the peaceful use of atomic energy, etc. In 2023, meetings were held, agreements were signed and investment projects were launched in this respect.

China is primarily interested in diversifying its energy supply sources. Its concept of energy security emphasises access to inland energy resources through main onshore pipelines (to reduce dependence on maritime supplies from the Middle East among other reasons). Access to uranium raw material from Kazakhstan and Uzbekistan is of strategic importance. China has 55 operating nuclear reactors with a total capacity of 53.3 GW, generating 5.0% of its electricity. In 2023, five nuclear reactor projects were launched in China (out of six in the world). The geographical proximity of CA and China facilitates the traffic of energy resources, by both pipeline and land transport.

Second, cooperation with CA promotes the development of northwest China (*in particular, of the XUAR*). The XUAR is becoming the focus of cooperation with CA. The region is positioning itself as a transport and logistics hub connecting several economic corridors. Five CA countries account for 80% of the XUAR's foreign trade turnover. Now it is also gaining the role of an energy hub. This positioning is based on the fact that the XUAR is rich in fossil fuels, is well placed to generate electricity from renewable energy sources, and has the opportunity to develop cross-border electricity infrastructure with CA countries. This infrastructure will help China connect CA to its electricity system and, in the future, import electricity from CA for transmission to energy-deficient regions.

CA, in turn, is in dire need of investment to fund its energy sector. The region is developing conventional fuel and energy resources and intends to expand uranium mining. Over recent years, pressure on CA's energy sector has increased significantly. The existing capacity is increasingly insufficient to meet rapidly growing demand due to high levels of wear and tear and low reciprocal power flows. The region needs new generation capacity and the expansion of the transmission grid (including cross-border lines for the development of a regional electricity market and access to new markets). In water-surplus countries (Kyrgyzstan and Tajikistan), efforts are focused on developing their hydropower potential. Countries rich in fuel and energy resources (Kazakhstan, Turkmenistan, and Uzbekistan) are building gas turbine CHPs and implementing large-scale renewable energy and NPP projects.



↓ Figure 19. Electricity Consumption

↓ Figure 20. Chinese Direct Investment Stock in Central Asia, USD billion



Source: EDB experts' calculations based on EIA data. Source: E

Source: EDB experts' calculations.

Mutual interest in cooperation explains China's role as one of the most important foreign investors in CA. According to the EDB Monitoring of Mutual Investments (Malakhov, Serik, Zaboev, 2023), Chinese foreign direct investment stock in CA increased to USD 55.9 billion in the first half of 2023. Of that, USD 29.3 billion, or 52.3% of the total, is in the energy sector (oil and gas extraction, and electricity generation). Most of this investment (USD 19.4 billion) is in Kazakhstan.



In 2023, China participated in the start of construction of major projects in the energy sector in CA. These include the 1 GW renewable energy project in the Zhambyl region of Kazakhstan (according to China Power International Development Limited, the total installed capacity of renewable energy projects with Chinese investment in Kazakhstan exceeded 1,000 MW at the end of 2022). In the nuclear power sector, China National Uranium Corporation Limited signed a long-term uranium supply contract with Kazatomprom in 2023. The Kazakhstan-China joint venture Ulba-TVS LLP (in 2021, China General Nuclear acquired 49% of the company's shares from Kazatomprom) has been authorised to produce AFA 3G Type A fuel assemblies (FAs). In January-October 2023, Kazakhstan's uranium shipments to China increased by a factor of 2.2 y-o-y. New areas of cooperation include an agreement on the implementation of a pilot project for the introduction of an electricity storage system by a Chinese partner. The option of building cross-border electricity transmission lines between Kazakhstan and China is being explored.

Uzbekistan has signed a USD 2 billion investment agreement with **China** to build several solar power plants with a total capacity of 2,000 MW in the Jizzak and Tashkent regions. China Southern Power Grid and Uzbekhydroenergo JSC have also signed a Memorandum of Understanding to build three hydroelectric storage power plants worth USD 1.64 billion. O'zbekenergota'mir JSC has signed a number of strategic documents with State Grid, CNTIC, and China XD for the construction and upgrading of high-voltage grids and substations in several regions of Uzbekistan. In addition, Navoiyuran and China National Nuclear Corporation signed a Memorandum of Understanding on cooperation in the uranium industry in 2023.



Kyrgyzstan and **China** have signed the following documents: an agreement on the construction of a 1,000 MW solar power plant in Issyk-Kul Oblast; an agreement on cooperation in the construction of a 220–500 kV high-voltage power transmission line (two options are being considered: 1) from the Datka substation in Jalal-Abad Oblast to the Irkeshtam border checkpoint; 2) from the Ak-Kyya substation in Naryn Oblast to the Torugart border checkpoint). A Memorandum of Understanding and an Investment Agreement on the design and operation of the Kazarman HPP cascade (the total capacity of the cascade is 1,160 MW, the cost is USD 2.4–3 billion) have been signed. A number of projects for the construction of small HPPs are being jointly implemented.

An important event for CA was the conclusion in 2023 of a trilateral agreement between China, Pakistan, and Afghanistan to include Afghanistan in the USD 60 billion China-Pakistan Economic Corridor (CPEC) development project (the CPEC aims to connect the Pakistani port of Gwadar with XUAR). In the joint statement, the three parties also stressed the need for such projects as CASA-1000 (the Kyrgyzstan-Tajikistan-Afghanistan-Pakistan transmission line), TAPI (the Turkmenistan-Afghanistan-Pakistan-India gas pipeline), and the Trans-Afghanistan Railway (the Uzbekistan-Afghanistan-Pakistan railway line). This indicates that China may participate in the implementation of the projects. In this case, the launch of the CASA-1000 project will be possible. Construction of CASA-1000 facilities in Kyrgyzstan, Tajikistan and Pakistan is nearing completion. The commercial launch requires the resumption of work in Afghanistan.

TREND 9

ADVANCEMENT OF REGIONAL COOPERATION IN THE WATER AND ENERGY COMPLEX OF CENTRAL ASIA



CA countries are stepping up efforts to strengthen regional cooperation in the water and energy complex (WEC), elements of which have historically formed a single interconnected system. Efforts of national governments and international financial organisations play a leading role in that. The high energy and water intensity of the region's industry and agriculture requires a fundamentally new level of cooperation. The number of joint cross-border projects in CA is expected to increase significantly as a result of deepening integration in the energy sector and regulation of water relations. Enhanced partnership, involving reverting to the irrigation mode in hydropower generation among other forms, is a prerequisite for efficient water sharing in CA and for meeting the electricity needs of all countries, which would require a significant increase in investment in the energy sector. The implementation of major capitalintensive projects will be based on mutually beneficial regional cooperation with funding from international financial organisations, including MDBs.

9



Strengthening cooperation at the highest

level. Recently, there has been significant intensification of efforts to manage water and energy resources in CA jointly, and this trend has been directly supported by heads of state. Regional cooperation has noticeably intensified in CA owing to Uzbekistan's new policy aimed at strengthening interaction with other countries of the region. In early 2024, Kazakhstan took over the chairmanship of the International Fund for Saving the Aral Sea (IFAS). Kazakhstan intends to implement initiatives to establish an international water and energy consortium in the region, taking into account the interests of all CA countries. The country aims to deepen cooperation both with CA states and with international organisations and financial institutions. In this regard, at a meeting of the Council of Heads of the IFAS Founding States in Dushanbe, President Tokayev of Kazakhstan proposed to create a sustainable regional cooperation mechanism for the effective use of CA water and energy resources in the fields of irrigation, hydropower generation, and ecology. Significant efforts are also being made by the leaders of other countries in the region.



Support from international organisations. A conference on cooperation between the European Union (EU) and Central Asia on environment and water was held in Rome in February 2023. The event was organised under the auspices of the EU-CA Platform for Environment and Water Cooperation. The next conference will take place in Kazakhstan in 2026. In March 2023, the Central Asia Energy Trade and Investment Forum was held in London with the participation of representatives from Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. The Forum was supported by the Central Asia Water and Energy Programme (CAWEP), implemented by the World Bank with support from the EU, Switzerland, and the UK. Azerbaijan hosted a Summit of Heads of State and Government of the countries participating in the UN Special Programme for the Economies of Central Asia (SPECA). The summit discussed the establishment of a trust fund for innovative and environmentally friendly projects in 2024 and the strengthening of measures to save the Aral and Caspian seas.

Joint energy projects are being implemented in CA countries. Bilateral cooperation between both Uzbekistan and Kazakhstan and Uzbekistan and Tajikistan has intensified. In particular, cooperation has advanced on issues such as joint financing of the construction of the Rogun HPP and two HPPs on the Zeravshan River, as well as renewal of the parallel operation of national energy systems, including through the Unified Energy System of Central Asia. Kyrgyzstan, Uzbekistan, and Kazakhstan are considering equity participation in the Kambarata HPP-1 project. In addition, Kyrgyzstan is negotiating with potential investors to secure financing for the project. The second phase of construction is about to start, and includes dam design, equipment procurement, and preparation of feasibility studies. Kazakhstan and Tajikistan are discussing closer cooperation in developing their energy systems. Uzbekistan is starting a programme of hydrogeological forecasting involving Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. The programme will enable the monitoring and measurement of water flows and discharge between CA countries. It is estimated that CA has not tapped even half of its hydropower potential. At present, the region has more than 80 HPPs with a total capacity of about 14,000 MW. Over the next 15 years, it is planned to expand this capacity by 8,900 MW through the upgrading of existing HPPs and the construction of new ones (EDB, 2023). The largest projects are the construction of the 1,860 MW Kambarata HPP-1 in Kyrayzstan and the 3,600 MW Rogun HPP in Tajikistan.

The rivers of Central Asia are transboundary, i.e. they run through several countries. In the transboundary river basins, the flow is formed in the upper reaches and used downstream. Water sources are unevenly distributed in the region, which suggests the needs for harmonised approaches to ensure their efficient use. These natural features highlight the need to enhance transboundary cooperation for joint river basin management.

Effective joint management of water and energy resources is of strategic

importance. The Aral Sea basin is home to 81% of the region's population. According to the UN Food and Agriculture Organisation (FAO), CA countries are among the world's top ten water consumers: Turkmenistan consumes 5,319 m³/year, Kazakhstan 2,345 m³/year, Uzbekistan 2,295 m³/year, Kyrgyzstan 1,989 m³/year, and Tajikistan 1,895 m³/year. Generally accepted climate models indicate that water resources are likely to decline. This is a result of global climate change, projected population growth and urbanisation, as well as agricultural and industrial growth. Water stress will continue to mount and in some regions will more than double by 2040 compared with today. According to the FAO, the per capita water supply in CA countries is seen as sufficient (about 2,300 m³). This means that improved water and land use efficiency in the region could save more than 50% of water and ensure energy security.







Source: UNEP, GRID-Arendal, and Zoi Environment Network.



The shortage of generation capacity will exacerbate water scarcity. Another cause of water scarcity is the countries' obsolete energy systems, as this creates an additional need to store water in reservoirs in spring and summer to generate electricity efficiently in winter. This approach conflicts, however, with the need for water to irrigate agricultural lands. At the same time, electricity consumption is projected to increase by 2030 in several CA countries that rely on hydropower generation. Kazakhstan is expected to see an increase of 20–22% to 136 billion kWh. In Uzbekistan, the expected growth is by a factor of 1.7 to 120 billion kWh, while in Kyrgyzstan growth of 50% compared with 2020 is expected. If the current situation persists, the increase in energy consumption could exacerbate water scarcity.

The most **promising areas for investment** in the context of this trend will be projects related to the construction of HPPs, including small ones.

The EDB is actively involved in financing projects in the CA WEC. In addition, EDB analysts have published two reports – "Investment in the Water and Energy Complex of Central Asia" in 2021 and "Regulation of the Water and Energy Complex of Central Asia" in 2022 offering practical steps regarding joint efforts to address the growing shortage of water and energy resources. Key steps include a constructive open discussion on the system of general principles for regulating the CA WEC, where the EDB can serve as a platform. It is also necessary to reform the IFAS and to improve the efficiency of the existing CA WEC organisations (Interstate Commission for Water Coordination, Syr Darya and Amu Darya Basin Water Management Associations, etc.). A mechanism for coordinating decisions on water management and energy flows in CA and streamlined interaction with financial actors are proposed as new elements of the regulatory architecture.

TREND 10

ACTIVITY IN IRRIGATION INFRASTRUCTURE IS GAINING MOMENTUM IN CENTRAL ASIA

Irrigation infrastructure in CA is attracting increasing attention from both national and international investors. In contrast to the previous trend, irrigation is promoted primarily within their borders. Water resources have the greatest impact on the region's agriculture, which is based on irrigated farming and consumes up to 90% of water. The Governments of CA countries plan to take a number of urgent measures to increase investment in the development of irrigation systems in the region and improve their efficiency, as the region suffers from chronic underinvestment in infrastructure and low water use efficiency. The average age of irrigation infrastructure is over 50 years and 40% of water is lost in canals. The most effective steps will be the introduction of modern irrigation techniques and the use of high-tech irrigation equipment, including the development of a dedicated production and service cluster. A reduction of water use for agricultural needs will lessen the reliance on transboundary water resources and mitigate the impact of the Qosh-Tepa Canal, which is under construction in Afghanistan.





Irrigation development projects are gaining momentum in CA. In the short term, CA countries will focus on projects to introduce water-saving technologies and upgrade their irrigation system infrastructure.

Kazakhstan established the Ministry of Water Resources and Irrigation in 2023 and developed a comprehensive water security plan for 2024–2030. The plan includes the construction of 20 new reservoirs and the rehabilitation of 15 existing ones. This will reduce non-productive water losses during transportation from 50% to 25%, lessen the reliance on external water sources by 25%, and increase available water resources by 3.7 km³. The area of irrigated land will be expanded by 250,000 ha (up to 2.5 million ha) by 2030. There are also plans to introduce digital technologies covering more than 3,500 km of canals and to automate water accounting in irrigation systems. In addition, farmers will get refunds for up to 80% of the cost of water-saving technologies (drip irrigation, etc.).

In 2024, **Uzbekistan** plans to switch to an emergency water saving regime. The main steps are: lining canals and ditches with concrete, introducing water-saving technologies, and reducing the cost of delivering irrigation water to the end users — i.e. agricultural producers. They plan to upgrade 80% of pumps, install water meters, and reinforce canals, which will reduce annual water losses by 5–6 billion m³ and bring down energy consumption during irrigation. The World Bank has estimated Uzbekistan's investment needs for irrigation and drainage infrastructure at USD 400 million per year over the next 10 years. The European Bank for Reconstruction and Development (EBRD) has provided Uzbekistan with USD 200 million to upgrade irrigation systems in the Ferghana Valley in order to reduce water losses and expand irrigated area.

The importance of the agricultural sector to the regional economy will ensure continued interest in irrigation investment. Agriculture is the main consumer of water in CA: 100.4 out of 127.3 km³/year, or 80% of the water used in the region, was used for irrigation in 2020. Irrigation has historically been critical to agriculture and food security in the region. The area of irrigated land in CA is 10.1 million ha, or about 2.9% of the world's irrigated land. In value terms, this land produces almost 66% of the region's gross agricultural output. At the same time, the irrigation infrastructure in CA is characterised by a high level of physical wear and inadequate technical standards. It is poorly equipped to account for and distribute irrigation water and to control its use in the field. The average age of the irrigation infrastructure is over 50 years. Up to 50% of irrigated land is affected by salinisation. The economic efficiency of water use in agriculture is low, with 40% of water lost in the irrigation canal system.

The lack of alternatives to improving irrigation systems will ensure longterm interest in developing the sector. Transition to water conservation seems to be the only possible solution to the problem of preserving irrigated land potential and ensuring food security in CA. The need for transition is driven not only by climate change and growing water demand, but also by the expected reduction in the flow of the Amu Darya River from Afghanistan. Central Asia has already experienced a prolonged period of low water availability for several years, resulting in significant costs for agriculture in 2023. Commissioning of the Qosh-Tepa irrigation canal in Afghanistan will significantly reduce river flows in the Aral Sea basin starting from 2028-2029. It is expected that up to 10 km³ per year of the total volume of 22 km³ that appears on the territory of Afghanistan could be lost, which is a significant part of the average annual river flow (80 km³). As a result, starting from 2028–2029, the region may enter a state of acute chronic water scarcity, estimated by EDB experts at 5–12 km³ per year. The problem of water scarcity is recognised at the highest level, which gives us hope that sufficient resources will be allocated to address it. Given all these factors, the implementation of a water conservation strategy is becoming crucial to maintaining the sustainability of agriculture and water supply in CA. We expect to see further interest in investing in this sector in the long run.



↓ Figure 22. Projected River Flow and Water Intake in the Aral Sea Basin (ASB) by 2035, km³

Source: EDB experts' estimates based on SIC ICWC data.

The most **promising areas of investment** in the context of this trend will be projects involving the organisation of water accounting, rehabilitation and improvement of irrigation facilities and infrastructure, and production of modern irrigation equipment.

The EDB provides assistance to address water scarcity in CA. The Bank has signed a Memorandum of Cooperation with the Ministry of Water Resources and Irrigation of the Republic of Kazakhstan to pool investment in water resources and irrigation. In 2023, the EDB started financing the construction of the 100 MW Kulanak HPP in Kyrgyzstan.

In 2023, EDB analysts released the report "Efficient Irrigation and Water Conservation in Central Asia", which contains 10 **practical steps** to preserve irrigated land potential and improve water use efficiency in CA. These include: upgrading irrigation infrastructure, attracting investment (including public-private partnerships), introducing efficient tariffs for irrigation water, widespread use of water-saving technologies, and empowering water user associations to use water and land resources efficiently. If implemented, these steps will help to prepare for the significant changes in water flows in the Aral Sea basin expected in 2028 and to offset the likely worsening of water scarcity.





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ACRONYMS AND ABBREVIATIONS

ABB	Azov-Black Sea Basin
ASB	Aral Sea Basin
CA	Central Asia
CAREC	Central Asia Regional Economic Cooperation
СНР	combined heat and power plant
CIS	Commonwealth of Independent States
EAEU	Eurasian Economic Union
EBRD	European Bank for Reconstruction and Development
EDB	Eurasian Development Bank
EEC	Eurasian Economic Commission
EU	European Union
GDP	gross domestic product
HPP	hydroelectric power plant
IFAS	International Fund for Saving the Aral Sea
ITC	international transport corridor
LNG	liquefied natural gas
MDB	multilateral development bank
PPP	public-private partnership
PRC	People's Republic of China
SCO	Shanghai Cooperation Organisation
SDGs	Sustainable Development Goals
TLC	trade and logistics centre
UAE	United Arab Emirates
WEC	water and energy complex
%	percent
% у-о-у	annual growth rate
km	kilometre
km³	cubic kilometre
kWh	kilowatt per hour
m²	square meter
m³	cubic meter
MW	megawatt
USD	United States dollar



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Report 22/2 (RU/EN)

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