Our response to the challenges

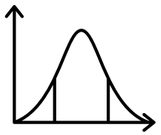
Kazakhstan is facing a range of systemic challenges caused by global and internal factors. Effective response to endemic problems (such as infrastructure wear and tear, low levels of diversification and innovation penetration, as well as social disparities) requires a balanced strategy that couples commercial efficiency with public interests and sustainable development principles.

The Fund responds to these challenges by implementing the Samruk-Kazyna JSC Development Plan, which includes:

- large-scale infrastructure modernisation;
- integration of ESG principles into all key processes;
- development of high-tech industries;
- launch of green and low-carbon projects.

These initiatives are aimed at the long-term transformation of the economy, helping increase its competitiveness and create sustainable conditions for the growth of the public welfare.

Our Response to Challenges

Challenge	Description	Our answer
 Volatility and commodity orientation of the economy	According to the Committee on Statistics and the International Monetary Fund, about 12–13% of Kazakhstan's GDP is formed in the extractive industries (oil, gas and other minerals). Such dependence on raw materials leads to volatility of budget revenues and vulnerability to fluctuations in world prices. In times of low oil and metal prices, the government faces budget deficits and companies face reduced investment. Consequences: 1. Insufficiently diversified structure of production and exports. 2. Vulnerability of the budget and national currency to global commodity prices. 3. High volatility of growth and income indicators of the population.	Diversification through new redistribution The Fund implements large oil and gas chemical projects that add value to the industry. In particular, the Kazakhstan Petrochemical Industries Inc. plant for the production of polypropylene has already partially met the needs of the domestic market in 2023 and has become a supplier of raw materials for 58 domestic processors. Work is underway to design and build a polyethylene plant. In 2024, the Fund's portfolio includes 46 major investment projects worth KZT 33.3 trillion, a significant part of which contributes to the creation of the non-resource sector of the economy (e.g., logistics complexes, oil and gas refineries, chemical enterprises). Infrastructure investments Access to new infrastructure is important to reduce commodity dependence. The Fund supports the modernisation of railway lines (Dostyk–Moyinty, Almaty Bypass Line, Darbaza–Maktaaral projects), as well as the construction of main gas pipelines and fibre-optic networks. In 2024, 97% of purchases (over KZT 3.5 trillion) in the Fund's Group of companies came from local suppliers, which strengthens domestic production and forms local value chains.

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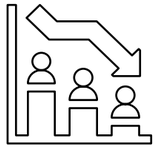
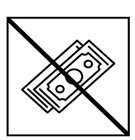
 Low labour productivity	According to the World Bank and the OECD, labour productivity in Kazakhstan is still far behind the average level of OECD countries. This has a negative impact on economic growth rates and the competitiveness of products in domestic and foreign markets. Consequences: 1. Constraining economic growth and competitiveness. 2. High transaction costs and risks of technological lag. 3. Dependence on imported equipment and technologies due to the lack of in-house high-performance production.	**Improving the qualifications and motivation of employees** On average, there are 26 academic hours of training per employee, which ensures competence growth and, as a result, increased productivity. Investments to ensure industrial safety totalled KZT 119 billion (KZT 109 billion in 2023). **Digitalisation and automation programmes** The Fund supports the introduction of modern digital platforms (e.g., electronic accounting systems, online procurement portals) to simplify business processes and reduce time wasted on routine operations. In the energy sector, the move to smart meters improves metering accuracy and reduces non-productive losses. The Fund creates a comprehensive environment for productivity growth by combining staff training, implementation of digital solutions and attention to occupational health & safety. The systemic approach encourages the effective utilisation of human resource potential and helps Kazakhstan move closer to the OECD average in terms of productivity.
 Infrastructure wear and tear	In the energy sector and railway transport, the level of depreciation of fixed assets exceeds 50–60%. This leads to frequent accidents, downtime, increased operating costs and reduced capacity of transport corridors. Consequences: 1. Constraining economic growth as outdated infrastructure slows down freight flows and raises production costs. 2. High operating costs (repair, maintenance, emergency shutdowns) and risks of technological backlogs. 3. Dependence on imported equipment and solutions for modernisation of worn-out facilities.	**Modernisation of transport and energy infrastructure** In the energy sector, work is underway on the expansion and reconstruction of Ekibastuz GRES-2 (power units No.3 and No.4), as well as modernisation of Almaty TPP-2 and TPP-3. The Fund is also involved in the construction of new gas and combined cycle plants in the Turkestan and Kyzylorda regions. Among the 46 priority investment projects of the Fund, a special place is taken by the projects of construction and reconstruction of railway lines: Dostyk–Moyinty, Moyinty–Kyzylzhar and construction of a bypass railway line bypassing Almaty station. They make it possible to increase the speed and cut transport and reduce logistics costs. **Investments in renewal of depreciated assets** The total volume of capital investments of the Fund in various sectors of the economy 2024 exceeded KZT 2,996 billion. In the near term, our priority remains infrastructure digitalisation projects (e.g. implementation of monitoring systems in railway transport and smart solutions in power supply networks), which will further reduce losses and accelerate the transformation of industries. Looking ahead to 2032, the Fund intends to complete the digital modernisation of grids and increase the share of high-efficiency generating facilities, while in the transport sector it intends to develop additional access roads, which will create a Eurasia-wide transport connectivity framework.
 Limited competition and the role of the Government in the economy	According to relevant agencies, in Kazakhstan state and quasi-state structures have traditionally played a large role in regulated sectors such as transport, energy and telecommunications. This concentration often leads to a low level of competition, complicates private sector access to markets and impedes private investment. In addition, tariff setting, which is driven not only by market but also by social considerations, hinders infrastructure modernisation and fixed asset renewal. It is difficult for companies to ensure sufficient investment in development and to maintain decent wages in a number of socially important areas.	**Privatisation and IPO/SPO** From 2021 to 2024, the Fund systematically reduces the share of quasi-state assets in the economy, transferring them to a competitive environment. Shares of 7 large companies (KazMunayGas, Kazatomprom, KEGOC, Air Astana, etc.) are listed on KASE, AIX and LSE. In February 2024, Air Astana's $370 million IPO took place, raising the free float to 44 per cent. **Transition to fair tariffs** The Fund is working to eliminate cross-subsidies and gradually raise tariffs to the level necessary to renew infrastructure and maintain social stability. Through open discussions with regulators, a compromise is reached between the interests of consumers and the ability of industry companies to invest in modernisation and decent wages for workers.

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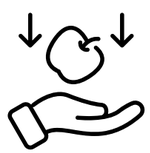
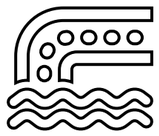
Limited competition and the role of the Government in the economy	Consequences: 1. The persistence of cross-subsidisation and the associated financial losses for companies and the state. 2. Limited opportunities for the development of small and medium-sized enterprises (SMEs) and private service providers. 3. Slow implementation of market mechanisms in a number of regulated sectors, which reduces the efficiency of tariff setting and the quality of infrastructure.	SME support and import substitution The electronic platform skstore.kz was launched, which simplified the access of small and medium-sized businesses to the Fund Group's procurements. By the end of 2024, 97% of purchases (KZT 3.5 trillion) were made from local suppliers, many of whom are SMEs. Over 90 new productions are supported through the Offtake Contracts programme, stimulating competition and the development of local industry.
 Low level of innovation and knowledge intensity	R&D expenditures in Kazakhstan amount to about 0.15% of GDP (against a global average of 1.3%), which leads to a weak scientific base and low commercialisation of inventions. The high-tech sector is still insignificant, and the country remains in the middle or lower part of the list in global innovation rankings. Consequences: 1. Technological lagging behind the world leaders. 2. Weak commercialisation of scientific developments. 3. Slow formation of high-tech processing in industry.	Scientific and Technical Council and R&D support The Samgau Centre for Scientific and Technological Initiatives operates under the Fund's umbrella for the purpose of introducing scientific developments into production. The Centre consolidates R&D and R&D projects of subsoil users, which helps to manage scientific initiatives in a systematic manner. The Centre's portfolio includes 24 projects with a total value of KZT 6.6 billion in the uranium mining, oil, energy, gas, chemical and mechanical engineering sectors. In 2024, work was underway on four projects (seismic exploration, gas processing, innovative insecticides, new equipment). Venture and educational instruments The Fund cooperates with leading universities and creates dual education programmes in oil and gas chemistry, energy and other priorty areas. Training modules on digitalisation and automation are implemented at the Fund's enterprises to improve the technological level of the personnel. Looking ahead to 2032, the Fund envisages further expansion of venture capital instruments, development of high-tech industries (including rare metals, materials for the green economy) and strengthening partnerships with global R&D centres to boost the country's innovation potential.
 Problems of water abstraction and rational water use	There is a growing shortage of available water in Kazakhstan: industries, agriculture and the housing and communal sector intensively consume water resources, including non-renewable ones (about 79% of water resources are from such sources). The shortage of fresh water is most acute in arid regions, which already affects the social and economic indicators of the country's development. A significant additional factor is the wear and tear and the need to modernise wastewater treatment facilities. Consequences: 1. The situation is tense in regions where enterprises of the mining, metallurgical, oil and gas and energy sectors are concentrated, especially in the western and southern regions. 2. Increasing costs of supporting ageing water infrastructure and implementing compensatory measures (subsidies, purchase of water from alternative sources, etc.). 3. Dependence on foreign technology and expertise for construction of desalination facilities and modernisation of water treatment and distribution systems.	Optimisation of water use and modernisation of water infrastructure From 2023 to 2024, 176 km of the main water pipeline in the Atyrau and Mangistau regions was modernized, increasing the daily throughput capacity by 60,000 m^3 and reducing water transportation losses. The Tazalyq project has been implemented at the Atyrau oil refinery. In the Mangistau region, construction is underway on the Kenderli desalination plant with a design capacity of 50,000 m^3/day, which will help reduce consumption of Volga water. Increasing the share of reuse and improving water flow control Enterprises of the mining and metallurgical and oil and gas sectors (NAC Kazatomprom JSC, NC KazMunayGas JSC, etc.) are implementing water recycling systems that allow to reuse water repeatedly in technological cycles and reduce the total withdrawal from natural sources. Some refineries (e.g. Atyrau Refinery) have modernised their treatment facilities and introduced stricter regulations for reuse of treated water. Remote monitoring systems and leak sensors are being introduced to improve efficiency and timely repair of leaks. The Scientific and Technical Council of the Fund considers promising projects for deep treatment of industrial wastewater, which can significantly reduce the water footprint of industrial facilities. Focusing on rational water use and improving the quality of water infrastructure will allow us to create sustainable conditions for both industrial facilities and the social sphere. In the future, we will continue to develop seawater desalination infrastructure (including using renewable energy sources), reconstruct and expand existing water pipelines, and introduce environmentally friendly treatment methods. The measures set out in the Development Plan until 2032 are aimed at balanced and rational use of water resources, reducing environmental risks and improving the quality of life in the regions where we operate.

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 Social and regional challenges and associated disparities	In Kazakhstan, the official unemployment rate does not exceed 5 per cent, but over 2 million people are underemployed or self-employed. More than 1 million citizens receive targeted social assistance, and 700,000 are people with disabilities. In many regions, disparities persist in access to social services, infrastructure and quality education. This creates increased social risks, leads to growing inequality and often requires substantial funding from the state. Consequences: 1. The need to create new high-productive jobs, especially in remote and mono-industrialised regions. 2. Increased social burden in the absence of systemic measures: there is a risk of uneven development of territories. 3. Increase in subsidy obligations and budget financing for a number of socially vulnerable categories (low-income, persons with disabilities, etc.).	**Job creation and comprehensive social support** In 2024, the number of employees of the Fund's Group reached over 263,000 people; over 47,000 new specialists were hired during the year, which contributes to the reduction of official and hidden unemployment. Special programmes for adaptation and technical re-equipment of workplaces have been introduced for persons with disabilities (about 3,000 employees in the Fund Group). Subsoil users (NC QazaqGaz JSC, NC KazMunayGas JSC, NAC Kazatomprom JSC, Samruk-Energy JSC) additionally finance social infrastructure in the regions where they operate: schools, sports facilities, and public utilities. For example, over the past five years, JSC NC KazMunayGas has allocated about KZT 180 billion for the construction of schools, kindergartens and medical centres. **Social and charitable programmes** We implement socially significant projects and programmes that aim to help improve the quality of life in the areas where we operate. Key areas of our projects and programmes include the development of social infrastructure, education, healthcare and culture, as well as the development of an inclusive society. Within the framework of the national project Comfortable Schools 104 modern schools have already been built, which contributes to equal access to quality education in the regions. Special attention is paid to personnel training in co-operation with universities and colleges. We implement scholarship programmes and joint educational initiatives that contribute to the formation of new competencies among young people. **Strategic initiatives in support of the regions** Programmes on vocational training and subsidised jobs with Employment Centres in the regions. The Zharkyn Bolashak project for schoolchildren and students is being implemented in Mangistau region jointly with the Fund, which allows them to receive quality education in the leading educational institutions of the country. Launching networks of anchor schools (e.g. the Otpan project in Mangistau), upgrading infrastructure (libraries, museums, sports complexes) and targeted charitable assistance with the participation of portfolio companies. **Increasing employee engagement** Corporate human capital development programmes implemented by the Fund help retain qualified personnel and form a solid social base for regional development. The Fund's systemic measures help reduce social inequality and improve the quality of life in the regions by boosting employment (including the creation of high-productivity jobs, support for young people and adaptation of jobs for people with disabilities), investing in education, healthcare, sports and culture, and coordinating with government agencies and akimats to improve access to social services. Additionally, the Fund adopts a flexible approach to salaries to incentivise employees to pursue long-term careers within the Group. In the future, the Fund plans to expand targeted employment and education programmes in remote areas, continue to increase salaries for lower job categories, develop support for socially vulnerable groups and scale up successful inclusive solutions (inclusion rooms, rehabilitation centres, etc.). Portfolio companies will be more actively involved in various social projects, such as the construction of sports facilities and the development of infrastructure in the leisure and cultural sector. All these measures are enshrined in the Fund's Development Plan 2032 and are aimed at strengthening social stability and improving people's welfare in the regions.

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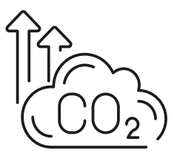 **Increasing demands for environmental standards and decarbonisation**	We are at the centre of a global energy transition driven by the need to confront the climate crisis and reduce our carbon footprint. Kazakhstan, for its part, has pledged to reduce greenhouse gas emissions by 15% by 2030 (from 1990 levels) and to achieve carbon neutrality by 2060. At the same time, more than 63% of electricity in the country is still generated by coal-fired TPPs, and the Fund's Group of companies collectively generate about 33% of direct GHG emissions. An additional challenge is the growing shortage of energy capacity: in winter 2024, it reached 2.2 billion kWh, and according to forecasts, by 2029 it may increase to 6.9 billion kWh. At the same time, the deterioration of the electricity grid reaches 74% and 56% of power plants are already over 30 years old, leading to energy losses of up to 14% in distribution, increasing the risk of accidents and making it difficult to integrate new clean sources. The high share of coal in generation remains a socially sensitive issue: the energy sector employs dozens of thousands of people, and the cost of coal production in Kazakhstan is still one of the lowest in the world, making it difficult to phase out coal quickly. Consequences: 1. Decrease in the investment attractiveness of carbon-intensive industries due to stricter requirements of international institutions. 2. Increased operating costs for modernisation of outdated coal capacity, emission offset programmes and transition to green technologies. 3. High cost of rapid decarbonisation for regions whose economies are tied to the coal sector (without smooth retraining and employment, social risks increase). 4. The threat of energy capacity shortages caused by both aging infrastructure and a lack of load-following and clean sources, while demand for electricity continues to grow.	**Balance of secure energy supply and accelerated energy transition** The Fund recognises the need to retain large coal assets in the portfolio – such as Ekibastuz GRES-1 (4,000 MW) and the Bogatyr Komir mine – to ensure the uninterrupted supply of electricity to industry and communities. At the same time, we are accelerating the transition to more environmentally friendly solutions: we are converting Almaty CHPP-2 and CHPP-3 to gas, developing load-following gas-fired plants and building new base capacities (Ekibastuz GRES-2 and GRES-3). According to the plans of the Ministry of Energy, out of 26 GW of new generating capacity, more than 16 GW will come from the Fund's assets. This approach allows to preserve jobs in the coal sector while ensuring uninterrupted power supply under conditions of growing consumption and outdated grid infrastructure. **Development of RES and low-carbon technologies** The total capacity of renewable energy and low-carbon generation projects in our portfolio in 2024 is around 6.3 GW (this is around 80% of green initiatives in Kazakhstan). These projects include wind power plants (WPP), solar power plants (SPP) and hydroelectric power plants (HPP), as well as gas-fired facilities to cover peak loads and stabilise the energy system. We have entered into partnership agreements with major global players (Total Eren, China Power, Masdar, etc.), which bring advanced RES technologies and solutions, open service centres and participate in the training of Kazakhstani specialists. In parallel, pilot projects on CO_2 capture and storage are underway, and high-efficiency filtration systems are being installed at some coal-fired plants. **Attracting green finance** According to the Fund's Low Carbon Development Concept, we plan to reduce direct and indirect emissions (Scope 1 and 2) by at least 10% of 2021 levels by 2032. To realise these goals, we are developing green finance by issuing relevant bonds and attracting specialised funds. Samruk-Energy JSC has already issued green bonds, channelling the funds received for the expansion of RES projects. A proactive approach helps strengthen contacts with international financial institutions and attract favourable financing for grid modernisation and transition to cleaner generation. The share of clean energy (RES and HPPs) in electricity generation in 2024 was 18% (the target is 26% by 2032). To meet the growing demand and the goal of doubling the economy by 2029, the Fund is building new base capacities (GRES-2, GRES-3, gas-fired power plants), while reducing dependence on coal by converting some facilities to gas. At the same time, technological solutions for CO_2 capture and storage are being sought and filtration systems are being introduced, which helps maintain employment in the coal sector (where thousands of specialists work) while creating jobs in the green energy sector. Large CHPPs and TPPs, while remaining in the Fund's portfolio, are undergoing modernisation aimed at further reducing emissions. To accelerate these processes, agreements have been concluded with global companies (Total Eren, China Power, Masdar), which contribute advanced wind, solar and hydro developments, as well as contribute to the professional development of Kazakhstani personnel. Thus, the Fund seeks an optimal balance between energy security and the achievement of national climate goals: on the one hand, it is responsible for reliable supply in the face of growing consumption, and on the other hand, it systematically introduces RES, gas solutions and innovative methods to reduce the carbon footprint. Investments in modern technologies, strengthening ESG and sustainability-based management approaches, and partnerships with leaders of clean technologies allow us to harmonise the interests of the economy, social sphere and environment.

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Growing requirements for implementation of sustainable development and ESG principles	The international community, major funds and stock exchanges are increasingly stringent in assessing companies' activities against ESG criteria – environmental, social and governance. For companies going public or planning to expand access to financing, a high level of transparency and compliance with ESG standards is becoming a key factor of investment attractiveness. Consequences: 1. Difficult access to finance and possible reputational losses for companies that do not meet advanced ESG requirements. 2. The need to invest in the restructuring of management systems, environmental considerations and social commitments (including labour protection, employee rights, anti-corruption compliance). 3. Increased expectations from rating agencies, exchanges and regulators for ESG disclosure, risk management and systematic implementation of responsible business practices.	Implementation of ESG management and transparent reporting All major portfolio companies (NC KazMunayGas JSC, NC QazaqGaz JSC, NAC Kazatomprom JSC, Samruk-Energy JSC, Kazakhtelecom JSC, etc.) are regularly independently assessed by ESG ratings (Sustainalytics, S&P Global, Fitch Sustainable, etc.) The Fund is improving compliance mechanisms by implementing the e-Compliance platform. Twelve portfolio companies and Samruk Kazyna Trust have already joined the platform, which ensures uniform standards of anti-corruption activities and transparent procedures for selecting counterparties. GRI 3-3 Integration of ESG into corporate governance The Fund's Group implements regulatory documents that enshrine the principles of responsible business conduct and international ESG standards. Best international practices are taken into account when forming the Boards of Directors: the share of independent directors, gender balance and competences in the field of sustainable development. ESG strategies and climate programmes with specific metrics and KPIs in the areas of environmental protection, social policy and governance are developed and approved. Regular corporate governance diagnostics are conducted to help improve the quality of decision-making and improve the rating of companies in the eyes of investors. In 2024, several portfolio companies rose in international ESG ratings due to increased transparency and attention to occupational health & safety, employee rights and anti-corruption regulations. The Fund and leading portfolio companies prepare annual sustainability reporting in accordance with GRI, SASB, TCFD standards, which contributes to increased confidence on the part of global investors, analysts and rating agencies. The Fund seeks to strengthen its position in international ESG ratings, strengthen its compliance system and regularly update ESG strategies aimed at reducing emissions, improving the social environment and improving governance. A special priority is to prepare for successful IPOs and SPOs, where high ESG standards and transparent reporting become a decisive factor. This approach not only enhances the reputation and investment appeal of the portfolio companies, but also helps manage social and environmental risks more effectively, contributing to the realisation of national priorities and Kazakhstan's green agenda.