1. RISK RELATED GLOBAL INDICES

<table>
<thead>
<tr>
<th>Index</th>
<th>Data Highlights</th>
<th>Sources</th>
</tr>
</thead>
</table>
| **INFORM Risk Index**             | **Overall Risk: 3.5 (Medium – rank 97 of 191)**<br>**Hazard & Exposure: 6.4 (rank 31 of 191)**<br>**Natural Hazard: 4**<br>**Human Hazard: 8**<br>**Vulnerability: 1.4 (rank 180 of 191)**<br>**Socio-Economic Vulnerability: 1**<br>**Vulnerable Groups: 1.8**<br>**Lack of Coping Capacity: 3.6 (rank 122 of 191)**<br>**Institutional: 4.8**<br>**Infrastructure: 2.2** | [DRMKC INFORM Risk Index, 2023 Dataset](https://www.un-drr.org/)
[Country Risk Profile](https://www.un-drr.org/)                                                                 |
| **World Risk Index (WRI)**        | **Overall Risk: 3.79 (rank 144 of 192)**<br>**Exposure: 0.25**<br>**Vulnerability: 18.97**<br>**Susceptibility: 15.53**<br>**Lack of Coping Capacities: 9.94**<br>**Lack of Adaptive Capacities: 44.22** | [World Risk Report, 2022 Statistical Table](https://www.worldriskreport.org/)             |
| **Human Development Index (HDI)** | **HDI Value: 0.811 (Very High Human Development)**<br>**Rank: 59 of 191**                                                                                                                                  | [Human Development Index, 2021 (UNDP)](https://hdr.undp.org/)                              |
| **Gender Inequality Index (GII)** | **GII value: 0.161**<br>**Rank: 41 of 191**                                                                                                                                                                   | [Human Development Index, 2021 (UNDP) Statistical Table](https://hdr.undp.org/)          |
| **Global Health Security Index (GHS)** | **GHS Index Score: 46.1**<br>**Rank: 55 of 195**                                                                                                                  | [GHS Full Report, 2021 GHS Excel Model](https://www.who.int/ghs)                          |

2. RISK COMPONENTS: HAZARD – EXPOSURE – VULNERABILITY

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Risk Level</th>
<th>Data Highlights</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meteorological and Hydrological</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Flood                       | Fluvial MH0007 | Potentially damaging and life-threatening river floods are expected to occur at least once in the next 10 years. The present hazard level may increase in the future due to the effects of climate change. As of 2010, assuming protection for up to a 1 in 25-year event, the population annually affected by flooding in Kazakhstan is estimated at 44,000 people and expected GDP impact is estimated at $480 million. Development and climate change are both likely to increase these figures. | [Think Hazard](https://www.worldbank.org/en/news/newsbrief/2010/04/26/kazakhstan-fluvial-mh0007)  
<table>
<thead>
<tr>
<th>Category</th>
<th>Hazard Type</th>
<th>Level</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood</td>
<td>Urban Flood</td>
<td>High</td>
<td>Urban flood hazard is classified as <strong>high</strong> based on modeled flood information currently available. This means that potentially damaging and life-threatening urban floods are expected to occur at least once in the next 10 years. The present hazard level may increase in the future due to the effects of climate change.</td>
<td>Think Hazard</td>
</tr>
<tr>
<td>Temperature-Related</td>
<td>Heat-wave MH0047</td>
<td>Medium</td>
<td>Extreme heat hazard is classified as <strong>medium</strong> based on modeled heat information currently available. This means that there is more than a 25% chance that at least one period of prolonged exposure to extreme heat, resulting in heat stress, will occur in the next five years. As a heatwave is defined here with reference to the baseline period 1986–2005, the probability of heatwave conditions grows in part simply as a result of the long-term warming trend. By the 2090s, the number of days in this category increases dramatically, particularly under higher emissions pathways.</td>
<td>Think Hazard, WB Climate Change Knowledge Portal</td>
</tr>
<tr>
<td>Precipitation-Related</td>
<td>Water Scarcity</td>
<td>High</td>
<td>Water scarcity is classified as <strong>high</strong> according to the information that is currently available. This means that droughts are expected to occur on average every 5 years.</td>
<td>Think Hazard</td>
</tr>
<tr>
<td>Terrestrial</td>
<td>Landslide MH0051</td>
<td>High</td>
<td>Landslide susceptibility is classified as high. This area has rainfall patterns, terrain slope, geology, soil, land cover and (potentially) earthquakes that make localized landslides a frequent hazard phenomenon.</td>
<td>Think Hazard</td>
</tr>
<tr>
<td>Geohazard</td>
<td>Earthquake</td>
<td>High</td>
<td>Earthquake hazard is classified as <strong>high</strong> according to the information that is currently available. This means that there is more than a 20% chance of potentially damaging earthquake shaking in your project area in the next 50 years.</td>
<td>Think Hazard</td>
</tr>
<tr>
<td>Environmental Degradation</td>
<td>Wildfire EN0013</td>
<td>High</td>
<td>Wildfire hazard is classified as <strong>high</strong> according to the information that is currently available to this tool. This means that there is greater than a 50% chance of encountering weather that could support a significant wildfire that is likely to result in both life and property loss in any given year. Note that damage can not only occur due to direct flame and radiation exposure but may also include ember storm and low-level surface fire. In extreme fire weather events, strong winds and winds born debris may weaken the integrity of infrastructure. Modeled projections of future climate identify a likely increase in the frequency of fire weather occurrence in this region, including an increase in temperature and greater variance in rainfall. In areas already affected by wildfire hazard, the fire season is likely to increase in duration, and include a greater number of days with weather that could support fire spread because of longer periods without rain during fire seasons. Climate projections indicate that there could also be an increase in the severity of fire.</td>
<td>Think Hazard</td>
</tr>
<tr>
<td>Deforestation</td>
<td>Primary Forest Loss</td>
<td>--</td>
<td>From 2001 to 2023, Kazakhstan lost 84.6 kha of tree cover, equivalent to a 2.0% decrease in tree cover since 2000. In Kazakhstan from 2001 to 2022, 0.34% of tree cover loss occurred in areas where the dominant drivers of loss resulted in deforestation.</td>
<td>Global Forest Watch</td>
</tr>
<tr>
<td>Biological</td>
<td>COVID-19 (SARS-CoV-2)</td>
<td>--</td>
<td>In Kazakhstan, from January 2020 to March 2024, there have been 1,503,687 confirmed cases of COVID-19 with 19,072 deaths, reported to WHO. As of 26 November 2023, a total of 38.36m vaccine doses have been administered.</td>
<td>WHO</td>
</tr>
</tbody>
</table>
## EXPOSURE

<table>
<thead>
<tr>
<th>Data Highlights</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population + Communities</strong></td>
<td></td>
</tr>
<tr>
<td>- Population: 18,995,000 (2021)</td>
<td>UN data</td>
</tr>
<tr>
<td>- Pop. density (per km²): 7 (2021)</td>
<td></td>
</tr>
<tr>
<td>- Population growth rate (average annual %): 1.3% (2021)</td>
<td></td>
</tr>
<tr>
<td>- Urban population (% of total population): 57.5% (2021)</td>
<td></td>
</tr>
<tr>
<td>- Urban population growth rate (average annual %): 1.7% (2015)</td>
<td></td>
</tr>
<tr>
<td>- Life expectancy at birth (females/males, years): 77.4 / 68.8 (2021)</td>
<td></td>
</tr>
<tr>
<td>- Population age distribution (0-14/60+ years old, %): 29.2% / 12.6% (2021)</td>
<td></td>
</tr>
<tr>
<td>- International migrant stock (total/% of total pop.): 3732.1 / 19.9% (2021)</td>
<td></td>
</tr>
<tr>
<td>- Refugees and others of concern to UNHCR: 8.5 (2021)</td>
<td></td>
</tr>
<tr>
<td><strong>Basic services, institutions, infrastructure</strong></td>
<td></td>
</tr>
<tr>
<td>- Population living in slums (% of urban population): 1% (2020)</td>
<td>World Bank Data</td>
</tr>
<tr>
<td><strong>Natural Resources</strong></td>
<td></td>
</tr>
<tr>
<td>- Population: 18,995,000 (2021)</td>
<td></td>
</tr>
<tr>
<td>- Pop. density (per km²): 7 (2021)</td>
<td></td>
</tr>
<tr>
<td>- Population growth rate (average annual %): 1.3% (2021)</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>- Population age distribution (0-14/60+ years old, %): 29.2% / 12.6% (2021)</td>
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<tr>
<td>- International migrant stock (total/% of total pop.): 3732.1 / 19.9% (2021)</td>
<td></td>
</tr>
<tr>
<td>- Refugees and others of concern to UNHCR: 8.5 (2021)</td>
<td></td>
</tr>
<tr>
<td><strong>Basic services, institutions, infrastructure</strong></td>
<td></td>
</tr>
<tr>
<td>- Population living in slums (% of urban population): 1% (2020)</td>
<td>World Bank Data</td>
</tr>
<tr>
<td><strong>Natural Resources</strong></td>
<td></td>
</tr>
<tr>
<td>- Surface area (km²): 2,724,902 km²</td>
<td>UN data</td>
</tr>
<tr>
<td>- Threatened species (number): 91 (2021)</td>
<td></td>
</tr>
<tr>
<td>- Forested area (% of land area): 1.3% (2021)</td>
<td></td>
</tr>
<tr>
<td>- Important sites for terrestrial biodiversity protected (%): 13.1% (2021)</td>
<td></td>
</tr>
<tr>
<td><strong>Economy + livelihoods</strong></td>
<td></td>
</tr>
<tr>
<td>- GDP (2021)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- GDP (billion current US$): 181,667</td>
</tr>
<tr>
<td></td>
<td>- growth rate (annual %, const. 2015 prices): 4.5%</td>
</tr>
<tr>
<td></td>
<td>- per capita (current US$): 9,792.6</td>
</tr>
<tr>
<td>- Economy (2021):</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Agriculture (% of Gross Value Added): 4.8%</td>
</tr>
<tr>
<td></td>
<td>- Industry (% of GVA): 20.5%</td>
</tr>
<tr>
<td></td>
<td>- Services and other activity (% of GVA): 64.1%</td>
</tr>
<tr>
<td>- Health (2021)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Current expenditure (% of GDP): 3% (2019)</td>
</tr>
</tbody>
</table>

## VULNERABILITY

<table>
<thead>
<tr>
<th>Data Highlights</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communities + groups</strong></td>
<td></td>
</tr>
<tr>
<td>- Prevalence of disability: 3.7%</td>
<td>UNDP, 2023</td>
</tr>
<tr>
<td>- Internally Displaced People (IDPs): 120,000</td>
<td>IDMC, 2022</td>
</tr>
<tr>
<td>- Gender Inequality: GII value: 0.177</td>
<td>UNDP, 2022</td>
</tr>
<tr>
<td>- Literacy (15 years and older): Adult Literacy: 100%, Female Literacy Rate: 100%, Male Literacy Rate: 100%</td>
<td>WB, 2020</td>
</tr>
<tr>
<td><strong>Robustness of basic services + institutions + infrastructure</strong></td>
<td></td>
</tr>
<tr>
<td>- Corruption Perceptions Index: Score: 39/100, Rank: 93 of 180</td>
<td>Transparency International, 2023</td>
</tr>
<tr>
<td>- Access to electricity (% of population): 100.0%</td>
<td>World Bank, 2021</td>
</tr>
<tr>
<td>- Individuals using the Internet (% of population): 92%</td>
<td></td>
</tr>
<tr>
<td>- Water, sanitation and hygiene (WASH)</td>
<td>UN Water, 2022</td>
</tr>
<tr>
<td></td>
<td>- 89% of population has access to safely managed drinking water.</td>
</tr>
<tr>
<td></td>
<td>- --% of population has access to at safely managed sanitation services</td>
</tr>
</tbody>
</table>
CLIMATE CHANGE

<table>
<thead>
<tr>
<th>Data Highlights</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND-GAIN Country Index</td>
<td>ND-Gain, 2021 Country Profile</td>
</tr>
<tr>
<td>• 58.5 ND-GAIN score, ranked 36 of 185 (upper middle)</td>
<td></td>
</tr>
<tr>
<td>• 0.322 vulnerability score</td>
<td></td>
</tr>
<tr>
<td>• 0.518 readiness score</td>
<td></td>
</tr>
<tr>
<td>Mean Projections (CMIP6) 2020-2039</td>
<td>WBG Climate Change Knowledge Portal</td>
</tr>
<tr>
<td>• Mean annual temperature: Increase</td>
<td></td>
</tr>
<tr>
<td>• Maximum of daily max-temperature: Increase</td>
<td></td>
</tr>
</tbody>
</table>

3. CCA STANDARD ANALYSIS SECTIONS

<table>
<thead>
<tr>
<th>CCA SECTION</th>
<th>RISK FOCUS</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Transformation Analysis</td>
<td>Structure of economy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Oil and Gas sector is the major contributor to GDP followed by mining</td>
<td>WBG Climate Change Knowledge Portal</td>
</tr>
<tr>
<td></td>
<td>industry and agriculture.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Top exports Petroleum oils and oils obtained from bituminous, copper</td>
<td>WB Country Overview</td>
</tr>
<tr>
<td></td>
<td>cathodes and sections of cathodes unwrought, natural uranium and its</td>
<td></td>
</tr>
<tr>
<td></td>
<td>compounds, ferro-chromium containing by weight more than 4 and Copper</td>
<td></td>
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<tr>
<td></td>
<td>ores and concentrates.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Top products imported include Digital process units whether or not</td>
<td></td>
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<tr>
<td></td>
<td>presented, Transmission apparatus, for radioteleph incorpo, Automobiles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with reciprocating piston engine di, other medicaments of mixed or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>unmixed products and Petroleum oils (excl. crude).</td>
<td></td>
</tr>
<tr>
<td>Key socio-economic sectors and risks</td>
<td>Kazakhstan key threads include earthquakes, droughts, floods, avalanches</td>
<td></td>
</tr>
<tr>
<td>affected by climate change and</td>
<td>and landslides.</td>
<td></td>
</tr>
<tr>
<td>disasters.</td>
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</tr>
</tbody>
</table>
The most vulnerable sectors to natural hazards are agriculture, water, urban and energy.

Climate change could influence food production via direct and indirect effects on crop growth processes. Direct effects include alterations to carbon dioxide availability, precipitation and temperatures. Indirect effects include through impacts on water resource availability and seasonality, soil organic matter transformation, soil erosion, changes in pest and disease profiles, the arrival of invasive species, and decline in arable areas due to the submergence of coastal lands and desertification.

Climate change could affect energy supply in Kazakhstan in various ways. Any reduction in river flows as a consequence of glacial loss could reduce the country’s long-term generation capacity via hydroelectricity, which accounted for 11% of electricity production in 2016 and remains the only form of renewable energy that is operating at scale in Kazakhstan.

Climate change is projected to impact on the quality of land and soil in Kazakhstan in several distinct ways. The cost to the country of the poor condition of parts of its land is already substantial, with the one estimate by the UN suggesting that pasture degradation had caused $963 million of damage, and that erosion of arable land and soil salinity had been responsible for damage of $779 million and $375 million, respectively.

Since the 2000s, Kazakhstan has seen impressive economic growth driven by the first generation of market-oriented reforms, abundant mineral resources extraction, and strong FDI. Sustained economic growth has transformed the country into an upper middle-income economy, commensurately raising living standards and reducing poverty.

The Country Partnership Framework is fully aligned with the government’s reform program and Kazakhstan’s 2050 development strategy to accelerate the country’s transformation into a modern society with a knowledge-based, diversified, and private sector–driven economy. This framework focuses on promoting inclusive growth by strengthening the environment for private sector development, promoting the market-led transformation of the agriculture sector, and bolstering the connectivity infrastructure; Strengthening human capital by closing the gap along regional and rural-urban divides in the delivery of education, health, and social protection services; Securing sustainable, resilient, and low carbon growth by managing natural capital, including land and water resources, promoting less energy intensity, and strengthening institutions and service delivery.

Kazakhstan was one of the first Central Asian countries to establish a national entity to promote gender equality. The country’s commitment to this issue is remarkable both internationally and domestically. Nevertheless, persistent gender imbalances remain, particularly for wages and access to employment and career opportunities. High levels of violence against women pose a great obstacle to gender equality in Kazakhstan.

In 2015, Kazakhstan ratified the Convention on the Rights of Persons with Disabilities, which aims to create conditions for persons with disabilities to participate in society on an equal basis with others and free from discrimination. The National Plan for Ensuring the Rights and Improving the Quality of Life of Persons with Disabilities was an important step in ensuring equal opportunities and inclusion. At the global level, the ratification of the
Optional Protocol has a significant impact on the protection of the rights of persons with disabilities. Ratification of the protocol helps Kazakhstan to be recognized internationally as a country committed to protecting the rights of persons with disabilities and complying with international standards.

<table>
<thead>
<tr>
<th>Environme nt and climate change</th>
<th>Climate Risk Projections</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Average annual temperatures in Kazakhstan are expected to rise significantly by the end of the 21st century under all four emissions pathways, with the country projected to see larger temperature increases than the global average and most other Asian nations.</td>
<td></td>
</tr>
<tr>
<td>- The intensity of sub-daily extreme rainfall events appears to be increasing with temperature – a finding supported by evidence from different regions of Asia. However, as this phenomenon is highly dependent on local geographical contexts further research is required to constrain its impact in Kazakhstan.</td>
<td></td>
</tr>
<tr>
<td>- Kazakhstan faces a diverse set of natural hazards, many of which are expected to be augmented by climate change. Key threats include earthquakes, floods, drought, avalanches, and landslides.</td>
<td></td>
</tr>
<tr>
<td>- Kazakhstan identified the country’s vulnerability to climate change in the areas of agriculture (both crops and livestock), water resources, human health and social and economic development. Adaptation priorities in these areas include technical and administrative measures and technological and infrastructural improvements.</td>
<td></td>
</tr>
<tr>
<td>- Kazakhstan made a bold leap forward on a newly charted course for the country’s development by adopting The Strategy on Achieving Carbon Neutrality by 2060. Approved by the President of the Republic of Kazakhstan on February 2, 2023, the strategy sets ambitious net-zero carbon goals for climate action and identifies key technological transformations needed for the country's decarbonization.</td>
<td></td>
</tr>
</tbody>
</table>
In 2014, government restructuring eliminated the Ministry of Environment and Water Resources, previously responsible for environmental policy and climate change. Climate change is now under the purview of the Ministry of Energy, which has added departments of green economy and climate change. The Ministry of Emergency Situations and Kazhydromet play important roles in disaster management and weather monitoring and forecasting. In 2016, the Central Asia Centre for Emergency Situations and Disaster Risk Reduction, designed to improve regional cooperation, was officially inaugurated in Kazakhstan.

Kazakhstan’s national strategies and plans:
- Kazakhstan Strategy 2050.
- Draft national concept on adaptation to climate change (2010, never adopted).

This progress, however, masks vulnerabilities and unevenness in the country’s development model. Slowing economic growth, growing inequality and elite capture, and weak institutions reflect the flaws of the resource-based and state-led growth model and raise the risk that Kazakhstan could become stuck in the “middle-income trap.”

Many of the climate changes projected are likely to disproportionately affect the poorest groups in society. For instance, heavy manual labor jobs are commonly among the lowest paid whilst also being most at risk of productivity losses due to heat stress. Poorer households and businesses are least able to afford air conditioning, an increasing need given the projected increase in cooling days. In the southern regions of Kazakhstan, which are the hottest parts of the country and expected to experience the most severe maximum temperatures in coming decades, poverty is more prevalent, with 10% living on incomes below subsistence level as opposed to just 2% in Nur-Sultan and Almaty. This suggests that the people of southern Kazakhstan may struggle to afford the adaptation measures needed to cope with extremely high temperatures.

Research has also provided more evidence that the effects are not gender neutral, as women and children are among the highest risk groups. Key factors that account for the differences between women’s and men’s vulnerability to climate change risks include: gender-based differences in time use; access to assets and credit, treatment by formal institutions, which can constrain women’s opportunities, limited access to policy discussions and decision making, and a lack of sex-disaggregated data for policy change.

4. SDG-BASED RISK AREAS

<table>
<thead>
<tr>
<th>SDG Risk Area</th>
<th>Risk Factors</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
| **Displacement and migration 16/17** | - Internally displaced persons, new displacement associated with disasters (number of cases): 4,000  
- International migrant stock (000/% of total pop.): 3,732.1/19.9 | UN data  
World Bank data |
|---|---|---|
| **Economic Stability 8/17** | - GDP per capita (current US$): 11,492.0 in 2022  
- Inflation, consumer prices (annual %): 8.0 in 2022  
- Country growth indicator: 20.42 in 2020  
- Ease of Doing Business Rank: 25  
- Trading Across Borders Rank: 105 | World Bank data  
WB WITS |
| **Environment and climate 12/13/14/15/17** | - **Environmental Performance Index**: Score 40.90 (Rank 93)  
- **Deforestation**: In 2010, Kazakhstan had 3.79 Mha of natural forest, extending over 1.7% of its land area. In 2022, it lost 1.31 kha of natural forest.  
- **Biodiversity**: Kazakhstan's score in 2013 of 7 out of 50, implies that it is facing moderate degradation from human pressure.  
- **Water Ecosystem**: 46% is the degree of implementation of integrated water resources management (SDG indicator 6.5.1, 2020)  
- Percentage of domestic wastewater safely treated: 36% (2022)  
- Annual Water stress: 34% of renewable water resources withdrawn | Environmental Performance  
Global Forest Watch map  
UN Water  
UN Biodiversity |
| **Gender equality 1/2/4/5/6** | - GII: Rank 41 out of 191 (very high human development), 0.161 GII (2021)  
- Total literacy rate (%) 15 years and older: 100 (2022)  
- Male literacy rate (%) 15 years and older: 100  
- Female literacy rate (%) 15 years and older: 100 | GII |
| **Infrastructure social services 4/5/7/9/11/17** | - Access to electricity (% of population): 100.0 in 2021  
- Individuals using the Internet (per 100 inhabitants): 92 in 2022 | World Bank data |
| **Public health 3/17** | - Global Health Security Index: 46.1 GHSI (2021), Rank 55 out of 195  
- See Part 1- Basic Risk Data > Hazards > Biological | Full report  
Data set |