



Nationally determined contribution of the Republic of Kazakhstan to the global response to climate change until 2035



2025

Foreword

The Republic of Kazakhstan remains firmly committed to advancing a low-carbon, climate-resilient future while safeguarding the well-being of our people and the sustainability of our economy.



As one of the world's largest landlocked developing countries, Kazakhstan faces distinct vulnerabilities, from water scarcity and extreme weather events to the socioeconomic implications of transitioning from fossil fuels. Yet, we remain determined to act with both honesty and ambition.

This Nationally Determined Contribution (NDC 3.0) reaffirms Kazakhstan's commitment under the Paris Agreement to contribute to global climate action and reflects a higher level of ambition compared to the previous NDC. It outlines our strengthened efforts to reduce greenhouse gas emissions, enhance adaptation, and build resilience to climate impacts, while also setting the foundation for achieving carbon neutrality by 2060, the overarching goal that guides our national climate policy framework.

Kazakhstan continues to make tangible progress from advancing renewable energy and modernizing district heating systems, to restoring ecosystems and expanding climate-smart agriculture. We are mobilizing domestic resources while calling for stronger international cooperation and support to ensure a just and inclusive transition, and to enable the full realization of our NDC 3.0 ambition.

Kazakhstan acts with determination and responsibility in fulfilling its global commitments. Achieving carbon neutrality by 2060 will require sustained effort, innovation, and partnership. With the continued support of the international community, Kazakhstan stands ready to demonstrate leadership and contribute to a sustainable and climate-resilient future for generations to come.

**Minister of Ecology and Natural Resources
Yerlan Nyssanbayev**

Acknowledgement

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The Ministry also recognizes the contributions of the Asian Disaster Preparedness Center (ADPC), ECOJER Association, and the Stockholm Environment Institute (SEI) for their analytical and advisory support during the preparation process.

This NDC 3.0 represents Kazakhstan's collective commitment to a sustainable, low-carbon, and climate-resilient future.

List of Abbreviations

AF	Adaptation Fund
AFOLU	Agriculture, Forestry and Other Land Use
BAU	Business-As-Usual
BTR	Biennial Transparency Report
CA	Corresponding Adjustments
CCUS	Carbon Capture, Utilization, and Storage
CIF	Climate Investment Funds
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
COP	Conference of the Parties
DBK	Development Bank of Kazakhstan
ESG	Environmental, Social, and Governance
ETS	Emissions Trading System
GCF	Green Climate Fund
GHG	Greenhouse Gas
GIS	Geographic information system
ICTU	Information to facilitate Clarity, Transparency and Understanding
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Process and Product Use
ITMO	Internationally Transferred Mitigation Outcomes
L&D	Loss and Damage
LLDC	Landlocked Developing Country
LULUCF	Land Use, Land-Use Change, and Forestry
MDB	Multilateral Development Bank
MENR	Ministry of Ecology and Natural Resources
MRV	Measurement, Reporting, and Verification
NAP	National Adaptation Plan
NDC	Nationally-Determined Contribution
PDNA	Post-Disaster Needs Assessment
PPP	Public Private Partnership
RS	Remote sensing
SME	Small and Medium Enterprises
SOE	State-Owned Enterprise
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon Market

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Summary

The Republic of Kazakhstan reaffirms its strong commitment to the objectives of the Paris Agreement through the submission of its enhanced Nationally Determined Contribution (NDC 3.0). Building upon previous efforts, NDC 3.0 reflects a significant step-up in national ambition and transparency, aligning Kazakhstan's development trajectory with the long-term goal of achieving carbon neutrality by 2060.

NDC 3.0 covers the common 2026–2035 time frame and is aligned with the Strategy on Achieving Carbon Neutrality by 2060. It is backed by an updated Environmental Code, a revitalized Emissions Trading System (ETS), and programs on green finance, afforestation, energy efficiency, renewable energy, and climate-resilient infrastructure, with a forthcoming National Adaptation Plan and links to the National Development Plan to 2029.

The NDC raises Kazakhstan's mitigation target, with national net greenhouse gas emissions set to decline by **17 percent** below 1990 levels by 2035 (unconditional) and up to **25 percent** with international support.

The target covers all IPCC sectors and gases with emissions and removals estimated by using IPCC 2006 Guidelines with AR5 GWPs.

Under the unconditional pathway, net emissions reach **~328 MtCO_{2e}** in 2030 (15%) and **~320 MtCO_{2e}** (17%) by 2035, driven by a cleaner power mix that lifts the share of renewables and other low-emission sources toward ~35 percent by 2035; with international support, emissions can fall to **~288 MtCO_{2e}** by 2035. The NDC integrates adaptation, loss and damage, and a just transition.

This NDC reflects Kazakhstan's comprehensive, whole-of-government approach to climate policy, supported by strong inter-ministerial coordination and the engagement of civil society, private sector, and international partners. It operationalizes national climate strategies, including the Strategy on Achieving Carbon Neutrality by 2060 and the Action Plan for the Transition to a Green Economy, by translating long-term goals into measurable sectoral targets and investment priorities.

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Progress will be tracked against the most recent reported 1990 net emissions in the Biennial Transparency Report, with any recalculations being applied in line with IPCC good-practice guidance. The document was prepared through an inclusive process involving ministries, sub-national authorities, experts, civil society, the private sector, and international partners.

Kazakhstan recognizes that achieving these targets requires sustained domestic effort and enhanced international cooperation.

The country continues to mobilize national resources while calling for predictable, concessional, and technology-oriented international support to enable deeper decarbonization, accelerate adaptation, and ensure a just and equitable transition.

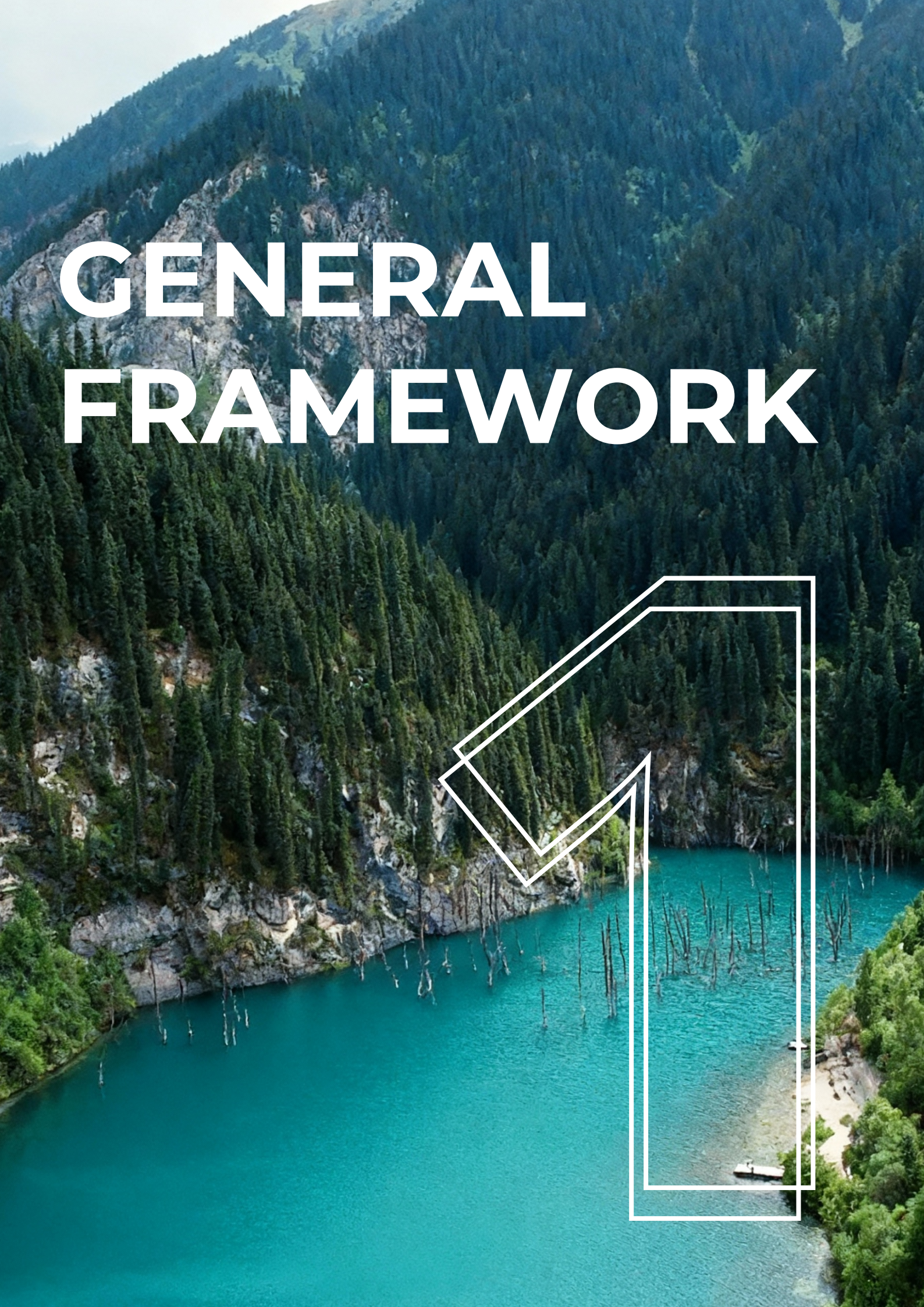
Indicative investment needs for 2026–2035 are estimated at about USD 175,6 billion (USD 128.5 billion for mitigation; USD 47 billion for adaptation), or roughly 5.5 percent of current GDP annually; counting only additional costs above BAU, needs are ~USD 71.8 billion (~2.5 percent of GDP annually). Kazakhstan estimates requirements for around USD 20 billion in highly concessional international finance.

Kazakhstan has already financed a large share of climate action domestically through the republican budget, SOEs, and local delivery systems.

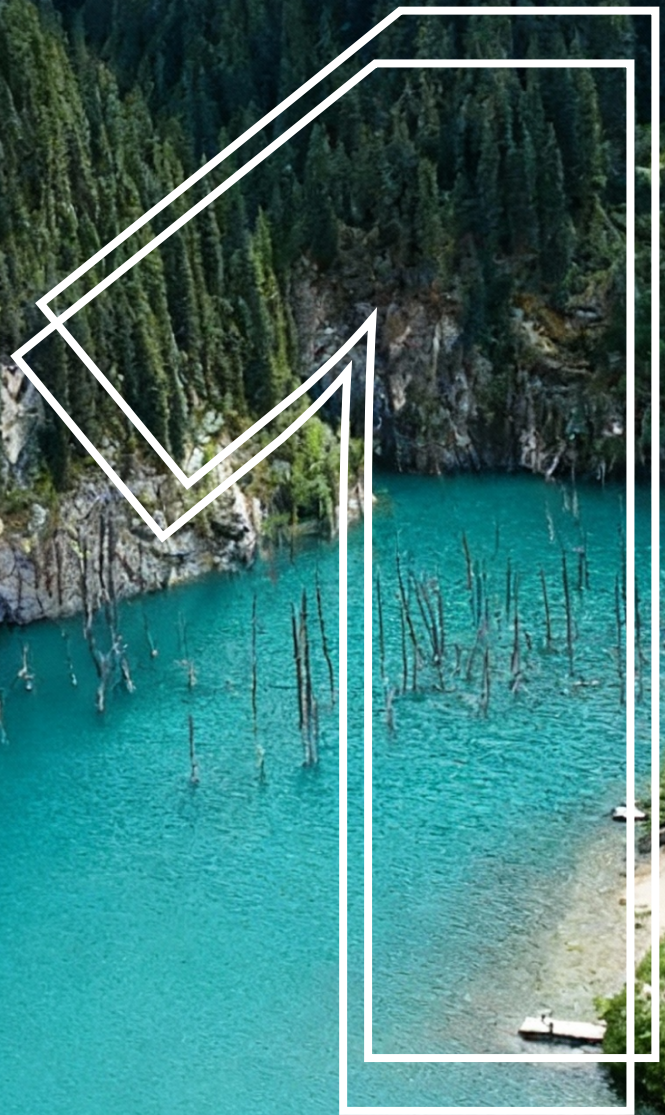
Through NDC 3.0, Kazakhstan demonstrates its determination to contribute meaningfully to the global effort to limit temperature increase, while ensuring sustainable development and the well-being of present and future generations.

Implementation is underpinned by market and transparency systems, strengthening the ETS with tighter carbon budgets and improved MRV, and enabling participation in Article 6 with clear authorizations, corresponding adjustments, safeguards, and required institutions and systems, while prioritizing just transition and inclusion.

The new NDC of Kazakhstan is all about growth through innovation and modernization and best use of talents of people and natural resource endowment, and not about scarcity and constraints.



GENERAL FRAMEWORK



Introduction

The Paris Agreement, adopted in 2015, set the global course for limiting temperature rise to well below 2 °C and pursuing efforts to keep it to 1.5 °C, while strengthening adaptive capacity and aligning finance with low-emission, climate-resilient development pathways.

Determined Contributions (NDCs) are the core instruments for achieving these goals and are updated every five years to reflect increasing ambition, in line with countries' circumstances and the principle of common but differentiated responsibilities and respective capabilities.

The first Global Stocktake (GST), concluded at COP28, provided a comprehensive assessment of collective progress under the Paris Agreement. It underscored the urgency of deep, rapid and sustained reductions in GHG emissions in line with 1.5 °C pathways, strengthening adaptation, and scaling up support for developing economies.

The GST also strengthened calls for transitioning away from fossil fuels in the energy systems, with a particular focus on accelerating efforts towards the phase-down of unabated coal-based electricity and deploying clean energy alternatives in line with national circumstances. It emphasized the importance of conserving, protecting and restoring nature and ecosystems towards achieving the Paris Agreement temperature goal. With regards to adaptation, the GST called for significantly scaling up adaptation efforts, including doubling adaptation finance by 2025, enhancing national planning and implementation, and acknowledged the role of the Global Goal on Adaptation (GGA) to guide countries' adaptation effort towards enhancing resilience, especially in vulnerable sectors and regions.

Kazakhstan's NDC 3.0 responds to this global call by enhancing national ambition and aligning future actions with the priorities identified through the stocktake process.

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In 2023, the Government adopted the Strategy on Achieving Carbon Neutrality by 2060, signaling a decisive long-term transition toward a diversified, low-emission economy.

This strategy is supported by a strengthened Environmental Code, a revitalized Emissions Trading System, and programs on green finance, afforestation, energy efficiency, renewable energy deployment, and climate-resilient infrastructure.

The forthcoming National Adaptation Plan and the National Development Plan to 2029 will further integrate climate objectives into sectoral and territorial development planning.

Kazakhstan's Third Nationally Determined Contribution (NDC 3.0) covers the period 2026-2035 and is aligned with the Strategy on Achieving Carbon Neutrality by 2060 (CNS 2060), serving as the next ten-year step toward that long-term goal.

It sets an economy-wide target of:



17 percent below 1990 levels by 2035 (unconditional), and up to **25 percent** below 1990 levels by 2035 conditional on international support in finance, technology transfer, and capacity building, while strengthening resilience to negative climate change impacts.



The target covers all major IPCC sectors and gases, including CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, and NF₃, and applies IPCC 2006 Guidelines and AR5 Global Warming Potentials. This is fully in accordance with the national GHG inventory, with future refinements envisaged as national systems evolve.

Progression from NDC 2.0 is demonstrated by:



adopting the common time frame 2026–2035.



raising the unconditional ambition **from 15 percent** below 1990 by 2030 **to 17 percent** by 2035, maintaining a conditional ambition up **to 25 percent**



expanding and clarifying coverage across sectors and gases



and strengthening policy and institutional foundations, including the Environmental Code, ETS



methane abatement



renewable integration, energy efficiency



sustainable water and land management, to climate-smart agriculture



The country's NDC 3.0 also gives particular attention to a just transition for coal-dependent regions, to sustainable water and land management, to climate-smart agriculture, and to the protection of vulnerable groups, including women, youth, children, rural and low-income communities, thereby embedding the principles of inclusivity and fairness into Kazakhstan's climate agenda.

With its NDC 3.0 submission, Kazakhstan raises its mitigation ambition in line with its national circumstances and long-term Strategy on Achieving Carbon Neutrality by 2060, demonstrating commitment to the collective effort and charting a credible pathway to contribute fairly to the global goal of limiting temperature rise while building a resilient, inclusive, and sustainable economy at home.



The document has been prepared through an inclusive consultative process engaging line ministry, subnational authorities, technical experts, civil society, the private sector, and international partners. It reflects Kazakhstan's conviction that bold climate action is essential to safeguard long-term prosperity, enhance social well-being, and create opportunities for economic diversification and quality jobs.

By presenting this NDC 3.0, Kazakhstan reaffirms its commitment to the Paris Agreement and its contribution to the global goal of limiting temperature rise and global goal on adaptation, while calling for enhanced international cooperation, climate finance, technology transfer, and capacity-building to unlock deeper mitigation and adaptation action.

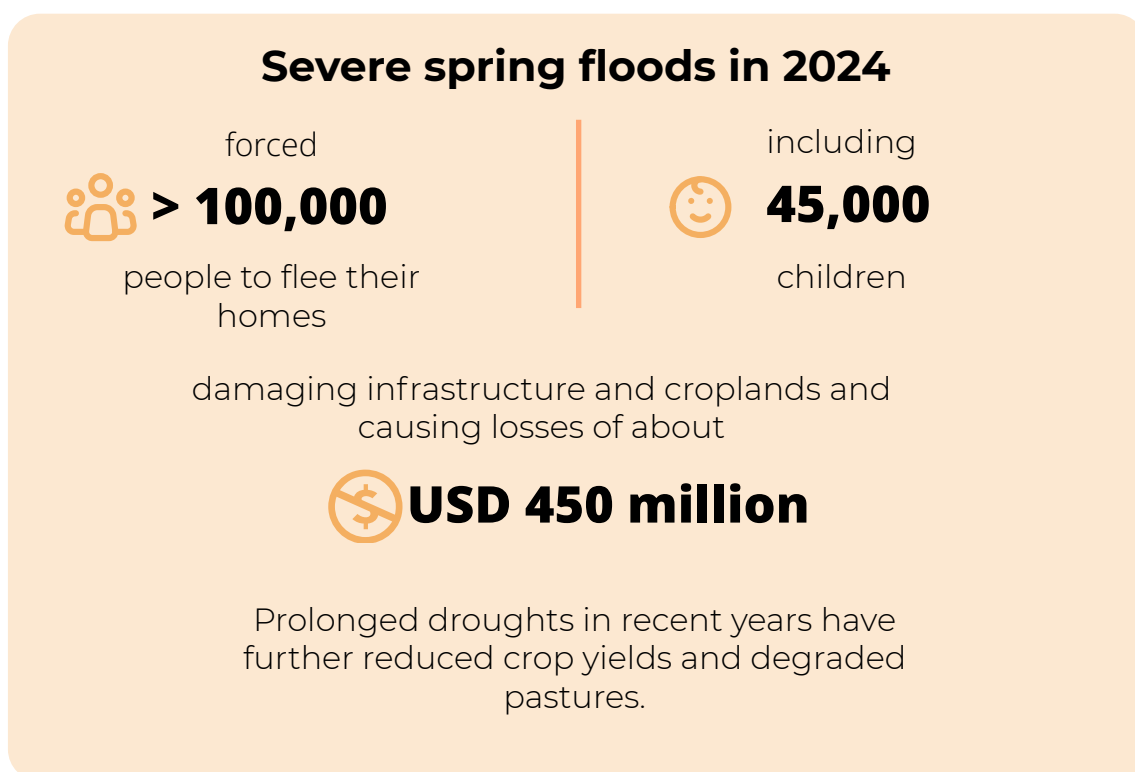
1.1. National Circumstances

Kazakhstan is the world's largest landlocked country and an LLDC. Its vast territory, continental climate, and distance to seaports shape logistics costs, energy security, and adaptation needs. Major river systems are transboundary, which makes water availability and allocation a strategic concern for agriculture, industry, and cities. Regional development is uneven, with coal- and mining-dependent oblasts facing distinct transition challenges.

The economy is diversified yet energy and materials intensive. Heavy industry, mining and metals, oil and gas, and transport are major contributors to GDP, exports, and employment.

Power generation relies significantly on coal, with gas and hydropower providing balancing roles. Grid reliability, aging assets, and winter peak constraints influence the pace and sequencing of clean energy integration.

Floods and droughts already threaten lives and livelihoods in Kazakhstan, and climate change is intensifying and shifting these hazards.



As the impacts of climate change deepen, patterns of drought and flooding are likely to change. While formal event attribution for floods in Kazakhstan is still developing, the Government treats flood and drought risk as a primary concern for climate change adaptation, disaster risk reduction, and long-term socio-economic development. Kazakhstan will plan and invest on the basis that climate change is already altering hazard patterns, while continuing to refine attribution with new data.

Kazakhstan's GHG profile reflects its economic structure. While per capita emissions remain higher than the global average (about 14t CO₂-eq in 2023 due to its historic reliance on coal and energy-intensive industries), the country's overall contribution to global emissions is less than 0.7 percent. This imbalance, with mounting climate-related losses despite a relatively small share in global emissions, underscores the urgency of pursuing a low-emission, climate-resilient development pathway.

1.2. Implementation progress to date

Since the submission of its previous NDCs, the Republic of Kazakhstan has made steady progress in implementing national climate policies and institutional frameworks for low-carbon development.

According to the 2025 National Inventory Document, the total net GHG emissions in 2023 remained **9.4 percent below 1990 levels**.

Major policy milestones include the Strategy on Achieving Carbon Neutrality by 2060 (2023), which sets long-term decarbonisation pathways across all sectors, and the revised Environmental Code (2021), which strengthens the legal basis for emissions monitoring, green finance, and the operation of the national Emissions Trading System (ETS). The Action Plan for Transition to a Green Economy 2024–2030 further defines near-term targets for scaling up green investments and sustainable infrastructure.

On outcomes



total net GHG emissions were **349,22 MtCO₂e** in 2023, which is **9.4%** below 1990, though 7.6% higher than 2021 as activity rebounded post-COVID.



The energy sector remained the dominant source at 278.5 MtCO₂e (70.8%) in 2023, defining the national emissions profile.



Agriculture was the second-largest at 33.4 MtCO₂e (9.6%), **20%** below 1990 and **13.4%** below 2021.



IPPU accounted for 26.7 MtCO₂e (7.7%), **17.7%** above 1990 and **0.8%** above 2021



the waste sector reached 7.1 MtCO₂e (2%), **73.5%** above 1990.

Clean-energy deployment has accelerated.

As of September 2025, operating in Kazakhstan:

158



renewable energy
facilities

over **200 kW** each,
with an installed capacity of **3,248 MW**

1 670 MW



wind

1 263 MW



solar

313,6 MW



small hydro

1,7 MW



biogas

7.2%



The share of electricity generated from
renewable energy sources reached 7.2%
by November 2025.

Installed renewable energy capacity continues to grow

6,81%

| of total electricity generation by the end of 2024

3,2

| GW in 2024, compared to approximately 0.5 GW in
2018.

Over the past five years, the energy intensity of GDP has decreased by

13,5%

| (by the end of 2023), reflecting gradual improvements
in efficiency and diversification of the energy mix.

Pilot projects on methane reduction, waste-to-energy, and climate-resilient agriculture have also been launched in cooperation with international partners.

On efficiency, Kazakhstan has updated energy-intensity targets (relative to 2008)

↘ of a **46.6%** reduction by 2026, with intermediate milestones for 2022–2025

The BTR notes the target design currently limits sector-level impact assessment, an implementation gap that NDC 3.0 can help address through clearer sectoral pathways and indicators.

These efforts demonstrate Kazakhstan's **progression beyond its NDC 2.0** and its commitment to achieving the **highest possible ambition** through strengthened policy coherence, improved data systems, and integration of mitigation and adaptation actions across all sectors.



1.3. Challenges in implementing the NDC

The continental climate drives very high winter heating demand and rising summer cooling demand. Conventional air-source heat pumps perform poorly at sub-zero temperatures. Sustainable biomass potential is limited and undeveloped, while expanding domestic natural-gas development is capital-intensive slow.

Hydropower is constrained by variable and declining inflows on transboundary rivers influenced by upstream withdrawals and climate-driven glacial retreat.

Coal therefore remains an important, though carbon-intensive, source of heat and power in the near term. Energy planning also underweights adaptation needs such as peak loads during heatwaves and higher electricity demand for irrigation and cooling.

Although the government is prioritizing renewables and gasification, energy planning often overlooks adaptation needs such as rising cooling and irrigation demand, as well as power-system vulnerability to peak loads during heatwaves.

Socio-economic dependence on coal is significant on several oblasts. Jobs, local budgets and supply chains are tied to coal mining and coal-based power. A just transition framework is nascent, and practical guidance for reskilling workers, diversifying local economies, and protecting affected households remain limited.

Carbon pricing reforms are essential for decarbonization but could raise energy and transport costs if not carefully sequenced and paired with targeted social protection.

Financial conditions remain a significant obstacle. Green investments face high capital costs compared to fossil fuel-based projects due to low end-user tariffs, persistent fossil fuel subsidies, and limited access to affordable long-term financing. Innovative equipment is often not accepted as collateral, limiting borrowing options.

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These challenges call for integrated approaches that link mitigation with adaptation, pair technical and ecosystem-based solutions, and strengthen institutional and human capacity at national and sub-national levels.



1.4. Development process

The preparation of Kazakhstan's NDC 3.0 was guided at the highest political level. By Order No. 144 of 11 June 2025, a National Working Group on NDC 3.0, chaired by the First Deputy Prime Minister, was established as the main decision-making and coordination platform.

The Group included representatives from all key ministries and agencies for energy, industry, agriculture, water resources, finance, economy and others, as well as state-owned enterprises, business associations, academia and civil-society organizations.

The process was coordinated with three national initiatives in parallel:



the **Roadmap for the Strategy on Achieving Carbon Neutrality by 2060**, the **drafting of the National Adaptation Plan**, and the **update of the Concept for Transition to a Green Economy** under Presidential oversight.

This ensured that targets, measures and investment signals are consistent across instruments and guided by a shared long-term vision for decarbonization, resilience and sustainable development. The Working Group also considered the first Global Stocktake and relevant CMA decisions.

Robust technical work underpinned the NDC development. Over 2024–2025, sector teams drew on the national GHG inventory and the Biennial Transparency Report to update baselines, test mitigation and adaptation options, and assess implementation pathways.

Analysis covered energy system transitions, methane abatement, industrial efficiency, land use and agriculture, water management, and just transition considerations, with attention to sequencing, grid integration, and investment needs. Broad and inclusive consultations complemented the technical work.

Particular attention was paid to gender issues and the involvement of vulnerable groups, including youth and children. Youth organizations participated in technical meetings and stakeholder roundtables alongside line ministries, experts and regional authorities. NDC 3.0 establishes a systemic approach to protecting the rights of children and youth in the context of climate change.

This combination of political leadership coordinated national planning, technical evidence, and inclusive participation has produced an NDC 3.0 that is coherent, forward-looking and aligned with the Strategy on Achieving Carbon Neutrality by 2060. It provides a credible foundation for implementation, resource mobilization and transparent monitoring of progress.



CLIMATE CHANGE MITIGATION



2.1. Policies related to mitigation

Over the past decade, Kazakhstan has built a more coherent policy and legislative framework to guide the low-carbon transition and align national development with global climate objectives.

This framework combines long-term strategies, medium-term development plans, regulatory reforms and market-based instruments, providing a foundation for achieving the targets set in the NDC 3.0 and the national goal of carbon neutrality by 2060.

Strategic Vision for Decarbonisation

Kazakhstan's long-term climate policy is guided by the **Strategy on Achieving Carbon Neutrality by 2060**, adopted in 2023.

The Strategy defines the national decarbonisation trajectory, outlining sectoral pathways and investment needs estimated at **USD 610 billion** to 2060. It calls for redirecting existing capital flows toward green technologies and mobilising new public and private investment.

A detailed **Roadmap** is being developed to guide implementation and sectoral sequencing.

Medium-Term Development and Green Transition Plans

The **National Development Plan to 2029** (adopted 2024) establishes priorities for 2025–2029, promoting diversification, innovation, and human-capital development as enablers of a just, low-emission transition.

The **Action Plan for Transition to a Green Economy (2024–2030)** complements this by setting concrete green-finance and sustainable-investment targets, including increased issuance of green loans and bonds by 2030.

Together, these plans connect Kazakhstan's long-term carbon-neutral vision with near-term policy and investment priorities.

Legal and Regulatory Foundations

The **Environmental Code (2021)** provides the legal basis for climate action, introducing emission-reduction principles, climate-related permitting, and green-finance mechanisms. It underpins the **National Emissions Trading System (ETS)** and mandates a gradual decline in the national carbon budget, with revenues from allowance payments channeled toward environmental projects.

Carbon Pricing



Kazakhstan operates **Central Asia's first ETS**, initially launched in 2013 and reformed in 2018. The system covers about **42.9 % of national CO₂ emissions** from 212 large installations in the energy, oil and gas, mining, metallurgy, chemical, and construction-materials sectors.

The ETS provides a platform to strengthen price signals and stimulate low carbon as allocation coverage, and MRV are upgraded. The national carbon budget for covered sectors is being reduced by 3.41% annually through 2030, consistent with recent reforms.

Policy Coherence and Implementation

These complementary strategies, plans and instruments together constitute the backbone of Kazakhstan's climate-policy architecture. The long-term Strategy on Achieving Carbon Neutrality by 2060 defines the destination, the medium-term plans translate it into investment priorities, the Environmental Code provides the legal foundation, and the ETS introduces a market signal for reducing emissions.

For the NDC3.0, these instruments serve not merely as background policies but as direct enablers of mitigation outcomes. They create incentives for technological modernization, establish a framework for mobilizing public and private finance, and guide sectoral transformation in a way that is consistent with Kazakhstan's sustainable-development agenda and the principles of a just transition.

2.2. National GHG Emissions (1990–2023)

Kazakhstan's greenhouse gas (GHG) emissions have undergone marked shifts since 1990, reflecting the country's profound economic transitions and structural changes in the energy system. In 1990, during the final years of the Soviet-era industrial economy, net GHG emissions stood at about **385 Mt CO₂-equivalent**, driven by energy-intensive heavy industry and a strong reliance on fossil fuels. After a rapid decline in the 1990s, emissions stabilized and then began to grow again in the early 2000s. According to the most recent national inventory, net emissions reached about **349.2 Mt CO₂-equivalent in 2023**.

Recently, Kazakhstan's total GHG emissions rose in 2023 compared to 2021, driven by post-COVID economic recovery and increased energy use.

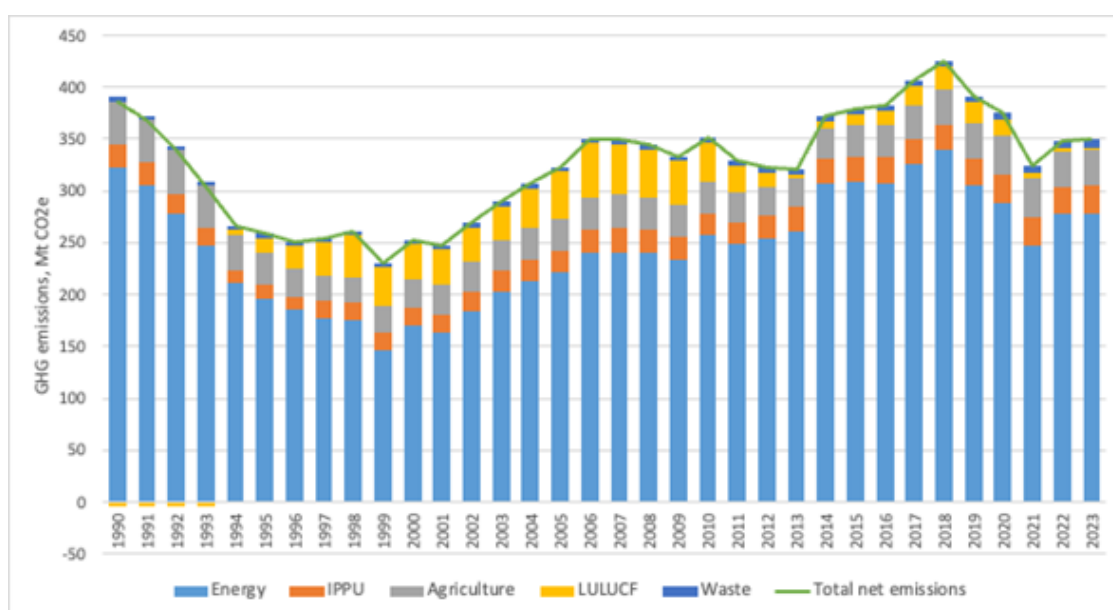


However, total net emissions in 2023 remained 9.4% below 1990 levels.



The energy sector remains the dominant source of emissions, contributing 79.8% (278.5 MtCO₂e) of the total in 2023, with energy industries alone accounting for about 40 % of national net emissions.

Figure 1. Total greenhouse gas emissions of Kazakhstan for 1990–2023, Mt CO₂e



The agriculture sector was the second-largest source in 2023, emitting 33.4 Mt CO₂e (9.6%), 20% lower than 1990 and 13.4% below 2021, mainly reflecting livestock dynamics. The IPPU sector contributed 26.7Mt CO₂e (7.7%), up 17.7% since 1990 and 0.8% from 2021.

Waste emissions reached 7.1 Mt CO₂e (2%), a 73.5% increase since 1990, linked to population growth and rising waste volumes.

The LULUCF sector, once a net sink, became a net source with 3.3 Mt CO₂e in 2023, though emissions declined 28.9% from 2021, indicating improved land management.

2.3 Emissions pathways and modelling approach

Kazakhstan's NDC 3.0 is underpinned by three modeled scenarios that reflect different levels of policy effort and access to support. Assumptions on scope, methods and cutoff dates are set out in Annex 1 (ICTU).

Business-as-Usual (BAU). A reference scenario if no additional mitigation beyond policies and measures in place at the modeling cutoff date. BAU is a comparator, not a policy target.

Unconditional Mitigation. A policy trajectory reflecting measures adopted and domestically implementable within current institutions and budget frameworks, consistent with national strategies and sectoral plans.

Conditional Mitigation. A higher-ambition trajectory that assumes timely international support, including finance, technology transfer, and capacity building, enabling deeper reductions.

These scenarios provide the analytical foundation for assessing Kazakhstan's mitigation ambition and are used to quantify emission trajectories presented in the following section on GHG emissions under the BAU scenario.

2.3.1. GHG emissions under the BAU scenario

Under the baseline scenario for greenhouse gas emission projections, assumptions were made to reflect the expected trends in socio-economic development and demographic dynamics.

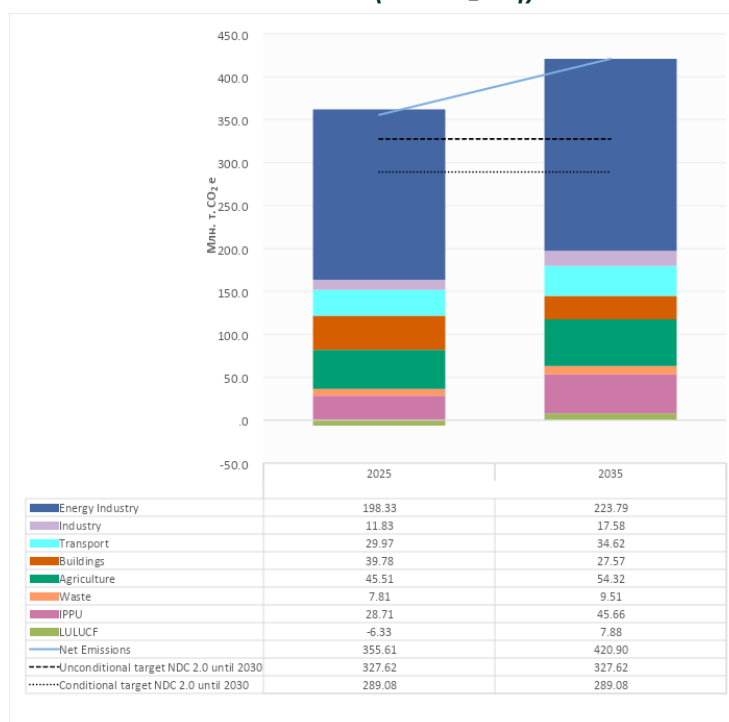
According to the forecast, Kazakhstan's economy is expected to grow at an average annual rate of **5.6%** during **2025–2030** and **3.1%** during **2030–2035**.

The country's population is also projected to continue increasing, with an average annual growth rate of 0.87% and 0.74%, respectively.

By **2035**, Kazakhstan's GDP is projected to reach approximately USD **350 billion**, driven primarily by growth in industry and the services sector, accompanied by a steady increase in energy demand. Despite gradual improvements in energy efficiency, these gains are insufficient to offset the effects of economic expansion and the continued reliance on coal for electricity and heat production. In the absence of additional measures to curb methane emissions, further growth in emissions is expected from the oil and gas sector and the waste management sector.

Efficiency gains occur but are insufficient to offset higher activity and continued reliance on coal in power and heat. Without new policies to curb methane, emissions from oil and gas operations and waste also increase. As shown in Figure 2, net emissions rise from about 375 Mt CO₂-equivalent in 2020 to roughly 421 Mt CO₂-equivalent by 2035, about 9 % above the 1990 baseline.

Figure 2. Projected GHG emissions by sector under the BAU scenario, 2020–2035 (Mt CO₂-eq)



In this trajectory:



Energy industries remain the largest source, rising from around **181** Mt CO₂-equivalent in 2020 to about **223** Mt CO₂-equivalent in 2035, accounting for more than half of total emissions due to continued coal use and limited diversification into renewables.



Transport and IPPU grow the fastest, reflecting higher vehicle ownership, freight demand, and expansion of industrial production without strong decarbonization measures



Agriculture and waste increase gradually, driven by moderate growth in livestock and waste generation, and slow adoption of methane-capture technologies.



Buildings decline steadily in emissions with improved **insulation, energy efficiency**, and a gradual shift to cleaner heating systems.



Without continued support measures decreasing **land degradation** and increasing afforestation, the LULUCF sector will remain a source of emissions until 2035.

2.3.2. Mitigation pathways

Kazakhstan's unconditional projection is anchored in a broad package of measures across all major emitting sectors, with the energy sector at its core.

With measures implementable under unconditional projections:

national net emissions decline to about

- **328 Mt CO₂-equivalent in 2030 (15 percent below 1990 levels)**
- **320 Mt CO₂-equivalent by 2035 (about 17 percent below 1990 levels, or ~24 percent below the BAU).**

This meets the 2030 benchmark from the previous NDC target of unconditional target for 2030, which is 15 percent below 1990 levels, and signals increased ambition.

The largest reductions come from changes in the power and heat mix.



The share of development of electricity generation from low-carbon sources, including sources with transitional fuels (renewable energy sources, nuclear energy, hydropower, gas generation, if possible, traditional generation with CO₂ capture) at least **35% by 2035**.



The volume of development of **renewable energy** is growing from the current **7.2% to 20% by 2035**.



In addition to clean generation, significant effects will be achieved through measures to improve the energy efficiency of the economy by reducing the **energy intensity of GDP by 20% by 2035** (from the 2021 level).

By 2030, the LULUCF sector is projected to achieve net removals of at least **23 million tCO₂-eq per year**; **by 2035**, net removals are expected to increase to **at least 28 million tCO₂-eq per year**.

Additional contributions:

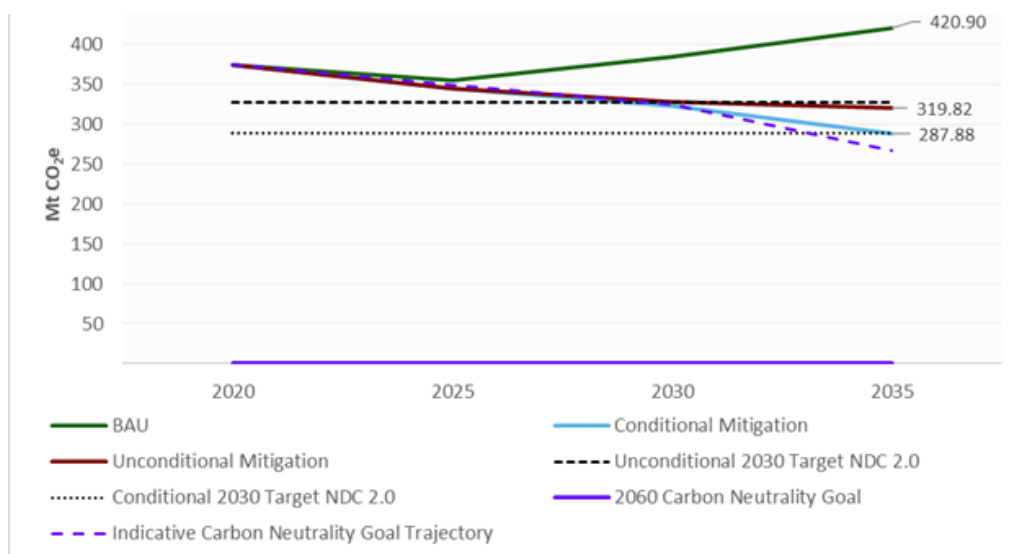
Transport lowers emissions through faster electrification and shifts to public and active mobility.

Industry reduces energy use via energy upgrades

Buildings cut emissions through efficiency, cleaner heating, and higher standards for new construction.

Waste achieves steady declines through improved collection and treatment

Figure 3. Projected net GHG emissions by scenario



The conditional pathway builds on the unconditional mitigation commitment with deeper decarbonisation enabled by international partnerships and investment. It foresees net emissions reaching about 288 Mt CO₂-equivalent by 2035, roughly about 32 percent below BAU and broadly consistent with the conditional ambition level in NDC 2.0, which is 25%.

In this pathway the energy sector again delivers the largest emission reductions. **The share of clean energy in electricity generation increases to 73% by 2035, thanks to the large-scale development of solar, nuclear, and wind power. By 2035, fugitive methane emissions will be reduced by approximately 42% in the energy and waste sector.**

Buildings, transport and industry also achieve greater mitigation than under the unconditional pathway due to wider electrification, uptake of biofuels and stronger energy efficiency policies.

2.4. Mitigation commitments

Kazakhstan commits to reduce economy-wide net greenhouse gas emissions, including LULUCF, by 17 percent below 1990 levels by 2035 as an unconditional target, and up to 25 percent below 1990 by 2035 conditional on timely international finance, technology transfer, and capacity-building. The targets adopt the 2026–2035 common time frame, cover all IPCC sectors and gases (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, NF₃), and apply IPCC 2006 Guidelines with AR5 GWPs.

This represents progression from NDC 2.0 and aligns with the Strategy on Achieving Carbon Neutrality by 2060. Ambition will be delivered through domestic policies already in force, and the conditional component will be achieved through international partnerships that lower costs while safeguarding energy security and a just transition.

2.5. Measures to mitigate GHG emissions

Kazakhstan's NDC 3.0 mitigation strategy is built around a package of priority unconditional measures across all major emitting sectors. These measures are designed to accelerate the country's energy transition, strengthen energy efficiency, promote low-emission technologies in transport, industry and agriculture, scale up nature-based solutions and improve waste management. In addition, the mitigation strategy places emphasis on reducing short-lived climate pollutants, including methane and black carbon, and on advancing emerging technologies such as hydrogen, carbon capture, and other innovative low-carbon solutions. Taken together, they enable the achievement of the unconditional mitigation pathway and provide the foundation for deeper cuts under the conditional pathway, in line with the national Strategy on Achieving Carbon Neutrality by 2060.

Energy, including Power Sector

Ensuring a reliable and balanced energy transition, Kazakhstan will expand its low-carbon and transition generation capacity, bringing its share of total electricity generation to at least 35% by 2035 from renewable and nuclear energy sources.

The use of transition fuels will be carefully balanced to support cleaner heating - reducing particulate matter and black-carbon emissions - while enhancing power-system flexibility to integrate renewable energy and meet growing demand from the transport and industrial sectors

Deployment of Best Available Technologies in power and heat generation, and continued fuel switch of residential areas will contribute to reduction of particulate emissions and black carbon.

Power plants, heating networks, and utility systems will be modernized to replace outdated infrastructure along with automated monitoring systems to reduce wear across electricity, heat, water, and wastewater networks.

Efficiency of energy use will improve through Smart Grid and Smart Metering technologies, reactive power compensation, and the transition to higher voltage levels to support electrification and integration of electric vehicles.

Tariff and financing reforms will gradually reduce cross-subsidies, while social protection measures will help low-income households by capping utility expenses at 10% of income.

In oil and gas sector, leak detection and repair programs, and utilization of associated petroleum gas will accelerate the reduction of routine flaring and methane emissions across production sites.

Buildings and Urban Development

Gradual increase in the annual rate of residential building retrofits from around 0.1% in 2023 to 0.5% per year from 2026 onwards, improving insulation and reducing heat losses.

Introduction of progressively stricter building standards so that by 2030 at least half of all new residential buildings comply with advanced energy-efficiency codes.

- **Modernize district-heating networks** that serve around 60 % of the population to improve heat delivery efficiency and prevent oversupply to buildings.
- **Deployment of automated heat, water, and electricity meters**, together with the **integration of digital accounting and energy-management systems**, will enable accurate monitoring and billing based on actual consumption, while supporting building retrofits and encouraging behavioral change toward more efficient energy use.
- **Energy sufficiency standards for buildings** will be reviewed and updated to align with improved efficiency, comfort, and emission-reduction goals.
- **Public awareness and capacity-building programs** will promote efficient energy use and support behavioral change.

- Households will continue to switch to **cleaner heating options**, including the gradual transition from coal to natural gas and the uptake of heat pumps driven by consumer demand, improved affordability, and the growing availability of low-carbon technologies

Transport

- **Scale-up of incentives** to support uptake of electric cars, together with measures to reduce up-front costs.

The implementation of Euro 5 and Euro 6 standards, as well as an increase in the share of electric vehicles, will significantly improve air quality and reduce pollutant emissions in cities.

- **Modernization of distribution networks** and the transition of consumers to higher voltage will create conditions for the safe connection of charging stations and an increase in the share of electric vehicles, reducing the risk of overload during peak demand hours. Low-emission fuels will be developed for internal combustion engine-powered vehicles and aviation.

Specifically, plans are underway to use organic additives for gasoline and diesel fuel, for which an additional 70,000 tons of bioethanol will be produced.

- **The aviation industry** will use SAF, of which production in Kazakhstan will reach at least 30,000 tons by 2035. The development of public transport, rail service, and active mobility will gradually reduce dependence on private cars, improve transport accessibility, and reduce emissions in the sector.
- **Urban planning** will be aimed at creating a low-emission transport environment by integrating pedestrian, bicycle, and public transport infrastructure into the urban fabric, ensuring convenience, safety, and sustainability of urban mobility.

Agriculture

- Increase the share of manure and crop residues utilised for energy, cutting methane and nitrous-oxide emissions.

Gradual conversion of cropland to organic practices, targeting 3% of cropland by 2030, up from about 1.5% in 2023.

Approximately 76,000 hectares (ha) of cropland will need to be converted to organic farming methods annually between 2026 and 2030.

- Implementation of practices for restoring degraded pastures, cover cropping and no-till farming.

LULUCF



Implementation of large-scale afforestation and land restoration programs are being implemented to enhance carbon sequestration and prevent soil degradation across 676,000 hectares of land.



In addition to the ongoing program to plant 2 billion trees across 500,000 hectares by 2026, a new national afforestation initiative aims to restore an additional 700,000 hectares by 2030, strengthening forest ecosystems and the land's carbon absorption capacity.



Voluntary tree-planting initiatives are also being introduced by high-emission industries to offset their carbon footprint. Between 2026 and 2035, private sector actors are expected to plant approximately 107,100 hectares to compensate for emissions from petrochemical and extractive industries.

- The expansion of protected and sustainably managed forest areas aims to prevent forest degradation and increase the long-term carbon sequestration potential. Under this measure, 800,000 hectares of forest land will be safeguarded from degradation by 2035.
- Sustainable forest management practices will be extended to 1.3 million hectares by 2040, enhancing ecosystem services and climate resilience.

Waste

- Progressive reduction in solid-waste generation, achievement of at least a 40% recycling rate by 2035, and restrictions on biodegradable waste going to landfills.
- Limiting the landfilling of biodegradable waste and promoting composting and the energy use of organic fractions. Utilization of agricultural waste for energy production. Methane and nitrous oxide emissions from manure and crop residues applied to fields are expected to be reduced by 16% between 2026 and 2035 due to an increase in their use for energy production.
- Waste inventory will be improved and deployment of landfill methane-capture systems will continue, expanding to additional sites to reduce methane emissions and enable energy recovery from waste.

Circular Economy/Resource Efficiency

Strengthening the principles of a circular economy, resource efficiency, and sustainable consumption and production in key economic sectors. By 2035, the plan is to improve the efficiency of material and resource use (water, energy, and raw materials), increase the share of recycled materials, develop industrial symbiosis in certain sectors of the economy, and reduce waste generation and process greenhouse gas emissions through the implementation of circular business models and green standards.

Cross-cutting and Market-based Measures

To stimulate a low-carbon transition across the economy, Kazakhstan will gradually strengthen the emission cap for covered industries, providing a predictable price signal for investment in low-carbon technologies within the ETS. The development of the ETS will create the foundation for further interaction with other market mechanisms and the attraction of international climate finance.

To improve transparency, coherence, and investment attraction, Kazakhstan will establish a Country Platform for Climate Finance Mobilization – a coordination mechanism bringing together government agencies, the private sector, and international partners.

The platform will ensure synergies between the ETS, the implementation of Article 6 of the Paris Agreement, the Carbon Fund, and enterprise transition plans, creating a unified framework for the preparation, financing, and monitoring of climate projects, as well as the development of a portfolio of bankable initiatives using blended finance instruments.

Under Article 6 of the Paris Agreement, Kazakhstan plans to pilot advanced low-carbon technologies, including low-carbon hydrogen and its derivatives, carbon capture, utilization, and storage (CCUS), direct air capture of CO₂, bioenergy with carbon capture, Power-to-X systems, and long-term energy storage solutions.

Pilot projects will be implemented through international partnerships, climate finance programs, and results-based mechanisms, using revenues from carbon transactions to demonstrate and implement innovative technologies, develop competencies, and scale up solutions in high-emitting sectors.

Short-Lived Climate Pollutants

Kazakhstan plans to introduce a system of state regulation of methane emissions, including the development of bylaws, monitoring, reporting, and verification (MRV) rules, and the creation of a National Methane Emissions Database and its integration with the state carbon inventory.

Additional measures to reduce short-lived climate pollutants include the implementation of a National Methane Emissions Reduction Program, which establishes priority sectors, targets, and deadlines for achievement, with mandatory inventory and annual reporting by regulated entities.

Methane leaks will be reduced through the implementation of leak detection and response (LDAR) systems, equipment modernization, and the establishment of flaring efficiency requirements (at least 98%), with flaring considered a preferable option over direct gas emissions.

Furthermore, institutional and legal regulation of methane will be strengthened, including the harmonization of national regulations with the European Union Methane Regulation and the Global Methane Commitment. It's worth noting that many of the measures included in the NDCs will also reduce short-lived climate pollutants (SLCPs). Modernizing the thermal power industry and switching to cleaner fuels will reduce emissions of black carbon and particulate matter.

Expanding energy efficiency programs and developing public transportation will reduce urban air pollution. Implementing methane capture and use systems at industrial facilities, landfills, and in agriculture will reduce emissions of methane—the most significant SLCP. At the same time, waste management measures and improved manure management will reduce both methane and nitrous oxide.

Taken together, these measures will not only contribute to achieving climate goals but also deliver tangible social and environmental benefits, including improved air quality, public health, and resilience to climate risks.

2.6. Socio-economic considerations

Kazakhstan will manage the social and economic implications of decarbonization, so mitigation is feasible, fair, and investable. The Government will protect vulnerable groups, support workers and regions in transition, and expand participation and opportunity as new sectors grow.

A just and inclusive transition

Kazakhstan's transition to a low-emission economy will require gradual decline in coal and other fossil fuels, especially in power generation and heating. This transition brings important social and economic challenges for coal-dependent regions, where local budgets, jobs and infrastructure have long relied on the coal industry. To ensure that no region or community is left behind, the Government will pursue a just transition that:

- assessing local labour markets and skills,
- supporting re-training and re-deployment of workers,
- diversifying regional economies, and
- providing social protection for affected households.

Gender-responsive mitigation

Women and men experience climate risks and the transition differently due to unequal access to resources, land, finance, and decision-making.

Women play central roles in household energy, water management, and small-scale farming, making them indispensable partners in the shift to low-emission and climate-resilient practices.

Kazakhstan has made progress by embedding gender considerations into national policies and launching initiatives such as the Women for Just Transition Network.

Government aims to:



Gender-responsive climate policy will not only make mitigation more effective but also promote fairer distribution of opportunities and benefits.

Engaging youth and safeguarding children

Children and youth are both vulnerable to climate risks and key agents of change in the transformation toward a green economy.

Kazakhstan's NDC 3.0 reflects this dual perspective by:



- ✓ integrating climate-resilient design in schools, healthcare and public services,
- ✓ promoting climate education and expanding youth participation in environmental initiatives,
- ✓ creating financing windows for youth-led projects and green entrepreneurship, and
- ✓ investing in community-based resilience that benefits families and future generations.

These measures ensure that the transition to a low-emission future also protects children's rights, strengthens their opportunities, and equips young people to be partners in delivering Kazakhstan's climate commitments.

They will be tracked through NDC implementation and just transition monitoring, with disaggregated indicators where feasible.

CLIMATE CHANGE ADAPTATION



3.1. Kazakhstan's efforts and achievements in climate change adaptation

3.1.1. Adaptation related policies and plans

Kazakhstan's adaptation policy is shaped by a comprehensive legal and strategic framework that integrates climate risk considerations into national development and sectoral planning.

The Environmental Code (2021) mandates systematic vulnerability assessments, sectoral adaptation plans, prioritizing water management, agriculture, forestry, and emergency preparedness.

The Water Code (2025) includes a separate chapter dedicated to adaptation issues, which provides for the integration of climate risks into water resources management and planning. The Code establishes principles for assessing the impact of climate change on water resources, ensuring the sustainable use of surface and groundwater, and prioritizing water supply to critical sectors during periods of water scarcity.

The Concept of Transition to a Green Economy (2013, updated 2024) expands ecosystem-based approaches, restoration of degraded land, and sustainable water and soil management.

Sectoral strategies translate these policies and plans into concrete action:



- ✓ ***The Comprehensive plan for the development of the water sector for 2024–2028 (2024)*** prioritizes efficiency, modern irrigation, and infrastructure resilience.
- ✓ ***The Concept for the Development of the Agro-Industrial Complex for 2021-2030 (2021)*** promotes climate-smart farming and water-saving crops.

These policies provide a foundation but also reveal where integration across sectors is still limited.

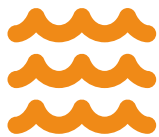
3.1.2. Adaptation measures and current efforts

Kazakhstan's adaptation actions focus largely on technical and infrastructure-driven measures, especially in water, agriculture, and disaster risk reduction. These include, among others:

Increasing water storage capacity to 2.65 billion m³ by 2028, reducing irrigation losses from 50 % to 35 %, modernizing canals, and strengthening hydrological monitoring (Ministry of Water Resources and Irrigation, 2024).

Scaling up climate-smart agriculture, diversifying away from water-intensive crops, promoting organic farming, and restoring 1.5 million ha of degraded land through afforestation and reforestation under the Bonn Challenge by 2030 (Ministry of Agriculture, 2021; Ministry of Ecology and Natural Resources, 2023).

- Reinforcing flood and mudflow protection, de-risking moraine lakes, and expanding early-warning and monitoring systems (Ministry of Emergency Situations, 2023).
- Development and implementation of unified national rules for all regions on population evacuation (routes, transport, temporary accommodation) and protection of critical infrastructure facilities (energy, water supply, transport) in the context of climate-induced emergencies (Ministry for Emergency Situations, 2023).
- Expansion of the hydrological monitoring network on small and medium-sized rivers to improve the accuracy of flood forecasting and enhance modelling systems (Ministry for Emergency Situations).
- Development and deployment of digital systems and specialized software for modelling and forecasting the consequences of climate-induced emergencies, with subsequent integration into the national risk management system (Ministry for Emergency Situations).
- Equipping civil protection units with modern monitoring and response tools, including unmanned aerial vehicles, satellite observation systems, and mobile early-warning complexes (Ministry for Emergency Situations).
- Advancing digitalized epidemiological surveillance and creating a national forecasting and biosafety system by 2026 (Ministry of Healthcare, 2022).



Kazakhstan recognizes that protecting and restoring freshwater wetlands – rivers, lakes, and peatlands – delivers co-benefits for both mitigation and adaptation: storing carbon while strengthening resilience of water, food, and biodiversity systems.

As part of its NDC, Kazakhstan will implement measures to protect, restore, and sustainably manage wetlands, with quantitative targets to be reflected in future NDC and NAP updates.



Kazakhstan became a member of the Freshwater Challenge in December 2024, which will further enhance this process by reinforcing national commitments to climate and nature through a global partnership.

3.2. Climate change projections

Applying climate projections to adaptation planning requires developing plausible scenarios of future change and disaggregating trends by geography and season to capture the complex pathways through which climate impacts can affect human well-being and the larger national economy.

The analysis focused on two plausible future scenarios: RCP 4.5 and RCP 7.0. The analysis selected two scenarios to provide the opportunity to assess impacts and the likely efficacy of adaptation measures across a range of plausible futures.

3.2.1. Projected changes in temperature and precipitation



Various reports conclude that surface air temperatures in Kazakhstan will rise through 2100.

Climate scenarios do not diverge greatly by mid-century, suggesting warming of between one- and two-degrees C. After mid-century, the two scenarios evaluated for this NDC (RCP 4.5 and RCP 7.0) diverged

significantly, with the RCP 7.0 scenario reaching over 1.5 °C warmer than the RCP 4.5 scenario by the end of the century. Warming will be most pronounced in the summer, a principal agricultural season in Kazakhstan, and the greatest warming will be experienced in the north and northeastern regions of the country where most grain is cultivated.

Kazakhstan is also projected to experience an increasing number of extreme heat days across the century. By mid-century, this increase is likely to both impact grain production and stress the health of vulnerable members of the population, including children and the elderly, particularly in urban areas and Oblasts with extended periods of high heat.

While Kazakhstan is projected to see increases in annual precipitation, in the summer, parts of the country will see seasonal declines in precipitation.

Under RCP 4.5, these decreases are concentrated in the northern and eastern parts of the country, particularly in some regions responsible for wheat production. Under RCP 7.0, decreases spread more broadly across the northeast and eastern parts of the country in the second half of the 21st Century.

Mountain regions in the eastern part of the country may initially face increased flood risk from enhanced river flows due to snowmelt, but this risk could diminish later in the century as snowpack shrinks and shifts to rain-dominated runoff. Heatwaves, however, are likely to become more frequent and prolonged under both emissions scenarios.

3.3. Climate-induced risks and vulnerabilities on sectors, regions, and vulnerable populations

Key risks and vulnerabilities affecting Kazakhstan's sectors, regions, and population groups are summarized in the table below. Table 1 outlines Kazakhstan's key climate risks across priority sectors — **agriculture, water, health, energy, and ecosystems**, highlighting the regions and population groups most affected.

It illustrates how rising temperatures, changing precipitation patterns, and extreme weather events create differentiated vulnerabilities for farmers, herders, urban residents, and other at-risk communities.

Table 1. Climate change risks and their impact on vulnerable groups

Key Risk	Regions Impacted	Key Populations Impacted
Agriculture and Water		
Converging heat and precipitation stress on agricultural production	Turkestan Oblast and the Oblasts containing grain producing areas in the northern part of the country	Farmers and farming communities, with some risk to agricultural supply chain actors.
Flooding in key grain and oilseed production areas	Akmola, Karaganda, Abay, and East Kazakhstan	Farmers and farming communities, with some risk to agricultural supply chain actors
Livestock		
Heat stress on animal production	Turkestan, Jambyl, Almaty, Jetisu, West Kazakhstan, Aktobe	Herders
Healthcare		
Impacts of heat extremes (35C+ days) on health	Most of the southwest half of the country	Elderly, children, individuals with health conditions.
Emergency Risk Reduction		
Heatwaves	Most of the southwest half of the country	Elderly, children, individuals with health conditions.
Floods	Most parts of the southern and eastern parts of the country near mountainous territory	
Energy		
Increasing Energy Demand from Cooling	Much of the southwest half of the country, but with particular impacts in highly urbanized areas across the country	Elderly, children, and those with health conditions who lack the resources to access cooling.
Increasing Energy Demand from Irrigation	Oblasts in the north and central part of the country.	Small producers who may find rising energy costs hard to manage.
Forests and Biodiversity		
Preventing and managing wildfires	Fire is spread broadly through the country	Those living in areas that are frequently burned.

3.4. Climate change adaptation measures

3.4.1. Enhance resilience and adaptive capacities of natural, social, and economic systems for sustainable livelihoods

The analysis of climate trends in Kazakhstan, along with existing policies, investments, and commitments, informed the identification of categories of adaptation action that would enhance the resilience and adaptive capacity of natural, social, and economic systems and address the key risks outlined above. Each measure and target include a cost estimation.

Table 2. Measures, targets and costs until 2035

Category	Specific measures and targets until 2035	Cost, million USD	Relevant SDGs
Agriculture			
Digitalization of information about the quality of land	Measure: Identify the climate information most relevant to farmers and other participants in agricultural value chains and prioritize the development of climate services that address these needs. Measure: Update land quality data to obtain data on degradation and improvement processes. Target: achieving 100% involvement of agricultural entities in the digital platform to improve soil fertility, monitor degradation processes and prevent irrational use of land.	20 (approx. 2 million USD per year)	SDG 2, SDG 12, SDG 13
Improved Soil Fertility and Land Management	Measure: prevention of land degradation and restoration of disturbed and degraded lands, crop rotation, minimum tillage, establishment of protective afforestation, sustainable pasture management, efficient irrigation, use of organic fertilizers Target: - development of measures for the introduction of technologies (on arable land, hayfields, pastures) that increase the accumulation of carbon in soils (No-till) - the development and implementation of farming systems, the introduction of scientifically	27500 (approx 2.75 billion USD per year)	SDG 2, SDG 6, SDG 12, SDG 13, SDG 15

	based crop rotations, including the alternation of crops that contribute to the restoration of soil fertility, the introduction of organic and mineral fertilizers (replenishment of the necessary nutrients for plants, considering the results of soil analyses) - the prevention of further degradation, using methods such as terracing and moisture retention (will help prevent further deterioration of soil conditions), - the use of a biological method to accelerate the restoration of vegetation cover, - the organization of water diversion, prevention of flooding and waterlogging of hayfields, - rational grazing management, - restoration of soil productivity, - development and approval of a methodology for design and survey work to restore the quality condition of disturbed and degraded lands, work to restore the quality of disturbed and degraded lands, - creation of electronic maps of degraded agricultural lands in the context of rural districts with indication of areas, - development and transfer of schematic maps to local executive bodies for carrying out the necessary measures to restore degraded lands, development and implementation of methods and technologies to increase the productivity of pastures, sustainable pasture management, including rotation of pastures, regular monitoring of the state of pastures.		
Water			
Ecosystem-based adaptation in the water sector	Measure: assess ecosystem-based adaptation approaches to address flooding, water quality, and drought challenges in Kazakhstan. Target: identify 3-5 high value ecosystem-based adaptation measures for implementation, pilot measures to enable tailoring to local contexts.		SDG 2, SDG 13, SDG 15

Improvement of water quality	Measure: Maintenance, restoration/ improvement of the quality of water bodies to the level of class II. Target: 35% of water bodies with class II surface waters.	1200 (or 130 million USD per year)	SDG 2, SDG 6, SDG 13
Development of climate-resilient water resources	Measure: Construction of new reservoirs, reconstruction of existing reservoirs, as well as the construction of an additional reservoir in Astana.	1153 including grants for 116 million USD	SDG 6, SDG 13
Implementation of agricultural technologies (including water-saving technologies and green technologies)	Measure: Accelerate the adoption of improved irrigation technologies in cropped areas, including improvements to minimize leakage and other sources of losses from canals. Target: 1,500,000 additional hectares of irrigation technology compared to 2025 levels. 78% of this increase (1,173,650 additional hectares with improved irrigation by 2035) is allocated to priority areas. Target: Reducing current average losses in 40-25% of the area where improved irrigation technology is implemented.	6400 (or 708 million USD per year)	SDG 8, SDG 9, SDG 12, SDG 13
Forestry and Biodiversity			
Afforestation and Reforestation	Measure: restore degraded land through afforestation and reforestation. Target: 700,000 hectares of land restored through afforestation and reforestation.	291 (32 million USD per year)	SDG 13, SDG 15
Creation of Buffer Zones	Measure: expand the green zone around Astana. Target: green zone reaches 150,000 hectares		SDG 13, SDG 15
Emergency			
Legislative and Institutional Framework for Risk Management	Measure: Integration of emergency risk reduction into oblast level adaptation planning Target: Emergency risk reduction/ disaster risk reduction integrated into adaptation policies in all oblasts.		SDG 3, SDG 13
Improvement of human resource skills and training	Measure: Increase number of trained drone operators Target: Increased percentage of trained UAV operators to 50% Measure: Increase in certified canine units	4.5 (500,000 USD per year)	SDG 3, SDG 13

	Target: Increased percentage of certified canine units to 50% Measure: Advanced training and retraining of divers Target: Increased percentage of certified diver by 20%; 163 units certified Measure: Gradually increasing the number of students at JSC «National Center for Scientific Research, Training and Education in the Field of Civil Defense» Target: Increased percentage of students trained by 85%.		
Health			
Access to cooling	Measure: universal access to cooling to populations that will experience 20 or more days of 35C temperatures per year. Target: 7 million people (the populations of Turkistan, Shymkent, Kyzylorda, Mangistau, Jambyl, and Atyrau Oblasts) with access to cooling on 35C days	157 (17.5 million USD per year)	SDG 3, SDG 13
Energy			
Investments in Energy Infrastructure	Measure: ensure electrical grid in key Oblasts that will experience 20 or more days of 35C temperatures per year is prepared for extra demand during hot days - particularly as heat diminishes the efficiency of energy transmission. Target: Grid in the six affected Oblasts tested and able to meet demand on successive 35C days.	675 (75 million USD per year)	SDG 3, SDG 7, SDG 8, SDG 9, SDG 11, SDG 13
Total		37.4 billion	

3.4.2. Measures to reduce and manage risks from disasters exacerbated by climate change and extreme weather events

The analysis of climate trends in Kazakhstan, along with existing policies, investments, and commitments, informed the identification of categories of adaptation action that would mitigate risk and minimize damage caused by the impacts of climate change.

Table 3: Adaptation measures to reduce and manage risks from disasters exacerbated by climate change and extreme weather events until 2035

Category	Specific measures and targets until 2035	Cost	Relevant SDGs
Climate-resilient cropping systems	Measure: identify or develop heat and drought-resistant varieties of wheat, barley, and oilseeds appropriate to Kazakh farming context. Target: one or more heat and drought-resistant varieties of wheat, barley, and oilseeds developed/identified and introduced to farmers, with initial uptake by 20% of farmers.	1.32 billion USD	SDG 2, SDG 12, SDG 13
Development of Livestock Breeds Resistant to Harsh Climate	Measure: Identify species most at risk from heat stress and new subspecies that are more heat tolerant or begin the process of transitioning to new species that are heat tolerant. Target for number of animals from heat tolerant breeds: Cattle: 2.5 million head Pigs: 40,000 head Sheep: 7.86 million head Goats: 840,000 head Poultry: 10 million	2.11 billion USD	SDG 2, SDG 12, SDG 13
Wastewater Treatment Expansion	Measure: expand treatment of anthropogenic wastewater to reduce pressure on freshwater resources. Target: 53% of wastewater treated	4.5 billion USD (500 million USD per year)	SDG 6, SDG 9, SDG 13
Conservation and Protection Measures	Measure: increase the share of protected natural areas important for biodiversity. Target: 12% of natural areas protected	1.7 billion USD (196 million USD per year)	SDG 13, SDG 15

Prevention and Control of Forest Fires	Measure: Establish air patrols to detect fires as early as possible. Target: 100% coverage of area at risk by air patrols	49 million USD (5.5 million USD per year)	SDG 3, SDG 13
Hydrological disaster preparedness	Measure: increase the number of hydrological observation posts to improve early warning of floods and ensure coverage of all river basins of the country . Target: 450 observation posts operational. The focus should be placed on expanding the monitoring network on small and medium flood-prone rivers and addressing observation gaps in the Irtish, Balkash-Alokol, and Aral Syrdarya basins while establishing coverage across all basins in the Kazakhstan . Measure: Scale up warning infrastructure Target: Level of equipment with siren and voice devices for Emergency notification coverage: 80%	5.5 million USD	SDG 3 and SDG 6, SDG 9, SDG 13
Total:		9.69 billion USD	

3.5. Synergies, co-benefits, and tradeoffs

Mitigation measures undertaken by Kazakhstan will provide broad co-benefits for adaptation, resilience, human health and rural areas if implemented in a manner that takes local needs into account.

Several adaptation measures deliver mitigation co-benefits, while others may create near-term tradeoffs. Kazakhstan will prioritize measures that reduce emissions intensity and manage tradeoffs through efficiency standards, planning, and monitoring.

The table below summarizes the key measures and their implications, with details referenced in the relevant sector sections.

Table 4. Adaptation Measures Contributing to Mitigation

Measure	Description	Relevant SDGs
Measures Contributing to Mitigation		
Modernized irrigation and climate-smart agriculture	In Oblasts where higher water per hectare may be needed to sustain grain and oilseed yields under hotter, drier summers, efficient irrigation and precision application reduce water intensity and pumping energy versus expanding current systems, with conservation agriculture adding soil-carbon gains.	SDG 2, SDG 9, SDG 13
Grid infrastructure and efficiency	Heat-resilient grid upgrades and loss-reduction improve reliability and cut technical losses, lowering generation needed on non-peak days.	SDG 3, SDG 7, SDG 9, SDG 13
Afforestation and reforestation	Planned planting and restoration provide sequestration that is already counted under mitigation in this NDC, with added benefits for erosion control and local microclimates.	SDG 13, SDG 15
Measures Creating Potential Mitigation Tradeoffs		
Cooling for health	Expanding access to cooling to protect health in hotter conditions increases electricity demand; this is managed through minimum energy performance standards, passive design, refrigerant management, and demand-side measures.	SDG 3, SDG 7, SDG 9, SDG 13

Thus, by aligning mitigation measures with social development and sustainability priorities, Kazakhstan is accelerating progress towards achieving its NDC targets and the Kazakhstan Strategy for Achieving Carbon Neutrality by 2060, ensuring sustainable and inclusive benefits for all communities in the country.

3.6. Capacity Building: strategic framework and priority areas

3.6.1 Priority areas

Achieving climate resilience requires finance, technology, and strong human, institutional, and systemic capacities. Kazakhstan's approach rests on three linked pillars with specific priority actions.

Human and technical expertise

Expand professional skills for climate risk assessment, adaptation planning, and economic analysis. Training programmes will target government agencies, academia, and the private sector to reduce reliance on international expertise and create a national pool of adaptation professionals.

Priority actions: Expand training on climate risk and vulnerability assessment, economic evaluation of adaptation measures, and loss and damage accounting.

Institutional coordination

A permanent coordination mechanism under the Ministry of Ecology and Natural Resources will be strengthened to integrate adaptation priorities across ministries and levels of government. Particular attention will be paid to coordination among water, agriculture, energy, and disaster risk management institutions.

Priority actions: Strengthen coordination between national, regional, and local authorities and promote multi-stakeholder participation involving civil society and the private sector.

Enabling environment

Improve access to reliable climate information, develop user-oriented climate services, and promote data-sharing between research institutions, ministries, and the public. Kazhydromet's analytical and forecasting

capacities will be strengthened, alongside the creation of a national climate information platform.

Priority actions: Improve use of GIS and digital tools for risk mapping and integrate AI-based analytics for early warning and monitoring.

Cross-cutting inclusion

Mainstream gender-responsive and inclusive approaches across all adaptation programmes, ensuring participation of women and vulnerable groups

The indicative cost of capacity building for 2026–2035 is estimated at USD 100–150 million.



LOSS AND DAMAGE



4.1. Overview of loss and damage

As a vast, land-locked developing country exposed to increasing climate extremes, Kazakhstan is already experiencing severe impacts, including devastating floods, wildfires, droughts, and record-breaking heat that damage infrastructure, disrupt food and energy systems, and threaten lives and livelihoods.

The Government recognizes that these climate-related challenges demand not only stronger mitigation and adaptation efforts but also dedicated measures to avert, minimize, and address loss and damage (L&D).

Kazakhstan is committed to protecting the most vulnerable populations, including low-income households, women, children, elderly persons, persons with disabilities, and farmers, whose livelihoods are most at risk. Kazakhstan recognizes the mobility consequences of climate impacts, including temporary and permanent internal displacement, and planned relocation.

The country's participation as an alternate member of the Fund for Responding Loss&Damage reflects its intention to strengthen access to international technical assistance and finance while bringing Central Asia's unique challenges to global attention.

L&D in Kazakhstan stems from both sudden-onset hazards – floods, droughts, wildfires, dust storms, heatwaves, and mudslides, and slow-onset processes such as rising temperatures, shifting precipitation patterns, land degradation, soil salinization, water scarcity, and biodiversity loss.

These impacts cause both economic losses, including infrastructure damage, agricultural decline, and business disruption, and non-economic losses, such as loss of lives, ecosystems, cultural heritage, and traditional knowledge, many of which are irreplaceable.

Going forward, Kazakhstan intends to strengthen existing efforts to minimize the impacts of floods, droughts, fires and other emergencies, while integrating loss and damage issues into national planning.

4.2. Determining needs

4.2.1. Economic losses and damages

Kazakhstan's rising losses and damages from recent extreme weather events underscore the urgency of mobilizing both domestic and international resources to strengthen preparedness and recovery, protect vulnerable populations, and avert further irreversible damage.

Economic losses from disasters have grown dramatically in recent years, reflecting both intensifying hazards and gaps in resilience. Between 2020 and 2024, Kazakhstan incurred approximately USD 2 billion in damages, averaging 0.24% of GDP annually, nearly 50 times higher than losses recorded in 2015–2019.

Table 5. Key impacts and damage assessment

Event (year)	Impact	Estimated loss, million USD
Drought (2021)	Affected more than 50% of land area; crop losses, livestock deaths; reduction of agricultural GDP up to 2.4%	473
Wildfires (2023)	Burned more than 118,000 ha in Abay & Kostanay regions	522
Floods (2024)	Worst in 80 years; 118,000 people displaced; major infrastructure damage	877

Future risks are projected to rise, particularly for floods and heatwaves. Under an intermediate emissions scenario, SSP2-4.5 ¹, high-hazard flood risks may triple and long-duration heatwaves could increase six-fold by 2100, with even higher risks under high-emission pathways.

Based on historic loss patterns and climate projections, cumulative damages for sudden onset events between 2026-2035 are estimated at USD 1.5–5 billion, primarily affecting agriculture, water resources, energy systems, and infrastructure.

These trends demonstrate the urgent need for scaled-up investment in resilient infrastructure, early-warning systems, climate-smart agriculture, and social protection measures to safeguard development gains.

¹ A scenario of projected global socioeconomic changes through 2100, as defined in the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

4.2.2. Non-economic losses and damages

Non-economic harms are wide-ranging, from deterioration of health and displacement to loss of cultural identity and ecosystem services.

The desiccation of the Aral Sea, while largely human-induced, has led to collapsed livelihoods, biodiversity decline, and extensive health impacts, and is now compounded by climate change through intensified dust storms and salinization.



In the Turkistan region, water scarcity has eroded traditional farming livelihoods and driven state-led relocation.



In western Kazakhstan, repeated floods have caused permanent migration, while extreme heat and water shortages in Mangystau have triggered psychological distress and health impact.

These are but a few examples of the ongoing climate-related impacts facing the country.

Vulnerable groups, including women, children, older persons, persons with disabilities, and low-income households, face disproportionate impacts due to limited adaptive capacity and heightened exposure.

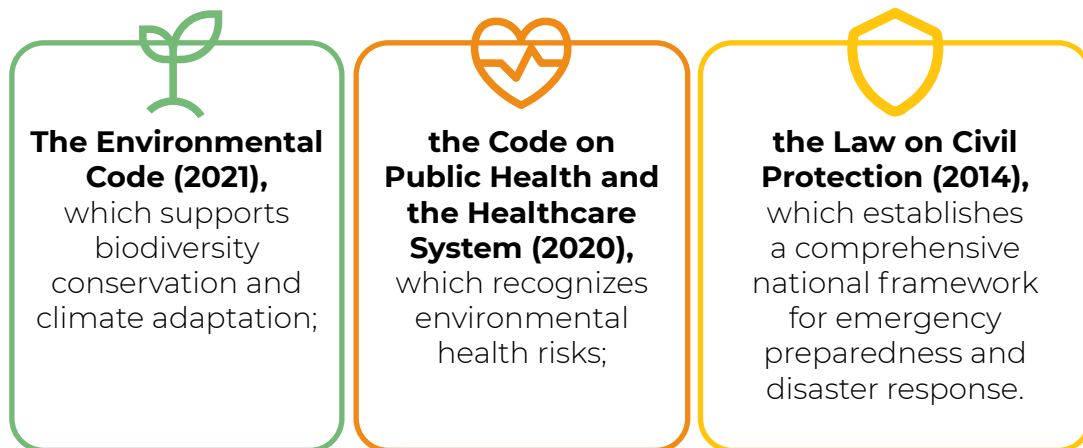
While these harms are not easily quantifiable, they are reflective of enduring dimensions of Kazakhstan's L&D.

4.3. Enabling legal framework for addressing loss and damage

Kazakhstan's existing legislation provides a strong foundation for integrating climate-related loss and damage considerations into national planning and response.

A number of sectoral laws and codes already address issues relevant to climate risk management.

Key instruments include:



Complementary provisions in the Water Code, Land Code, Forest Code, and the Law on Cultural Heritage further reinforce resilience by providing frameworks for the sustainable management of natural resources and the protection of cultural assets.

These legal foundations, together with Kazakhstan's international commitments under the Paris Agreement and related frameworks, create the basis for strengthening climate-specific L&D provisions, including recognition of non-economic dimensions such as impacts on ecosystems, cultural heritage, and public health. Future work will continue to build on these instruments to ensure an integrated approach to addressing both sudden- and slow-onset climate-related losses.

4.3.1. Social protection

Kazakhstan has put in place a range of social protection mechanisms that help households and communities recover from climate-related disasters.

These include:

- emergency food and cash assistance,
- temporary housing support for displaced populations,
- agricultural insurance schemes and
- loan deferral programs to support farmers affected by extreme weather events.

Preparedness and response are further supported by the Comprehensive Civil Protection Priority Action Plan for 2023–2027.

These measures contribute to reducing vulnerability and improving recovery outcomes for affected populations.

Ongoing efforts aim to further align social protection systems with climate-related challenges, ensuring that support is timely, inclusive, and accessible to the most affected groups.

4.3.2. Addressing loss and damage for climate-displaced communities

Climate-related displacement is already a recognized phenomenon in Kazakhstan. Resettlement initiatives have supported communities in moving from regions facing acute water scarcity and environmental pressures in the south to more secure areas in the north and east.

According to international assessments, climate-related internal migration in Kazakhstan could affect between 3.1–4.6% of the projected population (IOM 2023). Building on current experience, Kazakhstan will develop subsidiary legislation and guidance for planned relocation as a last resort, to ensure that relocation processes are planned in a participatory way that safeguards the rights, livelihoods, and cultural heritage of affected communities.

Integrating climate mobility considerations into adaptation and disaster risk-reduction strategies is an important focus area.

This approach supports long-term resilience and enhances the participation of relocated populations in decision-making, helping ensure that future responses to displacement are well-planned, inclusive, and sustainable.

4.4. Technical assistance and capacity building needs to address L&D

Kazakhstan recognizes that, while important progress has been made in integrating L&D into national disaster risk management and social protection frameworks, further strengthening of institutional coordination, data systems, and financing mechanisms is critical to respond effectively to rising climate-related losses.

The table below outlines key priority areas for action to reduce vulnerability and enable swift and inclusive recovery from future loss and damage events.

Table 6. Measures aimed at ensuring recovery from economic and non-economic L&D

Action	Description
Economic L&D	
Loss assessment	Develop processes for Post-Disaster Needs Assessments (PDNAs) to quantify financial losses and prioritize recovery
Data collection	Establish databases tracking economic L&D, including event type, response measures taken, losses, damages, funding
Financial instruments	Shock-responsive social protection, contingency funds, disaster risk insurance, catastrophe bonds
Institutional coordination	Strengthened coordination across Ministry of Emergency Situations, Ministry of Ecology, and subnational agencies; regional and international coordination
Fiscal integration	Pre-allocated contingency reserves, disaster reserve funds, recovery frameworks in national budgets
Non-economic L&D	
Development planning	Integrate non-economic L&D into adaptation planning and disaster risk preparedness
Data collection	Establish databases tracking non-economic losses; conduct PDNAs
Capacity building	Develop institutional capacities for L&D assessment, especially at local authority level; utilize Santiago Network support
Community approaches	Promote locally-led solutions, particularly for addressing slow-onset events through participatory, inclusive engagement of vulnerable groups
Legal framework	Protect vulnerable group rights; enact legislation for planned relocation and land tenure security
Livelihood diversification	Support reskilling and alternative non-climate-sensitive livelihood options
Biodiversity protection	Monitor ecosystem service losses; implement ecosystem-based adaptation and nature-based solutions
Territory management	Rehabilitate threatened landscapes; implement planned relocation with community support
Cultural preservation	Recognize Indigenous knowledge; preserve cultural heritage in legislation and practice

MEANS OF IMPLEMENTATION



5.1. Institutional arrangement

The primary institutions responsible for NDC implementation and achievement include:

The Ministry of Ecology and Natural Resources of the Republic of Kazakhstan (MENR) is the primary body for coordination and implementation of the provisions of the Convention and the Paris Agreement. It is a lead agency for climate change, environmental protection, coordination of the UNFCCC and Paris Agreement implementation.

MENR is the working body of the Council on the Transition to the Green Economy, which is a coordinating body for sustainable development issues like climate change. The Council focuses on monitoring and assessing the implementation of the Concept for the Transition to a Green Economy, and provides recommendations based on these assessments.

Furthermore, MENR is the leading institution in the Environmental Code and a key partner in ETS regulation. MENR is also helping to develop the National Adaptation Plan, setting forth adaptation strategies and resiliency planning.

The Department of Climate Policy, within MENR, formulates and coordinates state policy on climate and ozone layer protection. This department also implements provisions of the UNFCCC and other international agreements and oversees state policy on international cooperation.

The **Forestry and Wildlife Committee** implements and supervises functions related to forestry, wildlife protection, and use of specially protected natural areas.

JSC Zhasyl Damu, a subsidiary of MENR, prepares the National Greenhouse Gas Inventory Report annually for submission under the UNFCCC.

Data collection is based on information from the Bureau of National Statistics and official submissions from sectoral ministries. The organization also serves as the operator of the national Emissions Trading System, ensuring its administration, monitoring, and the development of carbon regulation instruments. In addition, Zhasyl Damu contributes to improving national climate policy and legislation and conducts analytical studies to support evidence-based decision-making on greenhouse gas emission regulation.

The **Agency for Strategic Planning and Reforms**, which houses the **Bureau of National Statistics** and directly reports to the President, analyses and disseminates statistical data for the national GHG inventory, as well as data on other indicators to track progress towards the NDC targets.

The **Ministry of Energy** is the body overseeing and implementing state energy policy and planning in the Republic of Kazakhstan. Among other things, it regulates production of petroleum products, gas and electricity supply, nuclear energy and is central in developing renewable energy sources.

Specific targets for renewable energy sources are also set forth in the **Strategic Plan of the Ministry of Energy of Kazakhstan for 2023-2027**, which establishes the goal of generating 50% of all energy by 2050 through expanding renewable energy capacity and storage, developing nuclear energy projects, and investing in alternative energy sources.

The Action Plan for the Development of the Electric Power Industry until 2035 is focused on increasing the share of renewable energy sources in electricity generation, including wind power with energy storage, solar power plants, and hydroelectricity.

The Republic of Kazakhstan has a variety of interagency working groups, such as those under MENR, that coordinate across ministries to align on high-level climate and environmental policies. Youth participation is being institutionalized through forums, working groups, and representation in public councils. At least 30% youth representation is ensured in decision-making bodies under the Ministry of Ecology and at the local level.

The ETS Regulatory Body, which as previously mentioned is operated by MENR, provides the legal and technical frameworks for the ETS, working with partners like the PMI Trust Fund through a World Bank Initiative to strengthen the ETS.

Another critical point of cross-sectoral coordination is planning documents like the National Development Plan, which serve to integrate strategy across economy, energy transition, and development goals, as well as the strategic actions plans and their respective sectoral road maps, which link investments and regulations to targets and strategies.

5.2. Monitoring, reporting and verification

To accelerate NDC implementation, Kazakhstan aims to improve data transparency, information, and analysis related to monitoring and evaluation of climate data, as well as financial, technological, and capacity building support.

The core of the national MRV system is the National Greenhouse Gas Inventory, maintained by the Ministry of Ecology and Natural Resources.

A National Inventory Report has been prepared annually, tracking emissions and removals since 1990.

The system is complemented by State Carbon and Waste Inventories, a State Register of Carbon Units, and a Pollutant Release and Transfer Register, which provide data for assessing the effectiveness of national climate policy.

Remote sensing (RS) and geographic information system (GIS) data play a key role within the NIR system. The use of RS and GIS as tools for NIR ensures the generation of reliable and objective data.

Their comprehensive integration into monitoring and reporting processes enables the generation of long-term and comparable environmental data, and their consistent application creates the basis for transparent and verifiable national reporting, particularly for the National Greenhouse Gas Inventory.

In this regard, unified sets of quality standards (quality assurance/quality control) and data validation protocols will be developed to ensure the consistency, reliability, and comparability of information used in national monitoring, planning, and reporting systems.

These standards will form the basis for integrating climate data across various agencies and ensure unified approaches to the development of climate change reporting.

Progress on climate targets is also tracked through national statistical and governance platforms. The Bureau of National Statistics and the e-Government platform supply open data to government and the public for oversight of government agencies' progress on strategic development plans. The Council on the Transition to a Green Economy, together with the Ministry of Energy and the Ministry of Ecology and Natural Resources, reviews the impacts of mitigation and adaptation measures.

5.3. Support needs to enhance NDC implementation capacities

Technology transfer is imperative to advancing mitigation, adaptation, and a larger shift toward a low-carbon economy.

Advanced technologies can catalyze renewable energy deployment, carbon capture and storage, smart grids, water-saving technologies, and deep electrification and weatherization.

At the same time, capacity building is essential for implementing mitigation and adaptation measures as mentioned in the NDC and establishing the requisite technical expertise for technology transfer to be effective.

Investing in capacity building, through actions like promoting international best practices and providing training and educational seminars to disseminate information around “green” transition and low-carbon technologies, can help develop critical local expertise, improve policy implementation, and implement projects in key sectors such as energy, industry, and agriculture.

Kazakhstan has demonstrated strong domestic commitment, financing the bulk of its mitigation and adaptation measures from its own budget and state-owned enterprises.

Yet, achieving the ambition of NDC 3.0 and the 2060 Carbon-Neutrality Strategy will require significantly more external support.

Key priorities for international assistance include:

- **Financing the transition** - concessional lending, equity, grants and blended-finance facilities to modernize ageing infrastructure, scale up renewables and energy efficiency, expand climate-resilient water, transport and urban systems, and crowd-in private investment.
- **Technology transfer and capacity-building** - access to advanced low-carbon technologies (hydrogen, CCUS, grid integration, drought-resilient farming, efficient heating/cooling) and training of national experts to deploy and maintain them.

- **Just transition support** - planning and implementing measures to reskill workers, diversify coal-dependent regional economies, and provide targeted social-protection schemes.
- **MRV and data systems** - building a unified national system for GHG inventories (built on high-tier methods and approaches), mitigation and adaptation tracking, including modernized reporting tools and interoperable data platforms.

5.4. Strengthening Kazakhstan's emissions trading system as a core market-based instrument

Kazakhstan operates the region's only **Emissions Trading System**, which currently covers the power and industrial sectors. Broadening ETS coverage and increasing carbon pricing can generate new revenue while driving emissions reductions.

The Environmental Code (2021, amended 2025) provides a modern legal basis for the ETS. It defines the role of the Ministry of Ecology and Natural Resources as the competent authority, for delivering cost-effective mitigation.

With continued reform, stronger integration with Article 6 mechanisms, and enhanced market confidence, it can mobilise domestic and international finance for low-carbon transition while ensuring that Kazakhstan's NDC targets are met in an efficient and transparent manner.

Expansion and Linkages

Kazakhstan is considering the **gradual expansion of carbon pricing** to additional sectors such as **transport, waste, and agriculture**. The potential introduction of a **carbon-tax mechanism** implemented through the existing ETS infrastructure is also being evaluated to cover emission sources not yet included in the trading system.

These developments will ensure consistent carbon-price signals, administrative efficiency, and compatibility between market-based and fiscal instruments.

CO₂ Carbon Fund

A Carbon Fund will be established as a catalytic financing platform pooling revenues from ETS auctions, Article 6 transactions, and domestic and international contributions.

The Fund will:



Co-finance mitigation and adaptation projects, leveraging public resources to mobilize private capital and concessional finance;



Support investment in low-carbon technologies, infrastructure modernization, and innovation in priority sectors;



Align domestic investment flows with international climate-finance programs, strengthening the link between policy and finance.

Offset Reform and Integration with Carbon Markets

Kazakhstan will undertake a comprehensive reform of its national offset framework by the end of 2026 to strengthen integrity, transparency, and compatibility with international carbon markets.

The revised system will:



Align additionality criteria, baseline methodologies, and MRV procedures with international best practices while reflecting national circumstances and sectoral priorities;



Reconsider eligibility to mitigation activities such as renewables (large-scale and distributed), energy efficiency for industrial modernization and buildings, methane reduction, and land-use management, but not limited to;



Enable the generation of high-quality offset units that can be used for domestic compliance, voluntary markets, or transferred internationally under Article 6 cooperative approaches;



Evaluate the interaction between the ETS and Article 6 cooperative approaches to ensure legal and methodological consistency, compatibility of registries and MRV systems, alignment of price signals and investment flows, and avoidance of double counting, defining how international carbon transactions can complement domestic carbon pricing while safeguarding NDC integrity and supporting national mitigation priorities.



Evaluate the introduction of transition-crediting mechanisms to ensure alignment with national mitigation efforts, ETS and Article 6 rules, while rewarding early emission reductions from industrial modernization, fleet renewal, and technology transfer, and supporting gradual sectoral integration into carbon markets.

Transition Plans

Major emitting enterprises will be required to prepare Transition Plans outlining their greenhouse-gas inventories, production forecasts, technological processes, and decarbonization pathways.

Plans:



Improve transparency and accountability at the enterprise level;



Align corporate strategies with national emission-reduction objectives;



Facilitate access to climate finance and guide the prioritization of Carbon Fund investments toward sectors with the highest mitigation potential and readiness for implementation.

Country Platform

To integrate these instruments into a unified framework, Kazakhstan will establish a Country Platform for Climate Finance Mobilization, a coordination mechanism linking government agencies, private-sector actors, and international partners.

The Platform will:



Connect the ETS, Article 6 framework, Carbon Fund, and Transition Plans into a single system for project preparation, financing, and monitoring;



Develop a pipeline of bankable projects and facilitate blended-finance operations;



Align domestic financial markets with international green-finance standards, including green-bond frameworks, disclosure, and taxonomy alignment.

Enabling Market Confidence and Linking with Article 6

The reformed ETS is designed not only as a domestic mitigation instrument but also as a gateway for international cooperation under Article 6 of the Paris Agreement.

The legal framework allows:

- The issuance and transfer of internationally transferred mitigation outcomes (ITMOs),
- Corresponding adjustments to avoid double counting,
- Future linkage of the national carbon market with regional or global markets.

In addition, Kazakhstan will utilize Article 6 cooperative approaches to pilot emerging low-carbon technologies, such as hydrogen, carbon capture, utilization and storage (CCUS), Power-to-X, and long-duration energy storage, but limited by them. Through international partnerships, climate finance programs and results-based finance, Article 6 will be used to channel carbon revenues toward demonstration projects that accelerate technology deployment, foster innovation, and build domestic capacity for large-scale implementation in hard-to-abate sectors

5.5. Article 6 cooperative approaches

Kazakhstan recognizes the role of cooperative approaches under Article 6 as a key instrument to help achieve its NDC targets while catalyzing investment and innovation for sustainable development.

Amendments to the Environmental Code (2025) provide a dedicated legal basis for implementing both Article 6.2 (bilateral/club-based cooperation) and Article 6.4 (UNFCCC-supervised mechanism), as well as for establishing a voluntary carbon market (VCM).

Key elements include:

- Legal definitions of ITMOs, corresponding adjustments (CA), “baseline scenario,” “additionality,” and provisions for voluntary markets.
- Clear mandates for the Ministry of Ecology and Natural Resources (MENR) as the national authority and for Jasyl Damu JSC as the operator of the carbon market and national registry.
- Rules for accounting, registration, issuance, and transfer of units, including a buffer account to hedge against natural risks (fires, drought) and safeguard environmental integrity.
- Alignment with CMA decisions 2/CMA.3 and 3/CMA.3 (Glasgow 2021) to ensure transparency, prevent double counting, and uphold sustainable-development safeguards.

An Article 6 Technical Working Group under MENR, comprising relevant ministries (energy, finance, economy, industry, agriculture, foreign affairs), sub-national authorities, and private-sector stakeholders, which reviews project methodologies, approves baseline parameters, and advises on authorizations. This governance architecture enables Kazakhstan to participate credibly in international carbon markets and to integrate Article 6 into national mitigation planning.

The country has already:

- Signed bilateral cooperation agreements with Japan and the Republic of Korea, focused on developing rules, guidelines and institutional arrangements for ITMO transfers.
- Committed to its NDC to explore ETS-linkage and other cooperative mechanisms that can help mobilize carbon finance and accelerate transition in key sectors.

The Republic of Kazakhstan recognizes that participation in the Article 6 mechanisms of the Paris Agreement should be strategic and phased in order to avoid “overselling” the emission reductions needed to achieve its own NDC targets, while maximizing the socio-economic benefits of incoming carbon finance.

5.5.1. Key participation requirements for Article 6 projects

To maintain environmental integrity and avoid double counting, all cooperative-approach activities must, inter alia:

- Demonstrate additionality beyond policies and actions already included in Kazakhstan’s NDC or ETS baseline.
- Apply approved international methodologies and national baseline
- parameters validated by the Article 6 Technical Working Group.
- Ensure robust MRV systems integrated with the national GHG inventory and registry.
- Contribute to sustainable-development co-benefits (e.g., job creation, technology transfer, gender and youth inclusion).
- Implement social and environmental safeguards and respect community and indigenous rights where applicable.
- Comply with national rules for corresponding adjustments to maintain accuracy of Kazakhstan’s carbon budget.

Activities that are included in the unconditional target of Kazakhstan’s NDC or that are already included in the ETS without clearly demonstrated additionality are not eligible for participation in Article 6 mechanisms.

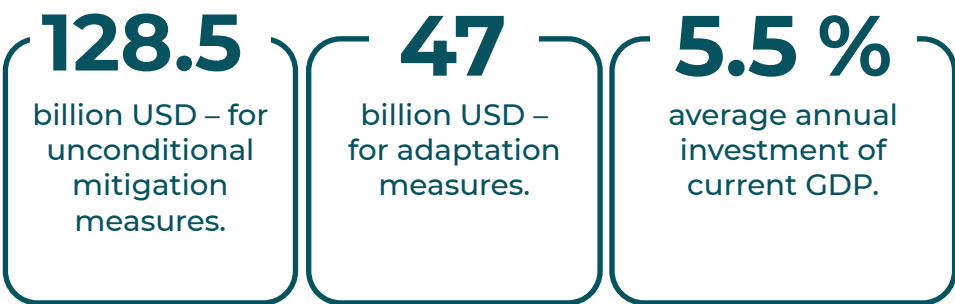
FINANCIAL RESOURCES FOR NDC IMPLEMENTATION



Achieving ambitious NDC goals requires scaled-up finance. Kazakhstan needs to mobilize both public and private capital, leveraging multilateral funds and financial institutions to de-risk green investments and enable large-scale infrastructure for mitigation and resilience.

6.1. Overview of indicative investment needs

\$175.6 bn | The estimated costs of implementing Kazakhstan's NDC 3.0 for the 2026–2035 period



When accounting only for additional costs above the BAU, the financial requirements of implementing Kazakhstan's NDC are significantly lower, at **USD 71.8 billion** or an average annual investment of about **2.5 %** of current GDP.

\$190 bn | required to achieve the conditional target

Table 7: Investment requirements for low-carbon technologies and adaptation measures

Mitigation-investments and subsidies for low-carbon technologies				
Low-carbon technology category	Cost (in million USD)	GHG emission reduction in million tCO ₂ -eq.	GHG emissions in 1990 in million tCO ₂ -eq.	%
Biogas production	132	89,73	218,17	41,13
Centralized heat production	72			
Electricity production	34,983			
Buildings	18,765	3,95	34,25	11,53
Industry	3,271	0,61	38,69	1,58
Transport	62,233	2,11	26,00	8,11

LULUCF	600	9,6	-15,71	-61,11
Waste	8480	2,25	3,72	60,48
Agriculture	-	0	44,08	0,00
IPPU	-	0	21,01	0,00
Total mitigation	128,536	108,25	370,22	29,24

Adaptation measures and targets

Sector	Million USD
Agriculture	30 950
Emergency	59
Energy	675
Forestry and biodiversity	1 991
Health	157
Water	13 253
Total adaptation	47 085
Total mitigation and adaptation	175 621

In Table 7, the LULUCF sector estimates include restoration of natural and saxaul forests, while the waste sector estimates reflect the total annual cost of waste management, taking into account technological improvements and efficiency gains.

6.2. Domestic public finance

6.2.1. Role of national and local government budgets

Kazakhstan has made substantial domestic investments in climate action, often without significant international financial support.

Despite being a land-locked developing country facing acute climate vulnerabilities, frequent floods, droughts, wildfires, and severe heatwaves. Kazakhstan has largely financed its mitigation and adaptation measures from national and local budgets, supplemented by quasi-state and private enterprise contributions.

Kazakhstan's fiscal system is highly centralised: the republican budget accounts for over 70 % of consolidated public expenditure and remains the primary channel for direct public spending on climate-related priorities.

At the same time, local budgets play a frontline role in delivering adaptation services, including flood management, waste collection, and disaster-risk reduction, but remain heavily dependent on transfers from the republican budget.

Kazakhstan's domestic spending on environmental protection, already significant, far outweighs the external climate finance it has received.

Table 8. Government expenditures on key climate change areas

Thematic area	Expenditure (USD million) in 2023
Air and Climate protection	187
Renewable energy investment	356
Waste management	165
Environmental R&D	51
Total environmental protection expenditure	921

These expenditures demonstrate Kazakhstan's considerable domestic contribution toward addressing climate change.

The strategy for achieving carbon neutrality by 2060 also assumes that the bulk of future investments will continue to come from businesses (including state-owned companies) and households, while concessional and grant external financing will remain limited.

In recent years, these targeted transfers have increasingly been directed toward climate-sensitive infrastructure, including:

- sustainable water supply systems,
- climate and natural hazard mitigation facilities,
- modernization of key energy facilities.

Despite such significant domestic spending, Kazakhstan's access to international climate finance remains limited compared to the scale of national needs, highlighting the importance of strengthening global solidarity to complement national efforts.

Fiscal Instruments by State-Owned Enterprises (SOEs)

Kazakhstan's SOEs have played a critical role in mobilising domestic capital for low-carbon transition, supplementing limited international finance.

These instruments highlight the country's significant self-funded contribution to climate-relevant investments.

Table 9. Fiscal instruments by SOEs

Entity	Overview	Amount (USD)
Samruk-Kazyna (and subsidiaries)	- Samruk-Energy made a debut green bond placement on the Astana International Exchange in 2021 - KEGOC issued green bonds in 2023 to finance power grid modernisation.	
Baiterek Holding (and subsidiaries)	- As of July 1, 2023 provided ≈ USD 355 million for green projects via loans, leasing, guarantees, and subsidies. - The Development Bank of Kazakhstan (DBK) financed seven large-scale renewable energy projects (wind, solar, and hydro) developments with loans totaling ≈ USD 237 million. - DBK also issued green bonds to support a wind farm in Khromtau. - DBK mobilised ≈ USD 722 million through subordinated tranches and partial guarantees for clean energy investments.	USD 1.3 billion
Qazaqstan Investment Corporation	Between 2019 and 2024, Qazaqstan Investment Corporation has supported green energy development with ≈ USD 22 million in co-financing.	USD 22 million
Damu Entrepreneurship Fund JSC	Supported 91 green projects with a total of ≈ USD 15 million, through subsidies, guarantees, and concessional placements of funds in banks and MFIs.	≈ USD 15 million

Industrial Development Fund (IDF)	Since 2018, provided leasing finance under its vehicle programme to support domestic electric mobility.	
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These SOE-driven instruments complement national budgetary spending and demonstrate Kazakhstan's substantial domestic contribution to green transition.

However, given the scale of investment needed for NDC implementation, these domestic sources cannot by themselves close the financing gap.

Highlighting these contributions strengthens Kazakhstan's case for greater international climate finance and technology transfer.

6.3. Private sector engagement

Achieving Kazakhstan's NDC 3.0 targets will require large-scale private investment, particularly for

- renewable energy,
- energy efficiency,
- low-carbon transport,
- climate-resilient infrastructure,
- adaptation in water and agriculture.

Domestic and international private finance is expected to cover most investment needs, with public budgets focusing on enabling policies, de-risking, blended schemes and co-financing.

Enabling environment

Kazakhstan has introduced innovative green-finance tools and legal frameworks to mobilize private capital:



Public-Private Partnerships (PPPs) - regulated by the PPP Law (2015, amended 2022) and the Concession Law (2025), enabling long-term private participation in energy, water, transport, and social infrastructure.



A roadmap for implementing ESG principles in the regulation of the financial market in Kazakhstan (2023) - supports ESG standards and green-finance product development.



National Green Taxonomy - ensures that proceeds from green bonds and loans align with approved climate-relevant sectors.



Green loans and bonds

The green-finance market is growing but still small.

Green Loans



as of 2023, totalled about USD 75 million, issued by IFIs, state-backed, and private banks.

Green Bonds:

- First corporate green bond issued in 2020 ($\approx$ USD 0.5 million) for a solar plant.
- DBK's CBI-certified green bond (2020) raised USD 15 million for a wind farm.
- New 2025 regulations allow sovereign green bonds with external second-party opinions.

Next steps:

- Scale up green finance through sovereign and municipal bond issuance and wider use of blended-finance structures.
- Develop project pipelines in renewables, low-carbon transport, and adaptation infrastructure to crowd-in private capital.
- Enhance de-risking tools (guarantees, pooled funds, liquidity facilities) and integrate them with national green-finance platforms.
- Strengthen ESG and climate-risk reporting for banks and corporates to improve capital allocation to climate-aligned projects.

6.4. International climate finance

Kazakhstan has made substantial domestic investments in climate action, financing the majority of mitigation and adaptation measures from national and local budgets, state-owned enterprises (SOEs), and households.

In 2023 alone, Kazakhstan's environmental and climate-related spending exceeded USD 1.3 billion, complemented by significant capital investments in renewable energy, resilient water infrastructure, disaster risk management and other priority sectors.

In contrast, international climate finance mobilized by Kazakhstan remains limited and focused mainly on technical assistance and capacity-building rather than large-scale concessional investment or technology transfer.

Over the past 15 years, Kazakhstan has received less than USD 1 billion in direct climate-related support from dedicated international funds, much of it through multilateral development banks (MDBs) as loans rather than grants.

Kazakhstan's experience demonstrates that while international finance plays an important enabling role, particularly by supporting technical cooperation, policy reforms, and capacity-building, the scale and especially concessionality of external support remains insufficient to match the country's ambition and vulnerability to climate impacts.

To meet the investment needs of NDC 3.0 and achieve a resilient, low-carbon transition, Kazakhstan emphasizes the need for larger volumes and more diverse international financing:

- predictable and longer-term external finance to complement domestic investment;
- stronger grant-based support and concessional lending for adaptation, nature-based solutions, and just transition measures;
- equity investments, risk-sharing schemes, subordinated and mezzanine loans;
- technology transfer and partnerships for advanced mitigation options such as hydrogen, CCUS, grid integration and climate-smart agriculture.

Kazakhstan calls on the international community and its partners to better align climate finance flows with national needs and to ensure that countries with high climate ambition but limited access to concessional funding receive the support necessary to deliver on their NDC commitments.

ANNEX 1

Information to facilitate clarity, transparency and understanding (ICTU) of Kazakhstan's Nationally Determined Contribution

Paragraph	Guidance in Decision 4/CMA.1	ICTU guidance as applicable to Kazakhstan's NDC 3.0
1. Quantified information on the reference point, including, as appropriate, a base year		
(a)	Reference year(s), base year(s), reference period(s) or other starting point(s);	Base year for greenhouse gas (GHG) emission projections: 1990 (Article 283, paragraph 1 of the Ecological Code of the Republic of Kazakhstan)
(b)	Quantifiable information on the reference indicators, their values in the reference year(s), base year(s), reference period(s) or other starting point(s), and, as applicable, in the target year;	The country's total net greenhouse gas (GHG) emissions in the 1990 baseline year were 385.7 million tons of CO ₂ equivalent. Kazakhstan intends to reduce GHG emissions in 2035 to 320 million tons of CO ₂ equivalent, a 17% reduction from the 1990 baseline.
(c)	For strategies, plans and actions referred to in Article 4, paragraph 6, of the Paris Agreement, or policies and measures as components of NDCs where paragraph 1(b) above is not applicable, Parties to provide other relevant information;	Not Applicable
(d)	Target relative to the reference indicator, expressed numerically, for example in percentage or amount of reduction;	Kazakhstan aims to reduce GHG emissions by 17% by the end of 2035 relative to the 1990 baseline unconditionally. With international support, Kazakhstan aims to reduce GHG emissions by up to 25% relative to the 1990 baseline, while strengthening resilience to climate impacts and hazards.
(e)	Information on sources of data used in quantifying the reference point(s);	Information sources of data on GHG emissions and removals are those reported on an annual basis in the National GHG Inventory of Kazakhstan.

		The metrics applied to express total net GHG emissions in carbon dioxide equivalents (CO₂eq) are the 100-year time horizon global warming potential (GWP100) values from the IPCC's Fifth Assessment Report (AR5). This corresponds to the GWP used for the most recent 2025 GHG inventory. Any changes to these metrics will be in accordance with decisions agreed by the CMA.
(f)	Information on the circumstances under which the Party may update the values of the reference indicators	Kazakhstan will periodically update the value of its reference indicator of progress and achievement of the NDC 3.0 target in response to ongoing methodological improvements to its GHG inventory. As part of such improvements, the country will then perform recalculations to the inventory time series as needed to reflect the latest data and to maintain methodological consistency over time. The level of GHG emissions used as a basis in tracking progress towards the NDC target will be the net emissions for 1990 reported in the most recent national GHG Inventory at the time of submission of the relevant Biennial Transparency Report (BTR). Recalculation of inventory time series is consistent with IPCC good practice guidance, and paragraph 28 of decision 18/CMA.1, Annex I. Information on the methodological improvements will be provided in the relevant BTRs.
2. Time frames and/or periods for implementation		
(a)	Time frame and/or period for implementation, including start and end date	1 January, 2026 to 31 December, 2035
(b)	Whether it is a single-year or multi-year target, as applicable	Single-year target, 2035 (in accordance with Article 283 paragraph 1 of the Ecological Code of the Republic of Kazakhstan)

3. Scope and coverage		
(a)	General description of the target	Economy-wide absolute emission reduction
(b)	Sectors, gases, categories and pools covered by the nationally determined contribution, including, as applicable, consistent with Intergovernmental Panel on Climate Change (IPCC) guidelines	NDC target of Kazakhstan covers all sectors and gases consistent with the IPCC guidelines that are covered by the national GHG inventory as follows: - Sectors as defined by the IPCC guidelines in accordance with decision 18/CMA.1, namely Energy, Industrial processes and product use (IPPU), Agriculture, Land Use, Land Use Change and Forestry (LULUCF) and Waste; - Emission coverage in accordance with Article 281, paragraph 2 of the Code: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆), nitrogen trifluoride (NF₃), other substances identified by the authorized body in the field of environment protection (in accordance with Article 281 paragraph 3 of the Code). - The LULUCF categories and pools are those included in the IPCC 2006 guidelines and occurring in Kazakhstan.
(c)	How the Party has taken into consideration paragraph 31(c) and (d) of decision 1/CP.21	Kazakhstan's NDC 3.0 has included all categories of anthropogenic emissions and removals. There are no categories that are excluded, for which it needs to provide explanation.
(d)	Mitigation co-benefits resulting from adaptation actions and/or economic diversification plans, including description of specific projects, measures and initiatives of adaptation actions and/or economic diversification plans.	Kazakhstan's priority is to promote measures that maximize co-benefits and minimize the risks of increased emissions or unsustainable resource use. In particular: - Modernizing irrigation and agricultural technologies increase agricultural resilience to droughts while reducing energy consumption and emissions through the implementation of water-saving technologies and soil carbon sequestration.

		- Modernizing power grids and improving their efficiency increases the resilience of the power system to extreme heat and reduces energy losses, thereby reducing indirect emissions from generation. - Reforestation and afforestation strengthen the adaptive capacity of ecosystems (water retention, soil protection, biodiversity) while simultaneously promoting carbon sequestration. - Cooling measures for buildings to protect public health, although increasing energy demand, will be implemented using energy-efficient standards, passive architectural solutions, environmentally friendly refrigerants, and demand-side management systems to prevent emissions growth. The Republic of Kazakhstan will continue to integrate climate action into a unified strategic framework, combining adaptation and mitigation to enhance overall climate resilience, reduce emissions, and protect the health and well-being of the population, in line with SDGs 2, 3, 7, 9, 13, and 15.
4. Planning processes		
(a)	Information on the planning processes that the Party undertook to prepare its nationally determined contribution	The development of NDC 3.0 was an inclusive national process led by the Ministry of Ecology and Natural Resources. The Working Group on NDC 3.0 was chaired by the First Deputy Prime Minister. The Working group included 14 sectoral ministries and agencies responsible for energy, industry, agriculture, transport, finance, economy, and other sectors. Each institution designated focal points to provide data, validate modelling assumptions, and review policy measures. The Working group followed a structured workplan endorsed by the Vice-Prime Minister to ensure consistency with national development priorities and alignment with three other national strategic initiatives that were underway in parallel: the preparation of the Roadmap for the Strategy on Achieving Carbon Neutrality by 2060, the drafting of the National

		Adaptation Plan, and the update of the Concept for Transition to a Green Economy, which is overseen by the President of Kazakhstan. Broad stakeholder consultations were conducted between 2023 and 2025, including technical roundtables with energy, industry, transport, AFOLU, waste, and adaptation sectors, as well as regional workshops and youth dialogues. Analytical work, including sectoral modelling and cost estimations, was undertaken by national and international experts. International partners such as UNDP, FAO, GIZ, NDC Partnership, UNICEF, UNITAR, Stockholm Environment Institute provided technical inputs and capacity-building support throughout the process.
(a)(i)	Domestic institutional arrangements, public participation and engagement with local communities and indigenous peoples, in a gender responsive manner.	The preparation of NDC 3.0 was carried out through a broad and inclusive consultation process, ensuring representation of national, regional, and local stakeholders. Between 2023 and 2025, the Ministry of Ecology and Natural Resources organised multiple sectoral and regional dialogues. These dialogues engaged representatives of central and local governments, private sector, academia, NGOs, youth and women's organisations, and community groups. Regional workshops were held in Astana, Almaty, and other oblast centres to capture sub-national perspectives and ensure that priorities reflect on-the-ground realities. To strengthen youth and gender inclusion, Local Conference of Youth (LCOY) actively contributed, bringing youth-led recommendations on education, just transition, and green skills development. Women experts and civil-society representatives were systematically included in technical roundtables and decision-making processes, ensuring a gender-responsive and inclusive approach.

(a)(ii)	Contextual matters, including, inter alia, as appropriate: (a) National circumstances, such as geography, climate, economy, sustainable development and poverty eradication	Kazakhstan is the largest landlocked country in the world located in the heart of Central Asia and spanning over 2,724 thousand km². As of 1st January 2024, the population amounted to 20.6 million, and GDP was USD 288.1 billion in 2024. Kazakhstan is endowed with abundant oil and gas resources—it is the largest oil producer in Central Asia. Kazakhstan also has some of the largest coal reserves in the world. As such, its largest domestic energy sources include primary oil, coal and coal products, and natural gas. The energy sector is responsible for the majority of Kazakhstan's CO₂ emissions. Total emissions in 2022 were estimated at around 348.8 Mt CO₂e tonnes annually (excluding LULUCF). Additional information on national circumstances and institutional arrangements can be found in section 2.A of The First Biennial Transparency Report of the Republic of Kazakhstan (https://unfccc.int/sites/default/files/resource/BTR1%20Kazakhstan_en.pdf)
(a)(ii)	(b) Best practices and experience related to the preparation of NDC	The NDC for 2035 was developed through a whole-of-government and whole-of-society approach, led by the Ministry of Ecology and Natural Resources. The process was inclusive, drawing on consultations and detailed data from GHG Inventory and business-as-usual projections. The preparation of Kazakhstan's NDC 3.0 was characterized by strong collaboration across national institutions, international partners, and the private sector. The process enhanced coordination on climate policy and data sharing among ministries and organizations active in climate action. A new Energy Modeling Department was established within Zhasyl Damu under the Ministry of Ecology and Natural Resources, expanding to five trained experts in energy modeling. This institutional capacity now enables Kazakhstan to independently conduct analytical work for future NDC updates and long-term strategies.

		Youth engagement was a particular focus: two capacity-building workshops introduced students and young professionals to energy system and climate finance modelling, expanding the technical knowledge base and fostering future leadership in climate policy. Technical meetings and stakeholder roundtables further ensured the participation of youth organizations, ministries, experts, and regional authorities, incorporating a broad range of perspectives in shaping Kazakhstan's climate ambitions.
(a)(ii)	(c) Other contextual aspirations and priorities acknowledged when joining the Paris Agreement	The Republic of Kazakhstan became a signatory of the Paris Agreement on November 4, 2016
(c)	How the Party's preparation of its nationally determined contribution has been informed by the outcomes of the global stocktake, in accordance with Article 4, paragraph 9, of the Paris Agreement	Kazakhstan actively participated in the negotiations on the First Global Stocktake in 2023 and fully supports the outcome from these negotiations that informed the preparation of the NDC3.0. Following the outcome from the First Global Stocktake, Kazakhstan updated its NDC with an economy-wide perspective covering all major GHG source sectors, setting more ambitious mitigation and adaptation targets aligned with national priorities. Regarding specific global goals set in the outcome of the First Global Stocktake, Kazakhstan aims to contribute to them in the light of its national circumstances, and has reaffirmed its commitment to supporting transition for coal-dependent regions and strengthening resilience to climate hazards and impacts, while remaining focused on the protection of vulnerable groups. In line with GST findings, Kazakhstan is enhancing its energy transition planning framework. The Ministry of Energy plans to adopt a ministerial order in 2026 establishing a Power Capacity Decommissioning Plan, with a focus on the gradual phase-out of coal-based generation. This plan will include detailed schedules

		by period, installed capacity, and technology type, providing a transparent framework for the progressive reduction of high-emission assets and their replacement with low-carbon and renewable alternatives. These actions reflect Kazakhstan's commitment to incorporate lessons from the Global Stocktake into national planning and to ensure that its updated NDC is consistent with global efforts to achieve deep emission reductions this decade.
5. Assumptions and methodological approaches, including those for estimating and accounting for anthropogenic GHG emissions and, as appropriate, removals		
, (b)	Assumptions and methodological approaches used for accounting for anthropogenic GHG emissions and removals corresponding to the Party's nationally determined contribution, consistent with decision 1/CP.21, paragraph 31, and accounting guidance adopted by the CMA;	Kazakhstan plans to continue to apply a net-net accounting approach in accounting for the NDC where net emissions in the target year 2035 will be compared against net emissions in the base year 1990 to calculate the percentage emissions reductions achieved. Methodologies for estimating GHG emissions and their projections: - 2006 IPCC Guidelines for National GHG Inventories (non-energy sectors) - Long-range Energy Alternatives Planning (LEAP) model (energy production and energy consumption), The estimates of emissions and removals used in accounting for the NDC are those reported in the national GHG Inventory of Kazakhstan, which follows the 2006 IPCC guidelines, IPCC good practice guidance and the guidance included in Section II of the Annex to decision 18/CMA.1. The definitions, data sources, and models used to estimate net emissions are those described in the national GHG inventory. The most recent submission can be found in the National Greenhouse Gas Inventory Report: https://unfccc.int/sites/default/files/resource/NID%20RK%202025.pdf

		Accordingly, Kazakhstan's accounting approach strives for transparency, accuracy, completeness, and consistency, and promotes environmental integrity. The accounting approach described above is consistent with Article 4.13 of the Paris Agreement. It is also consistent with decision 4/CMA.1, and annexes included therewith that contain both, information to facilitate transparency, clarity and understanding of the NDCs and accounting guidance that was negotiated in response to the provisions of decision 1/CP.21, paragraph 31 on accounting guidance.
(c), (d)	If applicable, information on how the Party will take into account existing methods and guidance under the Convention to account for anthropogenic emissions and removals, in accordance with Article 4, paragraph 14, of the Paris Agreement, as appropriate; IPCC methodologies and metrics used for estimating anthropogenic greenhouse gas emissions and removals	Methods of estimations are aligned with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories The metrics used for GHG emissions and removals are the Global Warming Potentials of a 100-year time horizon or in accordance with decisions agreed by the CMA Methodologies and metrics used for NDC accounting are consistent with decisions 4/CMA.1, 18/CMA.1, and 5/CMA.3, and would be updated to reflect any updated IPCC guidelines or common metrics that may be decided upon by the CMA in the future.
(e)	Sector-, category- or activity-specific assumptions, methodologies and approaches consistent with IPCC guidance, as appropriate, including, as applicable: (i) Approach to addressing emissions and subsequent removals from natural disturbances on managed lands (ii) Approach used to account for emissions and removals from harvested wood products (iii) Approach used to address the effects of age-class structure in forests	Kazakhstan accounts for its NDC target using directly net GHG emissions from the national GHG inventory. All sector, category, or activity-specific assumptions, methodologies and approaches are those outlined in the 2006 IPCC guidelines as documented in the 2025 GHG inventory submission of Kazakhstan, see: https://unfccc.int/sites/default/files/resource/NID%20RK%202025.pdf

(f)	Other assumptions and methodological approaches used for understanding the nationally determined contribution and, if applicable estimating corresponding emissions and removals, including: i. How the reference indicators, baseline(s) and/ or reference level(s), including, where applicable, sector-, category- or activity-specific reference levels, are constructed, including, for example, key parameters, assumptions, definitions, methodologies, data sources and models used; ii. For Parties with nationally determined contributions that contain non- greenhouse-gas components, information on assumptions and methodological approaches used in relation to those components, as applicable; iii. For climate forces included in nationally determined contributions not covered by IPCC guidelines, information on how the climate forces are estimated; iv. Further technical information, as necessary;	The reference indicators for NDC 3.0 are the total GHG emissions in 1990. The key parameters assumptions, definitions, methodologies, and data sources used to estimate emissions and removals are provided in the GHG inventory. Elements 5f (ii), (iii) and (iv) are not applicable.
(g)	The intention to use voluntary cooperation under Article 6 of the Paris Agreement, if applicable	The Republic of Kazakhstan retains the opportunity to participate in the mechanisms of Article 6 of the Paris Agreement through various international mechanisms, including through the linking of emissions trading systems.
6. How the Party considers that its NDC is fair and ambitious in the light of its national circumstances		
(a)	How the Party considers that its NDC contribution is fair and ambitious in the light of its national circumstances	The Republic of Kazakhstan considers its NDC 3.0 as fair and ambitious in light of its national circumstances and continues to work toward emissions reductions despite its low share of global GHG emissions historically and at present. The Republic of Kazakhstan has also directly incorporated the goals and

		policies of NDC into the national legislative, regulatory, and planning process in order to ensure they are implemented. Strategy on Achieving Carbon Neutrality by 2060, signalling Kazakhstan's commitment to a transition away from coal and toward a diversified, low-emission economy. The government has strengthened its Environmental Code, revived Emissions Trading System, and launched programmes for green finance, afforestation, energy efficiency, renewable energy deployment, and climate-resilient infrastructure. Kazakhstan's 2035 NDC target represents a progression beyond its target of total net GHG emission reduction in 2030 by 15% below the base year emission levels that was included in its 2030 NDC target.
	Fairness considerations, including reflecting on equity	Kazakhstan's NDC reflects its national circumstances as a resource-dependent, landlocked, upper-middle-income developing country with a continental climate and high exposure to environmental risks. The NDC mitigation targets balance economic development needs with the country's responsibility to contribute to global mitigation efforts. The NDC builds on measurable progress already achieved since 1990, with total GHG emissions remaining below the base year despite steady economic growth. The ambition level has increased compared to NDC 2.0, demonstrating progression in both scope and stringency. Kazakhstan's targets are guided by the principles of equity, national context, and just transition, ensuring that climate action does not compromise social stability or economic security. Domestic resources are being mobilized to the maximum extent possible, while additional emission reductions depend on access to international finance, technology transfer, and capacity-building support.
(c)	How the Party addressed Article 4, paragraph 3, of the Paris Agreement (i.e. how NDC target represents progression and highest possible ambition)	Kazakhstan's NDC3.0 represents a progression from its previous submission, incorporating more ambitious GHG emissions reductions targets, as well as clearly defining the relevant support requirements and implementation strategies

7. How the NDC contributes towards achieving the objective of the Convention as set out in its Article 2

(a)	How the nationally determined contribution contributes towards achieving the objective of the Convention as set out in its Article 2	Kazakhstan's NDC directly contributes to the objective of the UNFCCC by setting a clear pathway to reduce greenhouse gas emissions and enhance resilience to climate impacts. Through the implementation of mitigation and adaptation measures across key sectors - energy, industry, agriculture, waste, and land use, Kazakhstan aims to help limit global temperature rise in line with the goals of the Paris Agreement. The NDC also supports the Convention's objective by integrating climate action into national development planning, improving energy efficiency, expanding renewable energy, and strengthening ecosystem and water management. These efforts collectively contribute to stabilizing GHG concentrations while promoting sustainable development and protecting the well-being of current and future generations.
(b)	How the nationally determined contribution contributes towards Article 2, paragraph 1(a), and Article 4, paragraph 1, of the Paris Agreement (i.e. global temperature goals, including to limit global temperature to 1.5°C)	The Republic of Kazakhstan has the goal of achieving carbon neutrality by 2060, contributing to the global effort to reach peak GHG emissions in the first half of the 21st century, while recognizing the importance of equity, sustainable development, and poverty eradication.