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AFoCO
COUNTRY FORESTRY TREND

Forestry Policy of the Republic of Kazakhstan

Strengthening Climate Resilience and Ecosystem Restoration (2021–2027)

BACKGROUND

The Republic of Kazakhstan possesses vast and diverse landscapes where forests and natural ecosystems play a critical role in climate regulation, biodiversity conservation, and socio-economic stability. According to the Forestry and Wildlife Committee under the Ministry of Ecology, Geology and Natural Resources, forests covered approximately 13.6 million hectares in 2022, representing around 5 percent of the national territory. Nearly half of these forested areas consist of saxaul forests, which are uniquely adapted to arid and semi-arid conditions.

Despite this ecological importance, Kazakhstan faces persistent environmental challenges, including land degradation, desertification, declining water systems, and increasing wildfire risks. These pressures are intensified by climate variability and the country's dry continental climate.

In this context, forests are increasingly viewed not only as ecological assets, but as strategic infrastructure for climate resilience and long-term land stability.

In response, the Government of Kazakhstan has launched a comprehensive forestry reform agenda focused on:

- Large-scale afforestation and reforestation
- Restoration of degraded lands, particularly in the Aral Sea region.
- Modernization of wildfire management systems
- Digital transformation of forest governance
- Integration of forestry into national climate commitments

A central pillar of this agenda is the national initiative to plant two billion trees by 2027. This initiative is aligned with Kazakhstan's broader climate targets, including a 15 percent reduction in greenhouse gas emissions by 2030 and the achievement of carbon neutrality by 2060.

Key Messages

1. Kazakhstan is undertaking one of the largest afforestation initiatives in its history, targeting the planting of two billion trees by 2027 to expand forest cover and enhance national climate mitigation capacity.
2. Hundreds of thousands of hectares of degraded land, particularly in the Aral Sea region, are being restored through the planting of saxaul and other native species to combat desertification and dust storms.
3. Forest governance is being modernized through strengthened wildfire management systems, digital monitoring platforms, and newly introduced forest carbon policies aimed at aligning the forestry sector with long-term carbon neutrality goals.

Figure 1: Saxaul tree, Aral region, April 2025
Source: Public Association «Aral Oasis»

Country Trend Highlight

Large-Scale Afforestation and Urban Greening

The nationwide afforestation program aims to plant two billion trees on State Forest Fund lands by 2027. As of 2025, approximately 1.47 billion trees have been planted across more than 900,000 hectares.

The program is supported by expanded forest nurseries, improved seed supply systems, and strengthened regional forestry enterprises responsible for implementation and post-planting maintenance. Species selection prioritizes ecological suitability and climate adaptability.

In parallel, urban greening efforts have exceeded targets, with more than 18 million trees planted in cities and towns. Urban tree planting contributes to improved air quality, reduced urban heat island effects, strengthened ecosystem services, and increased public awareness of environmental protection.

Collectively, these efforts aim to increase national forest area from approximately 13.7 million hectares to 14.5 million hectares by 2030.

Restoration of the Aral Sea Region

The restoration of the dried bed of the Aral Sea represents one of Kazakhstan's most significant ecological stabilization efforts.

Between 2021 and 2024, approximately 475,000 hectares were restored through planting and seeding of saxaul and other native desert-adapted species. For 2025 alone, Kazakhstan plans to plant saxaul on an additional 428,000 hectares.

Saxaul plantations play a critical role in:

- Stabilizing saline soils
- Reducing salt and dust storms
- Preventing further land degradation
- Supporting long-term ecosystem recovery

Dedicated nurseries and research facilities have been established to ensure the availability of high-quality seedlings and to support scientific monitoring of restoration outcomes.

This large-scale dryland restoration initiative demonstrates how afforestation policies can serve not only climate mitigation goals but also regional environmental stabilization and public health protection.

Wildfire Management Reform

Following severe wildfire seasons, Kazakhstan has strengthened its forest fire management framework through institutional and technological reforms.

Key measures include:

- Improved inter-agency coordination mechanisms
- Updated wildfire response protocols
- Expanded use of aerial surveillance
- Increased deployment of satellite monitoring systems

Approximately one million hectares are now covered by early detection systems, improving response time and enhancing situational awareness.

These reforms reflect a shift from reactive firefighting toward risk-based prevention and integrated wildfire management.

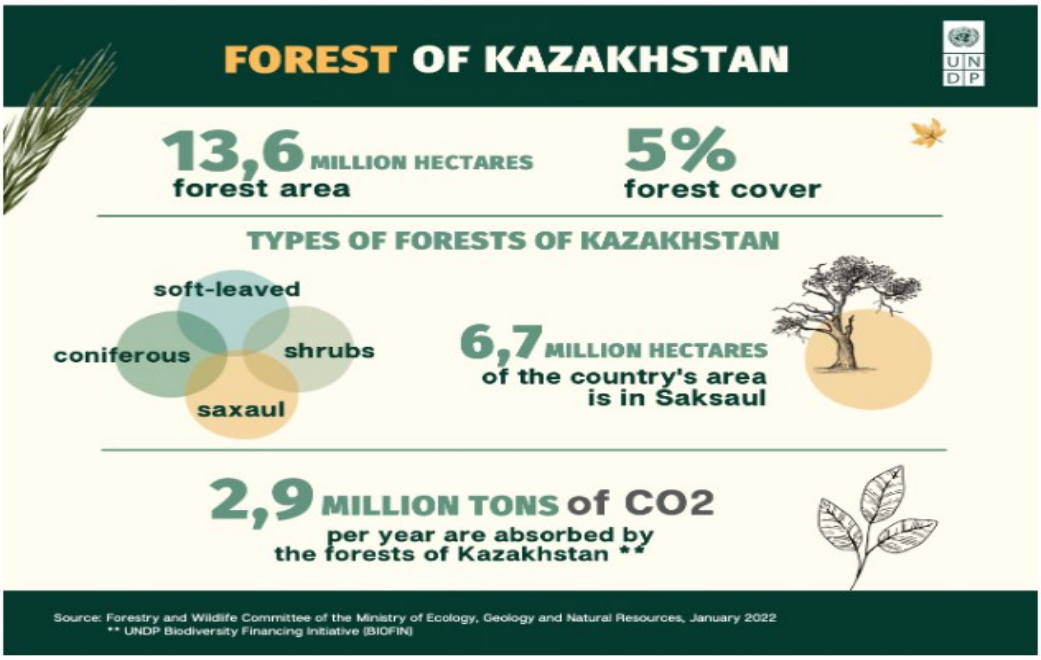

Figure 2: Forest of Kazakhstan 2022
Source: Forestry and Wildlife Committee of the Ministry of Ecology, Geology and Natural Resources, January 2022. Taken from UNDP Website

Digital Forest Governance

Digital transformation has become a core pillar of Kazakhstan's forestry modernization.

The country is implementing:

- Satellite-based forest monitoring
- Geographic Information Systems (GIS) platforms
- Drone surveillance
- Pilot timber traceability systems

These tools enhance transparency, reduce illegal logging risks, and strengthen evidence-based decision-making. Digitalization also improves monitoring accuracy across Kazakhstan's vast territory, one of the largest land areas in the world.

By integrating digital technologies into forest administration, Kazakhstan is laying the foundation for a more accountable and climate-responsive governance framework.

Forests and Climate Policy Integration

Kazakhstan has committed to:

- 15% greenhouse gas emission reduction by 2030, and
- carbon neutrality by 2060.

In 2025, amendments to national legislation introduced a legal framework for forest carbon projects and forest-based offsets on State Forest Fund lands.

This framework enables:

- Attraction of private and international investment into afforestation and reforestation;
- Development of forest-based carbon units;
- Alignment of forest restoration with climate finance mechanisms.

Further work is ongoing to refine MRV systems, land-allocation procedures, and long-term governance of carbon assets

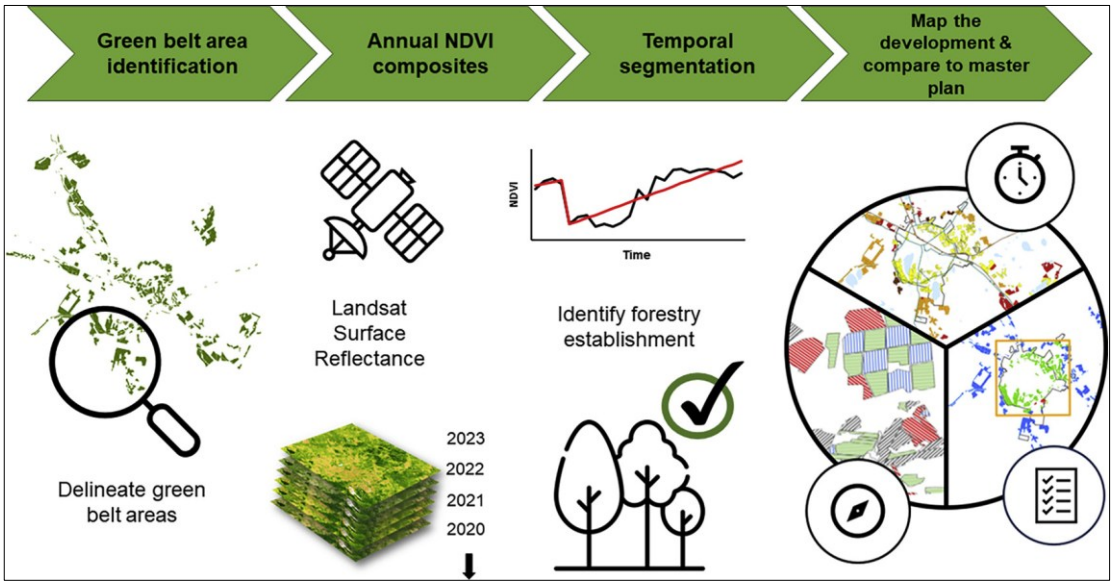

Figure 3: Satellite imaginary usage to track the development of the green belt of Astana, Kazakhstan
Source: Journal of: Using satellite imagery to track the development of the green belt of Astana, Kazakhstan: A remote sensing perspective on artificial forestry development, Remote Sensing Applications: Society and Environment, Volume 38, 2025

Implementation Challenges

Ensuring high survival rates in arid and semi-arid ecosystems requires continuous maintenance, adaptive species selection, and effective irrigation or soil stabilization measures. Climate variability, extreme weather events, and wildfire risks may affect newly planted areas.

Long-term financing mechanisms will be critical to sustain maintenance and monitoring beyond initial planting phases. Given the country's vast territory, ensuring consistent digital monitoring coverage and accurate data verification also presents logistical complexities.

Addressing these risks through adaptive management and sustained institutional capacity will determine the long-term ecological impact of current reforms not only as an environmental sector but also as a strategic component of long-term economic and climate planning.

Governance Architecture

The two-billion-tree initiative and associated reforms are implemented through a multi-level governance structure involving:

- The Ministry of Ecology and Natural Resources
- The Forestry and Wildlife Committee (2024)
- Regional forest enterprises (2025)
- Municipal authorities

This institutional architecture ensures that afforestation efforts are supported by administrative coordination, financial allocation, and reporting systems consistent with national development planning.

CHALLENGES AND OPPORTUNITIES

Afforestation and restoration efforts are increasingly shaped by harsh climatic conditions, particularly in arid and semi-arid landscapes and in ecologically fragile areas such as the Aral Sea region. Low seedling survival rates, expanding wildfire risks, and limited digital governance systems highlight the need to move beyond expansion targets toward quality, resilience, and transparency.

The table below outlines the most critical challenges affecting long-term ecological performance, alongside concrete opportunities to strengthen post-planting care, scale up science-based restoration models such as saxaul planting, modernize wildfire early warning systems, and enhance forest governance through digitalization and robust carbon MRV frameworks.

Challenges	Opportunities
• Low survival rates in afforestation programs, particularly in arid and semi-arid areas due to limited post-planting maintenance and monitoring.	• Strengthen post-planting care systems and allocate dedicated budgets linked to survival and growth indicators.
• Ecological degradation in the Aral Sea region requiring more adaptive and science-based restoration approaches.	• Scale up science-based restoration models, including successful saxaul planting initiatives.
• Increasing wildfire risks and gaps in early warning coordination and detection coverage.	• Modernize wildfire prevention through integrated early warning systems and improved inter-agency coordination.
• Limited digitalization and weak timber traceability systems, constraining transparency and climate finance access.	• Expand digital forest governance and develop pilot forest carbon projects with robust MRV frameworks to attract climate finance and private-sector engagement.

CONCLUSION

Kazakhstan's forestry reform between 2021 and 2027 represents a structural shift in how forests are positioned within national development strategy. From large-scale afforestation and Aral Sea restoration to wildfire modernization and carbon legislation, forests are increasingly treated as strategic infrastructure for climate resilience.

The long-term impact of these policies will depend not only on planting scale, but on sustained institutional capacity, ecological adaptation, and effective monitoring systems capable of translating ambition into durable environmental outcomes.

Kazakhstan's experience illustrates how large dryland countries can reposition forests as climate-resilient infrastructure within national development planning.

ACKNOWLEDGMENT

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Asian Forest Cooperation Organization

AFoCO is a treaty-based intergovernmental organization that is committed to strengthening forest cooperation and taking concrete actions to promote sustainable forest management and address the impacts of climate change.

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