

POLICY BRIEF

Leveraging synergies from integrative land-biodiversity-climate action through ecosystem restoration in Central Asia

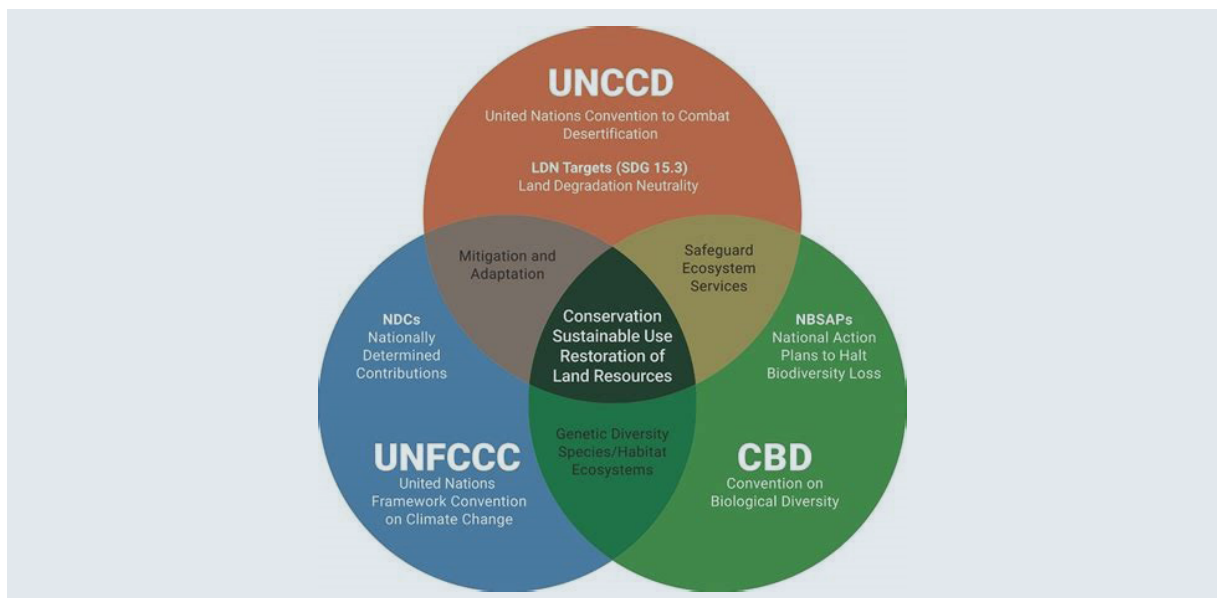
Central Asia's Green Nexus

Tackling Land Degradation, Climate Change, and Biodiversity Loss

Climate change, biodiversity loss, and land degradation are deeply interconnected challenges

that demand a coordinated response, including in Central Asia.

FIGURE 1 Integrated approaches for land-climate-biodiversity action. Source: UNCCD Global Land Outlook 2022





As global warming threatens to exceed 1.5 °C, these issues are poised to intensify in the region, leading to decreased agricultural productivity, lower incomes, and further loss of biodiversity. Land degradation already contributes to ecosystem loss, altered rainfall patterns, and more frequent extreme weather events such as droughts, floods, and sandstorms in the region.

Land degradation, climate change and biodiversity loss are closely interrelated. None of these three challenges can be effectively addressed in a siloed manner, neither at national nor at global levels. In a world grappling with these interlinked challenges of climate change, biodiversity loss, and land degradation, the need for coordinated action has never been more apparent. The existing finance gap to reach the Rio targets calls for the most efficient use of available funds. Creating synergies between implementation processes that often are siloed and not harmonized provide a powerful lever to minimize the overall implementation costs at national level.

Land serves as the critical nexus linking these challenges with agricultural productivity—

a sector that constitutes about a quarter of the GDP in most Central Asian countries and employs roughly a third of its workforce. Despite progress in poverty reduction, rural communities, particularly women farmers and laborers, remain vulnerable. Therefore, integrated action across the land-climate-biodiversity-agriculture nexus is essential for achieving the Sustainable Development Goals (SDGs) and realizing a vision of a prosperous, food-secure, and globally integrated Central Asia.

Central Asian countries are actively engaging with global initiatives by participating in the three Rio Conventions: the UN Convention to Combat Desertification (UNCCD), the UN Framework Convention on Climate Change (UNFCCC), and the Convention on Biological Diversity (CBD). They have developed national action plans—Land Degradation Neutrality (LDN) targets, Nationally Determined Contributions (NDCs), and National Biodiversity Strategies and Action Plans (NBSAPs)—which are interconnected through land-related goals. This alignment offers significant opportunities for integrated actions and investment strategies (Table 1).

TABLE 1 Land restoration targets in Central Asian countries in hectares

Country	LDN	NBSAP	NDC	Bonn challenge
Kazakhstan	571,429 Achieve degradation neutrality of land by 2030	1,500,000*		1,800,000
Kyrgyzstan	120,000	30,000		323,200
Tajikistan				66,000
Turkmenistan	160,000		240,000	
Uzbekistan	Achieve degradation neutrality of land by 2030	1,200,000 (former Aral Sea), Restore 30% of degraded ecosystems	Achieve degradation neutrality of land by 2030	1,000,000

Sources: Sewell et al (2020), Uzbekistan NBSAP targets (2024), Decree of cabinet Ministers of Uzbekistan 484 form 2019, Turkmenistan LDN target setting, and other national NDC, NBSAP, and LDN action documents.

Notes: * as part of the Concept for Conservation and Sustainable Use of Biodiversity by 2030

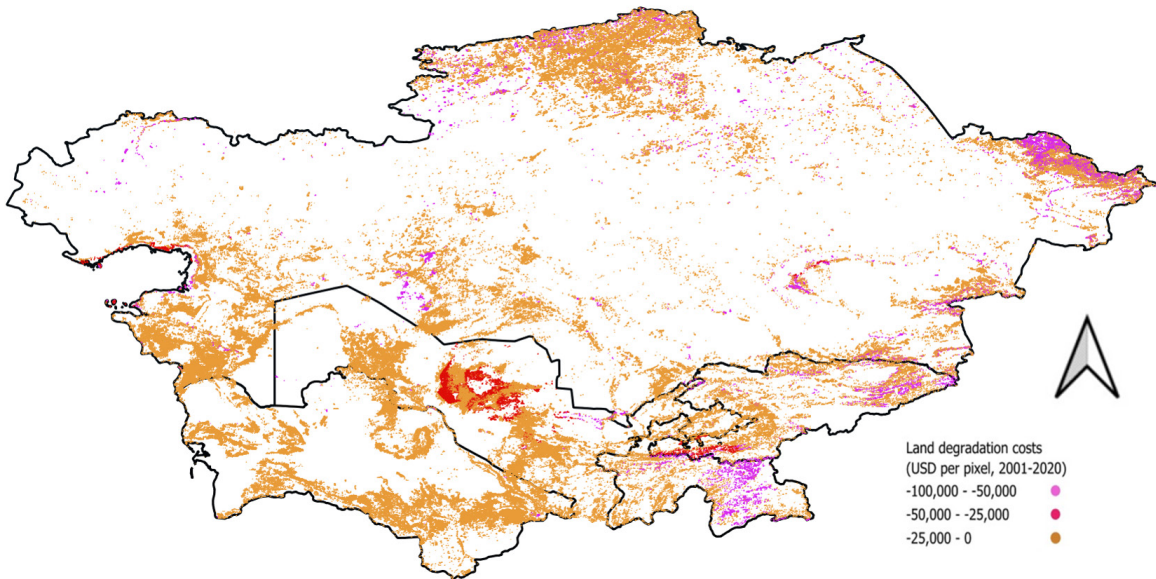


Costs of Land Degradation in Central Asia

Central Asia has experienced significant economic losses due to ecosystem degradation over the two decades from 2001 to 2020, amounting to an estimated **18 billion USD**. Grassland degradation emerged as the largest contributor, accounting for **9.9 billion USD**, followed by deforestation and the loss of shrublands, which cost **6.9 billion USD**. Wetland and cropland losses further added **1 billion USD** and **141 million USD**, respectively, to the overall economic burden.

The region is home to approximately **38 million hectares of high-biodiversity terrestrial areas under protected status**. These areas are critical for conserving the region's unique ecosystems. However, even within protected areas, significant ecosystem degradation has been observed, highlighting gaps in management and enforcement. Land degradation has also been recorded in biodiversity-rich areas outside these protected zones, posing a severe threat to regional biodiversity and the ecosystem services it provides.

FIGURE 2 Hotspots of degraded ecosystems in Central Asia



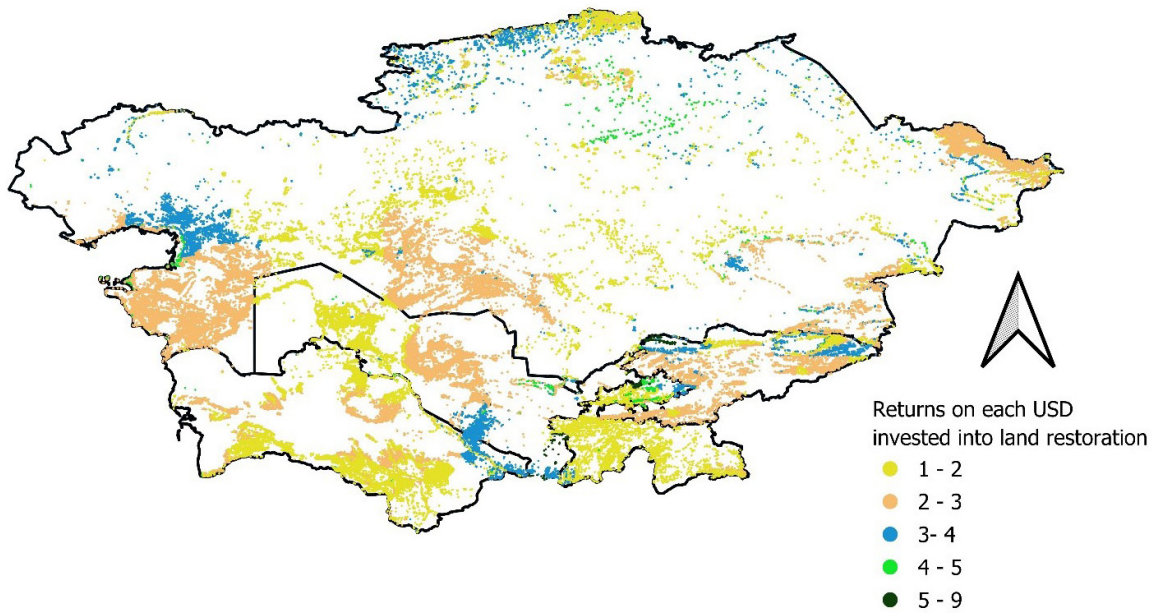
Investment Needs for Ecosystem Restoration in Central Asia

The investment needs for land restoration in Central Asia are projected to reach **33 billion USD** under the base scenario for the period of 2020–2050. This investment is expected to yield a return of **2.9 USD** for every 1 USD invested, underscoring the cost-effectiveness of restoration efforts. The economic returns are driven by improved ecosystem services, enhanced agricultural outputs, and reduced costs associated with land degradation.

Restoration activities have the potential to generate significant employment across the region, creating up to **22,000 jobs in Kazakhstan, 16,000 jobs in Uzbekistan, 6,000 jobs in Turkmenistan, 3,700 jobs in Kyrgyzstan, 2,100 jobs in Tajikistan**. These opportunities can benefit rural populations, addressing both unemployment and poverty, particularly in agriculture-dependent communities.



FIGURE 3 Returns from ecosystem restoration in Central Asia

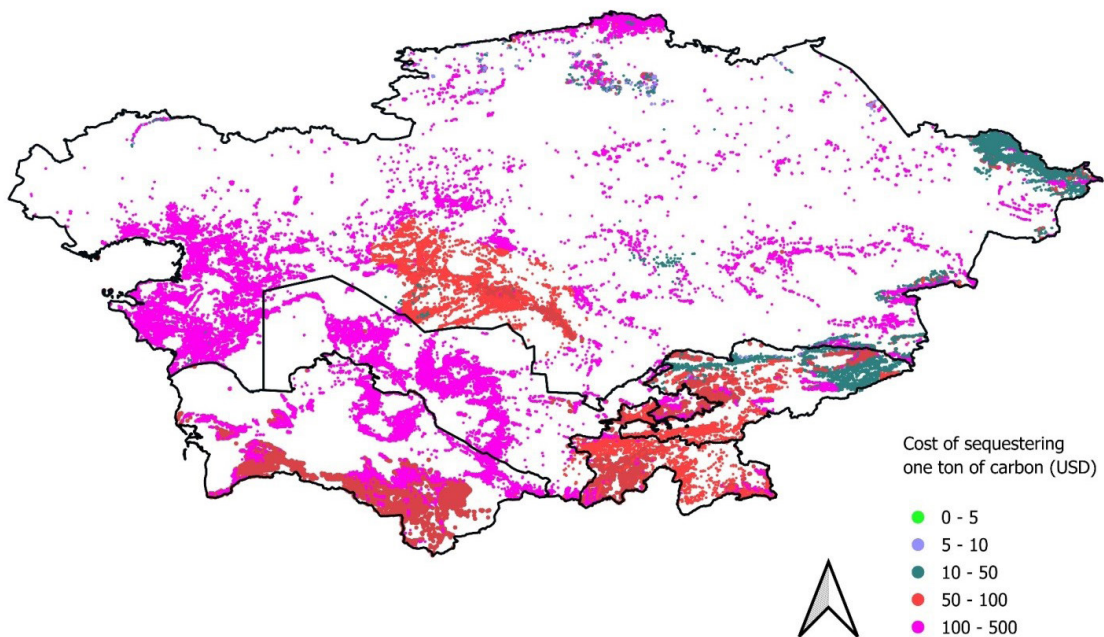


Climate Change Mitigation through Carbon Sequestration

Ecosystem restoration initiatives in Central Asia are expected to sequester 222 million tons of carbon over the 2020–2050 period. This is a substantial contribution to global climate change mitigation, considering the region’s current

annual greenhouse gas (GHG) emissions of approximately 710 million tons of carbon equivalent. In many areas across the region, carbon sequestration can be achieved at highly cost-effective manner (Figure 4).

FIGURE 4 Cost of sequestering one ton of carbon



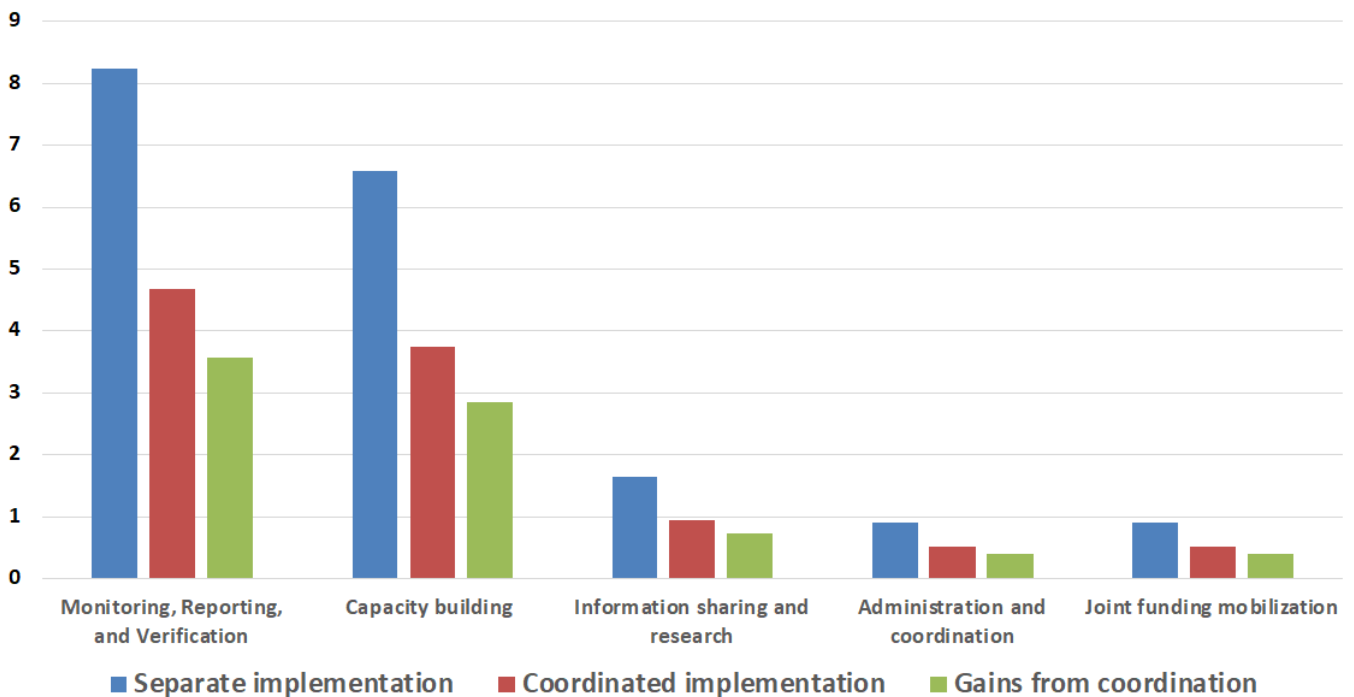


Benefits of Coordinated Land Restoration

Through well-coordinated efforts by national ministries and agencies, Central Asian countries could realize a **24% gain in implementation efficiency** compared to fragmented, siloed approaches. This efficiency translates into significant cost savings, with estimates suggesting that coordinated restoration activities could restore ecosystems degraded between 2001 and 2020 at a cost of up to **7.9 billion USD lower** than uncoordinated efforts.

These savings can be reinvested to expand restoration efforts, thereby maximizing environmental and socio-economic benefits. The coordinated approach also enhances the ability of countries to meet their obligations under the **Rio Conventions**.

FIGURE 5 Benefits of Coordinated Land Restoration



Synergy Mechanisms of Coordinated Land Restoration

Five key mechanisms underpin the success of coordinated land restoration efforts. These were identified through participatory stakeholder discussions:



Synergy Mechanism 1: Monitoring, Reporting, and Verification (MRV)

Developing a unified MRV system aligned with the Rio Conventions consolidates monitoring frameworks for ecosystems and enhances data collection, reporting, and decision-making. A designated lead organization needs to oversee MRV activities, while standardized methodologies and centralized platforms integrate satellite and national datasets, ensuring consistency and reliability. International partners can support the system through training, third-party audits, and methodologies tailored to national needs, linking data to policy processes.

Synergy Mechanism 2: Capacity Building

Capacity building involves creating regional training hubs to develop skills in restoration techniques, GIS technologies, and MRV systems. Standardized training materials and collaboration with international organizations ensure consistent knowledge dissemination. Regional centers of excellence and repositories will foster collaboration, while training in proposal development and financial management can help mobilize more investment for land restoration projects.

Synergy Mechanism 3: Information Sharing and Research

Centralized national databases for restoration projects will provide transparent access to progress updates, research findings, and funding sources, enhancing accountability and collaboration. Coordinated national dissemination strategies will promote visibility, while regional research initiatives supported by international partners can help address shared challenges and drive innovation.

Synergy Mechanism 4: Administration and Coordination

Establishing National Coordination Councils for Land Restoration will align efforts across land, biodiversity, and climate agendas. These councils will facilitate joint planning, spatially explicit target setting, and integrated reporting while hosting centralized information platforms and dissemination strategies.

Synergy Mechanism 5: Investment Mobilization

Developing land restoration investment roadmaps will guide prioritization and align funding opportunities with geographical needs. Collaborative proposals, PPPs, tax incentives, carbon credit systems, and restructured subsidies will encourage private sector engagement, ensuring sustainable financing for long-term ecosystem restoration.



Regional Cooperation and Gains

Beyond national-level actions, regional cooperation offers additional opportunities for efficiency and impact. Joint training activities, regional research collaborations, and shared methodologies for MRV systems can amplify the benefits of coordination. These efforts help address transboundary challenges, such as water management, desertification, and biodiversity conservation, which are critical for Central Asia's ecological and economic resilience.

Access the full report and other ELD knowledge pieces at www.eld-initiative.org

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The **Economics of Land Degradation (ELD)** Initiative is a global initiative at the interface of science, policy, and practice that works to make the values of land count to inform, promote, and scale land solutions for transformative change.

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