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Annex 2a

Feasibility Study

to the GCF Funding Proposal

Climate-resilient landscapes in Central Asia

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Abbreviations and Acronyms

ACT-ED	Adaptation, Climate, Technology and Evaluation Data
ADB	Asian Development Bank
AE	Accredited Entity
AF	Adaptation Fund
AFOLU	Agriculture, Forestry, and Other Land Use
AKIS	Agricultural Knowledge and Innovation Systems
ALR	Agency for Land Resources
APIU	Agricultural Project Implementation Unit
ARA	Adaptation Results Area
ARIS	Community Development and Investment Agency
ASDR	Agency for Strategic Development and Reforms
BMZ	German Federal Ministry for Economic Cooperation and Development
BTR	Biennial Transparency Report
CAIAG	Central-Asian Institute for Applied Geosciences
CACIP	Central Asia Climate Information Portal
CAREC	Central Asia Regional Economic Cooperation Program
CAREC Institute	Central Asia Regional Economic Cooperation Institute
CASP+	Community-based Agriculture Support Program Plus
CAT / CATs	Conservation Agriculture Team(s)
CAWLN	Central Asia Water and Land Nexus
CAWEP	Central Asia Water and Energy Program
CEP	Committee for Environmental Protection
CESDRR	Regional Centre for Emergency Situations and Disaster Risk Reduction
CFC	Climate Finance Centre
CIEWS	Climate Information and Early Warning System
CIIP	Centre for Implementation of Investment Projects
CN	Concept Note
CPEIR	Climate Public Expenditure and Institutional Reviews
CRLE	Climate Resilient Landscape Ecosystems
CRVA	Climate Risk and Vulnerability Assessment
CSA	Climate-Smart Agriculture
CSO	Civil Society Organization
DAE / DAEs	Direct Access Entity(s)
DDAD	District Departments of Agricultural Development
DLDD	Desertification, Land Degradation and Drought
DRS	Districts of Republican Subordination
DSA	Debt Sustainability Analysis
EAEU	Eurasian Economic Union
EBRD	European Bank for Reconstruction and Development
EE / EEs	Executing Entity / Executing Entities
EIB	European Investment Bank
EOI	Expression of Interest
ESG	Environmental, Social, and Governance
ESS	Environmental and Social Standards
ESMP	Environmental and Social Management Plan
Ex-ACT	Environmental Externalities Accounting Tool

FA	Forest Agency
FAA	Funded Activity Agreement
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FI / FIs	Financial Institution(s)
FLR	Forest Landscape Restoration
FOLU	Forest and Other Land Use
FRA	Forest Resources Assessment
FSC / FSCs	Farmer Service Center(s)
GAO	Gross Agricultural Output
G2F	Glaciers to Farms
GBAO	Gorno-Badakhshan Autonomous Oblast
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEFF	Green Economy Financing Facility
GGGI	Global Green Growth Institute
GHG	Greenhouse Gas
GIS	Geographic Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GNI	Gross National Income
GMU	Grant Management Unit
GoRT	Government of the Republic of Tajikistan
GRP	Gross Regional Product
Green CA	Regional Environmental Expert Network of Central Asia
GSC	Grant Selection Committee
HDI	Human Development Index
Hydromet	Hydrometeorological Service
IBRD	International Bank for Reconstruction and Development
ICARDA	International Center for Agricultural Research in the Dry Areas
ICSD	Interstate Commission for Sustainable Development
ICWC	Interstate Commission for Water Coordination
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IFAS	International Fund for Saving the Aral Sea
IFC	International Finance Corporation
IKI	International Climate Initiative
ILO	International Labour Organization
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
ITMO / ITMOs	Internationally Transferred Mitigation Outcome(s)
JFM	Joint Forest Management
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
KG / KGZ	Kyrgyz Republic
KOICA	Korea International Cooperation Agency
KSE	Kyrgyz Stock Exchange

LAPA	Local Adaptation Plans of Action
LDN	Land Degradation Neutrality
LFCC	Low Forest Cover Country
LFI / LFIs	Local Financial Institution(s)
LSG / LSGs	Local Self-Government(s)
LULUCF	Land Use, Land-Use Change and Forestry
MCO	Microcredit Organization
MCA	Microcredit Agency
MEDT	Ministry of Economic Development and Trade
MEEPCC	Ministry of Ecology, Environmental Protection and Climate Change
MES	Ministry of Emergency Situations
MFI / MFIs	Microfinance Institutions
MGM	Matching Grant Mechanisms
MoA	Ministry of Agriculture
MoU	Memorandum of Understanding
MoWRAPI	Ministry of Water Resources, Agriculture and Processing Industry
MRV	Measurement, Reporting, and Verification
MSME / MSMEs	Micro, Small and Medium Enterprises
NAP	National Adaptation Plan
NBKR	National Bank of the Kyrgyz Republic
NBT	National Bank of Tajikistan
NBSAP	National Biodiversity Strategy and Action Plan
NDA	National Designated Authority
NDC	Nationally Determined Contribution
NDS	National Development Strategy
NCECC	National Centre for Environmental and Climate Change
NFI	National Forest Inventory
NGO / NGOs	Non-Governmental Organization(s)
NSACC	National Strategy for Adaptation to Climate Change
NSDI	National Spatial Data Infrastructure
NTFP / NTFPs	Non-Timber Forest Product(s)
NWFP / NWFPs	Non-wood Forest Product(s)
OSCE	Organization for Security and Co-operation in Europe
OECD	Organisation for Economic Co-operation and Development
PER	Public Expenditure Review
PICSA	Participatory Integrated Climate Services for Agriculture
PMU	Programme Implementation Unit
PPP	Public-Private Partnership
PUA	Pasture Users Association
PUU	Pasture Users Union
PSC	Programme Steering Committee
R&R	Roles and Responsibilities
REP4SD-CA	Regional Environmental Programme for Sustainable Development in Central Asia
RESILAND CA+	Central Asia Resilient Landscape Restoration Program
RRPCP	Regional Resilient Pastoral Communities Project
RRRA	Regional Risk and Resilience Assessment

SALRCGC	State Agency for Land Resources, Cadastre, Geodesy, and Cartography
SBFN	Sustainable Finance and Banking Network
SDG / SDGs	Sustainable Development Goal(s)
SDP / SDPs	Subnational Development Plan(s)
SDS	Sand and Dust Storms
SEDP	Socio-economic Development Plan
SFE	State Forest Enterprises
SFF	State Forest Fund
SME / SMEs	Small and Medium Enterprise(s)
SQB	Sanoat Qurilish Bank
SPEI	Standardized Precipitation and Evapotranspiration Index
SPO / SPOs	Second-Party Opinion(s)
SRMI	Sustainable Renewables Risk Mitigation Initiative
TA	Technical Assistance
TAJSTAT	Agency on Statistics under the President of the Republic of Tajikistan
TERRA	Tajikistan Ecosystem Restoration and Resilient Agriculture
tCO2e	Tonnes of Carbon Dioxide Equivalent
TIN	Tax Identification Number
TJ	Tajikistan
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNCCD	United Nations Convention to Combat Desertification
UNDRR	United Nations Office for Disaster Risk Reduction
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USP-2	Updated Strategic Plan 2
USSR	Union of Soviet Socialist Republics
UZ	Uzbekistan
VC / VCs	Value Chain(s)
VCM	Voluntary Carbon Market
WB	World Bank
WFP	World Food Programme
WUA / WUAs	Water User Association(s)

1. Executive summary

This Feasibility Study is prepared as part of the Funding proposal (FP) package submitted to the Green Climate Fund (GCF) for the programme “Climate-resilient landscapes in Central Asia”. It is the result of in-depth multistakeholder consultations at the national and local levels (see Annex 07 of the FP for all details on consultations), complemented by desk-based document and data analyses.

Context

The current impacts of climate change in Central Asia are significant, affecting agriculture, forestry and land use sectors (AFOLU), ecosystems, biodiversity and the economy. Climate change is exerting significant adverse effects on the Kyrgyz Republic (KG), Tajikistan (TJ) and Uzbekistan (UZ) through rising temperatures, increasing drought frequency, and more intense rainfall events, which are altering seasonal water availability, intensifying heat and drought stress, and accelerating land degradation processes, including soil erosion, landslides, and mudflows. These dynamics are projected to produce cascading impacts across agricultural production systems and ecosystems, resulting in reduced crop productivity and stability, diminished pasture carrying capacity, and the deterioration of forest functions. These impacts are exacerbated by high rates of degradation, overexploitation and population growth. These hazards put vulnerable rural communities at particular risk, as they are heavily dependent on production systems and natural ecosystems for their livelihoods and food security, while also lacking the financial capacity or knowledge to adapt to existing threats.

Moreover, while the energy sector remains the main source of GHG emissions, emissions from the AFOLU sectors have been rising in the Kyrgyz Republic, Tajikistan and Uzbekistan since the 1990s. This is due to increasing agricultural emissions that are not offset by carbon sequestration in land use, land use change and forestry (LULUCF).

There are several barriers hampering the transition of the AFOLU sectors towards greater resilience to climate change and lower emissions. In general, the region lacks the financial, technical and institutional capacity to effectively implement national mitigation and adaptation measures. In addition, limited policy coherence and insufficient regional cooperation to address transboundary issues hamper climate action and the overall transformation of AFOLU systems in the region.

The programme

This regional programme directly addresses the critical climate risks impacting the AFOLU sectors in the Kyrgyz Republic, Tajikistan, and Uzbekistan. It concentrates on the highly vulnerable and ecologically important Fergana Valley (KG: Jalal-Abad, Osh and Batken regions; TJ: Sughd region; UZ: Namangan, Andijon and Fergana regions), and on the two neighbouring southern regions of Surkhandarya (UZ), and Khatlon (TJ). Ranging from plains dominated by agriculture to pastures and forests widely distributed on foothills and mountain slopes, the selected intervention areas are interconnected, and inseparable elements of continuous and transboundary landscapes characterised by different land uses and natural ecosystems that necessitate an integrated regional approach. Because strengthening regional cooperation beyond the selected intervention areas is critical for achieving climate-positive and sustainable outcomes, the third programme component involves also Kazakhstan and Turkmenistan.

The programme’s integrated landscape approach fully recognizes the interconnectedness of the selected transboundary landscapes and addresses climate risks by institutionalizing climate-informed AFOLU planning, coordination, and monitoring. It strengthens climate and land-use decision-support systems; enhances capacities to access and manage climate finance, and promotes the adoption of climate-resilient, low-emission (CRLE) practices and technologies through improved sub-national planning, extension services, and targeted investments in agriculture, forests, and pastures. At the regional level, the programme reinforces cooperation through foresight processes, regional AFOLU pathways, knowledge exchange, and a climate investment platform to coordinate and mobilize finance for transboundary adaptation actions.

To achieve its overall objective, the programme will be implemented through three interlinked components that collectively catalyse and sustain a paradigm shift toward a CRLE development pathway in the AFOLU sectors at the national, local, and regional levels.

The first component (national) establishes the foundation for systemic transformation by creating an enabling environment for change. It strengthens climate-informed land-use planning and decision-support systems, builds capacities of key national actors, improves the public finance landscape and

promotes innovative financing mechanisms that mobilise both public and private resources to support the transition beyond the programme period.

Building on this foundation, the second component (local) supports large-scale investments and field-level implementation, directly contributing to the programme's climate adaptation and mitigation objectives. This component specifically targets smallholder farmers and micro, small and medium-sized enterprises (MSMEs) in selected agricultural value chains, as well as forest and pasture users. It does so by providing them with tailored technical assistance and financing mechanisms that address their high dependency on the agriculture, forestry, land use, and other land use (AFOLU) sectors for livelihoods, as well as the existing barriers that prevent them from adopting CRLE practices and technologies on a large scale. The design of Component 2 and the planned implementation of its activities have considered the specific vulnerabilities and constraints of female and youth smallholder farmers, forest and pasture users, through specific outreach approaches, preferential selection criteria for programme support and empowerment.

The third component (regional) addresses the transboundary nature of ecosystems and climate challenges by promoting coordination and collaboration across countries, including Kazakhstan and Turkmenistan (benefitting from advisory through BMZ co-financing), facilitating the exchange of knowledge and innovation, and establishing an inclusive regional platform for climate action that promotes joint initiatives and enhances collective capacity to address climate challenges effectively.

Long-term sustainability is ensured through institutionalized planning, strengthened climate finance mechanisms, and the promotion of economically viable and socially equitable climate-resilient practices. The programme's design is replicable, allowing for scalability across similar landscapes in Central Asia, and fostering a wider paradigm shift towards climate resilient AFOLU sector development throughout the region.

The programme will enhance the climate resilience of 1,046,062 people directly and 1,480,919 people indirectly, mitigate 6.95 million tCO2e of GHG emissions, and bring 939,354 hectares of land under sustainable management, conservation, or restoration in 180 municipalities and 25 state forest enterprises across the three countries.

The programme effectively responds to the countries' needs and Nationally Determined Contribution (NDC) and Land Degradation Neutrality (LDN) targets. Shaped by priorities set by partners themselves through extensive national and local consultations, the programme will be implemented with key government bodies, including two Direct Access Entities, i.e., ARIS (Kyrgyz Republic) and CIIP within the Committee for Environmental Protection (Tajikistan). Bridging a significant funding gap, GCF financing will enable the target countries to raise and realise their adaptation and mitigation ambitions in the AFOLU sectors and catalyse investments, leveraging private sector resources for scale and sustainability.

Request for GCF support

To achieve impacts at scale, the programme combines GCF proceeds with public co-financing from Germany's Federal Ministry for Economic Cooperation and Development (BMZ) and from the European Investment Bank (EIB). It will significantly contribute to the GCF's Updated Strategic Plan 2024-2027 priorities, particularly targets 4 (food), 5 (ecosystem), 9 (locally led action), 10 (micro, small, and mediums enterprises), and 11 (local financial institutions).

As both the Accredited Entity and one of the programme's Executing Entities (EE), GIZ has significant experience of implementing projects and programmes in the region. This includes national offices, well-established partner networks and long-standing experience of engaging with local authorities and communities, as well as in-depth knowledge of local contexts and barriers. Additionally, the role of national EEs will be crucial for the programme's scalability, in particular to provide direct support to beneficiaries under Component 2. These are the Community Development and Investment Agency of the Kyrgyz Republic (ARIS) and the Ministry of Water Resources, Agriculture and Processing Industry (MoWRAPI) in the Kyrgyz Republic, the Centre for Implementation of Investment Projects (CIIP), and the National Committee on Environment and Climate Change (NCECC) in Uzbekistan. Finally, the Ministries of Finance of the three countries will constitute three additional EEs, primarily to channel co-investment from the EIB.

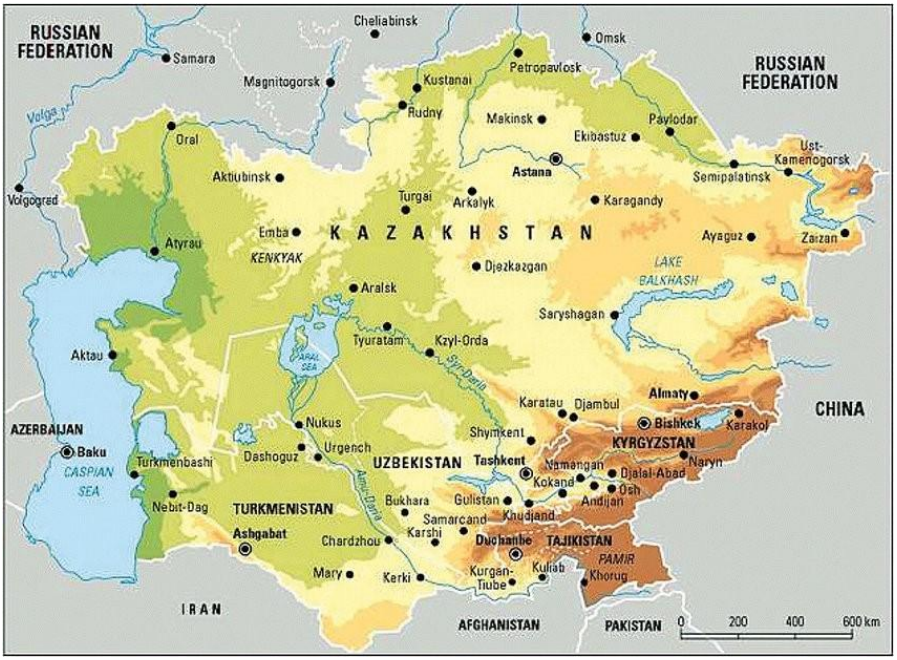
2. Regional context

2.1 Overall regional and country context

2.1.1 Overall regional profile

The Central Asia region encompasses the countries of Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan (Krasnopolsky, 2022). With a total land area of 4 million km^2, this region extends from Russia in the north to Afghanistan and Iran in the south, and from the Caspian Sea in the west to China's western borders in the east (Figure 1). The geographical coordinates of this region range from 35°08′N to 55°25′N in latitude and 46°28′E to 87°29′E in longitude (Li et al., 2019).

Figure 1: Map of Central Asia



Source: Qadir et al., 2009

This landlocked region is characterized by a continental climate and categorized as arid and semi-arid zones (USAID, 2018). The region's varied topography comprises high mountains and plateaus, hills and plains dominating the southeast, and lowlands characterizing the northwest. The land cover is primarily composed of grasslands (69.04%), followed by barren lands (16.5%), croplands (5.2%), open shrub lands (3.85%), and water bodies (3.21%) (Table 1 and Figure 2). Forestlands are predominantly located in the high-altitude mountainous areas, while cultivated lands are situated in the northern and southern parts (L. Liu et al., 2023).

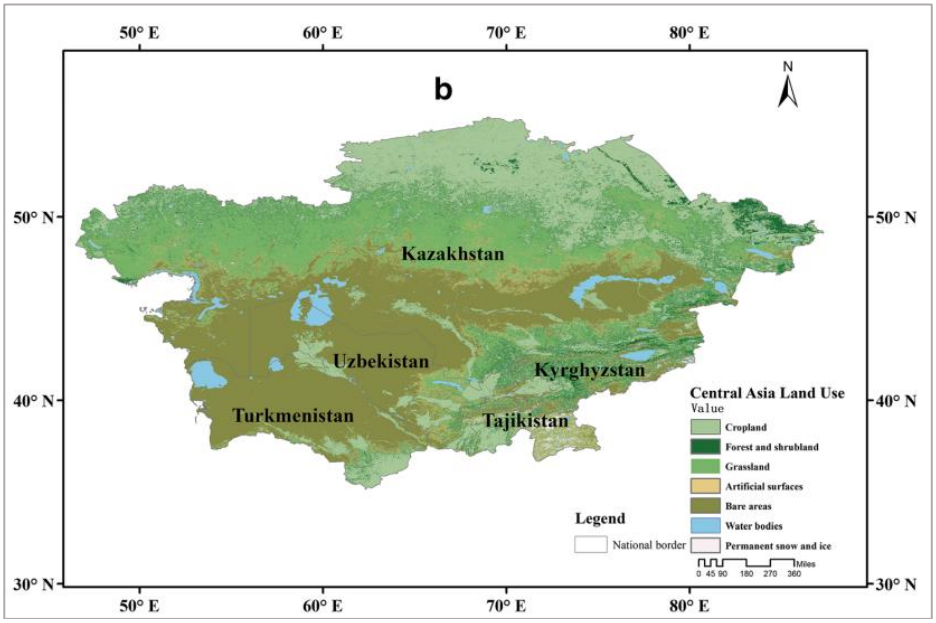
Table 1: Land cover types and percentages for each class in Central Asia

MODIS land cover types	Area (km^2)	Percentage (%)
Evergreen needle leaf forests	1189	0.03
Evergreen broadleaf forests	4.5	0
Deciduous needle leaf forests	144	0
Deciduous broadleaf forests	1209	0.03
Mixed forests	6886	0.17
Closed shrub lands	458	0.01
Open shrub lands	154,170	3.85
Woody savannas	7898	0.2
Savannas	10,324	0.26
Grasslands	2,767,398	69.04
Permanent wetlands	10,882	0.27
Croplands	208,152	5.19
Urban and built-up lands	19,194	0.48

MODIS land cover types	Area (km^2)	Percentage (%)
Cropland/vegetation mosaics	643	0.02
Permanent snow and Ice	28,515	0.71
Barren	662,765	16.53
Water bodies	128,729	3.21
Total	**4,008,561**	**100**

Source: Measho et al., 2022

Figure 2: Map of land cover in Central Asia

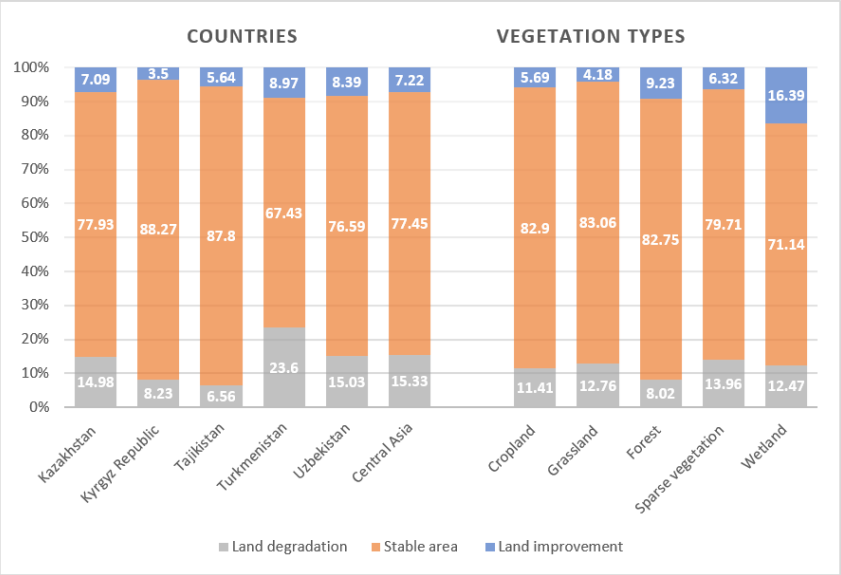


Source: W. Liu et al., 2020

The region's diverse landscapes provide numerous crucial ecosystem services, including carbon sequestration, climate and gas regulation, soil and water conservation, and biodiversity preservation. However, recent anthropogenic activities have led to a decline in the quality of these services (Li et al., 2019), coupled with a significant increase in human-induced pressure on land and critical ecosystems. This is evident in the conversion of steppes into agricultural fields, the increased grazing pressure on pastures, and the conversion and degradation of forested areas such as woodlands, riparian tugay forests, and mountain forests (Khan et al., 2018; UNCCD, 2023). Moreover, overgrazing by domestic livestock has led to the degradations of steppes and wetlands, and unsustainable agricultural practices have accelerated desertification (Khan et al., 2018; Zhang et al., 2020). These factors, coupled with the region's arid climatic conditions, have resulted in significant land degradation and declining ecosystem services (Li et al., 2019; UNCCD, 2023).

A study that defined 2000–2015 as the baseline period and 2016–2019 as the change period observed that 15.33% of the total land area in Central Asia exhibited land degradation (Jiang et al., 2022). The countries with the highest proportions were Kazakhstan, Uzbekistan and Turkmenistan with 14.98%, 15.03%, and 23.60%, respectively. The vegetation types with the greatest degradation were sparse vegetation (13.96%) and grasslands (12.76%), followed by wetlands (12.47%) (Figure 3).

Figure 3: Land condition changes by country and vegetation type



Source: Based on L. Jiang et al., 2022

More recent assessments show even higher rates of land degradation, with the UNCCD data classifying over 20% of the total regional land area as degraded (approximately 80 million hectares), impacting an estimated 30% of the region's combined population (UNCCD, 2023). Country-wise estimates from the Economics of Land Degradation Initiative (ELD) report 2025 indicate substantial economic losses from land and ecosystem degradation across Central Asia during 2001–2020, totalling USD 12.5 billion for the region. Kazakhstan recorded the highest losses at approximately USD 5.6 billion, driven largely by grassland degradation (USD 2.6 billion) and forest and shrubland degradation (USD 2.0 billion). Uzbekistan followed with total losses of about USD 3.8 billion, mainly from grassland degradation (USD 3.4 billion) and forest and shrubland degradation (USD 0.3 billion). Turkmenistan incurred around USD 2.6 billion in losses, primarily linked to deforestation and loss of shrublands (USD 2.1 billion) and grassland degradation (USD 0.5 billion). Kyrgyzstan's losses were estimated at USD 0.4 billion, mostly due to grassland degradation (USD 0.27 billion) and forest and shrubland degradation (USD 0.06 billion). Tajikistan experienced comparatively lower losses of roughly USD 0.12 billion, split between forest and shrubland degradation (USD 0.05 billion) and grassland degradation (USD 0.05 billion). Overall, grassland degradation represents the largest cost component across countries, with forest and shrubland degradation also contributing significantly in Kazakhstan and Turkmenistan (Mirzabaev & Akramkhanov, 2025).

The mountains of Central Asia support many ecosystem services, with water provision being one of the most important. This provision is largely dependent on the snowpacks and melting glaciers in the mountains, which are crucial for the densely populated foothills and oases downstream (Saidaliyeva et al., 2024). The Tien Shan-Pamir-Karakoram (TPK) mountain complex, often referred to as the "water tower" of Central Asia, supplies over 90% of the water resources for a population of 22 million (Luo et al., 2018). The Tien Shan and Pamir high mountain ranges, which are home to over 28,000 glaciers, contribute approximately 50% of the annual stream flow to the Amu Darya and Syr Darya rivers, the two major rivers that feed the Aral Sea Basin and are vital to fulfilling the region's increasing water demands (Barandun et al., 2021; Muccione & Cassara, 2019). Approximately 90% of the population of Central Asia rely on water from high-altitude sources (Climate Change in Central Asia, 2020). However, glaciers in the region are retreating due to warmer conditions and dust pollution, shrinking by an estimated 0.2% to 1% of their volume each year (Eurasian Development Bank, 2022a). The increased meltwater from ice and snow has led to a rise in runoff and lake expansion. However, as the snow cover and glaciers continue to retreat, annual flows are projected to decline (World Bank, 2020a; Q. Zhang et al., 2022). According to the World Bank (2020), current scientific estimates predict peak water for the major rivers of Central Asia by 2050. On the other hand, smaller but significant rivers, such as the Chu and Talas basin, may reach peak water within this decade, after which water resources would decrease. Notably, the seasonal distribution of water will also change, with lower runoff in summer, which is currently driven by glaciers and snow melting, and higher runoff in spring due to increased winter precipitation year (Eurasian Development Bank, 2022a). Downstream warming is expected to

accelerate evaporation and increase water demand. These changes will likely pose substantial challenges for agricultural production, food security, biodiversity, and the provision of ecosystem services.

Agricultural activities in the region are heavily reliant on the cultivation of water-intensive crops such as rice and cotton, despite Central Asia's limited endowment of water resources (H. Liu et al., 2019; Yu et al., 2021; Y. Zhang et al., 2020). The substantial consumption of surface water for irrigation purposes, coupled with suboptimal water use efficiency, results in significant depletion of both river and groundwater resources. Consequently, Central Asia is confronted with pronounced water-related challenges, most notably water scarcity (Table 2) and the deterioration of the water ecological environment (Wang et al., 2022).

Table 2: Water stress index by country

Countries	Water stress index	Division
Kazakhstan	0.2	Moderate water stress
Kyrgyz republic	0.34	Moderate water stress
Tajikistan	0.53	High water stress
Turkmenistan	1.04	Severe water stress
Uzbekistan	1.15	Severe water stress

Note: Index values are based on the ratio of total water consumption to total renewable water resources in a region.
Source: Based on Wang et al., 2022

Climate trends and conditions vary greatly within and between the Central Asian countries. Overall, the region is experiencing an average temperature increase, variations in precipitation patterns and an increase in extreme climate events (Intergovernmental Working Group et al., 2023). Summers are generally warm, with a mean temperature range between 20°C to 40°C, and winters are moderately cool with a mean temperature that ranges between -3°C to 20°C. The main differences are between desert regions, where temperatures can reach up to 50°C, and mountainous areas, where temperatures can drop to -45°C, with great variations during the day (USAID, 2018). Precipitation trends also vary across the region. On the western side of the Tian Shan mountains, annual precipitation can exceed 2,000 mm, while in the desert areas it is typically less than 100 mm (H. Liu et al., 2019). Observed precipitation trends show an increase of 4 to 7% from 1990-2020 in Uzbekistan and the Kyrgyz Republic, a decreasing trend in Turkmenistan, and no clear trend in Tajikistan or Kazakhstan (USAID, 2018). Extreme climate events have increased in the region in the past decades, such as the frequency of days with extreme temperatures, and the frequency and duration of extended heatwaves. These high temperature events affect lowland areas more severely but have also contributed to the melting of almost one-third of total glacial area since 1930 in higher elevation areas (*ibid*). Heavy precipitation events are also becoming more frequent, a trend which is most pronounced in Tajikistan and the Kyrgyz Republic (Fallah & Rostami, 2024).

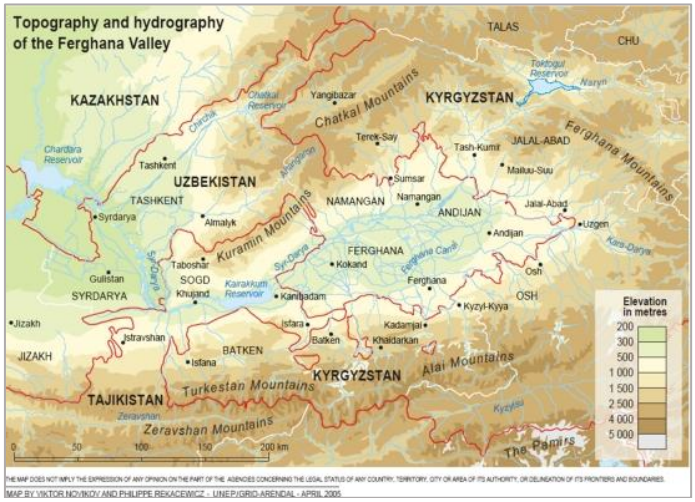
In terms of ecological diversity, the region is recognized as a globally significant biodiversity hotspot, housing 9,520 species of higher plants, 20% of which are endemic species. These species include ancestors of domestic fruit and nut varieties, as well as wild relatives of key agricultural crops. The region's rich biodiversity mean it is an important reservoir of crop diversity, serving a variety of purposes such as food, medicine, industry, environmental protection, construction, and plant germplasm. However, changes in land use and global climate are likely to have significant effect on this diversity (Y. Zhang et al., 2020).

Two sub-regions are of particular importance in the region due to their population density, their diverse and significant agricultural production and their cross-border nature.

Fergana valley

At the intersection of the interstate borders of the Kyrgyz Republic, Tajikistan and Uzbekistan lies the Fergana Valley, encircled by mountains and home to enclaves of diverse population groups of the three States (Figure 4).

Figure 4: Topography and hydrography of the Fergana valley, with borders in red

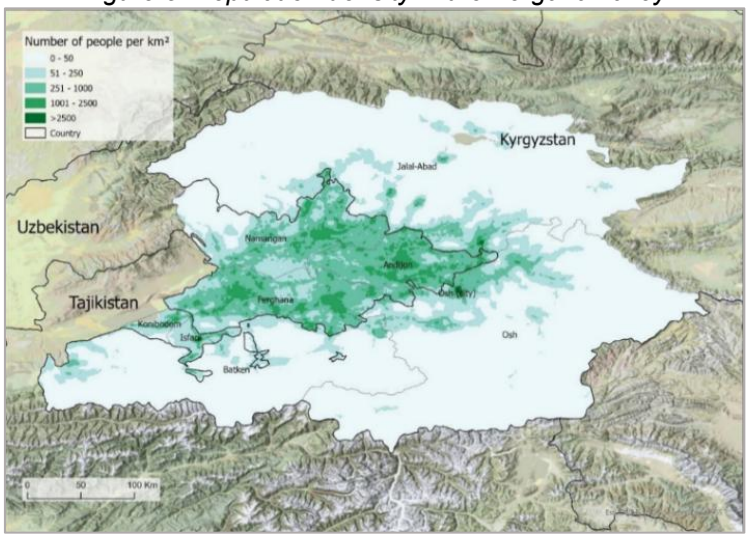


Source: Philippe Rekacewicz, 2006

The Fergana valley is a highly significant and densely populated region (GRID Arendal, 2006). It is known for its rich history, ethnic diversity, and economic importance. Historically, the Fergana Valley has been a crucial breadbasket and trading centre for the civilizations that have thrived in and around the surrounding mountains. The valley has long been regarded as a major agricultural hub, thanks to its fertile soil, mild climate and extensive irrigation network, which make it ideal for the cultivation of cotton (ADB, n.d.), horticulture crops and fruits. This history of trade and agricultural abundance has shaped the valley's ethnic composition, mainly comprising Uzbek, Tajik and Kyrgyz communities, making it one of the most diverse regions in Central Asia (Kurbanov, 2021).

The Fergana valley has an estimated 16.6 million inhabitants, split among the three countries, resulting in the high population density depicted in Figure 5 (Agency on Statistics under the President of the Republic of Tajikistan, n.d.; National Statistical Committee of the Kyrgyz Republic, 2024c; Statistics Agency under the President of the Republic of Uzbekistan, 2024b). The Fergana valley consists of the regions of Osh, Jalal-Abad and Batken in Kyrgyz Republic, the Sughd region in Tajikistan, and the regions of Namangan, Andijan and Fergana in Uzbekistan. Across all three countries, people rely heavily on irrigated and rainfed agriculture as a source of income and employment in the valley.

Figure 5: Population density in the Fergana valley



Source: Kurbanov, 2021, based on World Bank, 2021

Khatlon and Surkhandarya regions

The neighbouring regions of Khatlon in Tajikistan and Surkhandarya in Uzbekistan constitute an important economic and production area located in the upper Amu-Darya basin.

Khatlon region (Tajikistan)

The territory of Khatlon region is 24.68 thousand square kilometres, the population as of January 1, 2024, was 3,7 million people. The region is located in the south-west of Tajikistan, bordering Uzbekistan to the west and Afghanistan to the south. The average population density in the region is 149.7 people per square kilometre (TAJSTAT, 2024b). Unlike most of Tajikistan, Khatlon is a lowland region, which is one reason for its importance for agricultural production. Khatlon is generally warmer than the higher elevation areas in Tajikistan, with hot summers and mild winters resulting in an average mean surface air temperature of 14.55°C (for the 1991-2020 period), the highest regional average in Tajikistan (*World Bank Climate Change Knowledge Portal*, n.d.). It is also relatively dry, with average annual precipitation (for the 1991-2020 period) of just 530mm, compared to a national average of almost 700mm (*ibid.*).

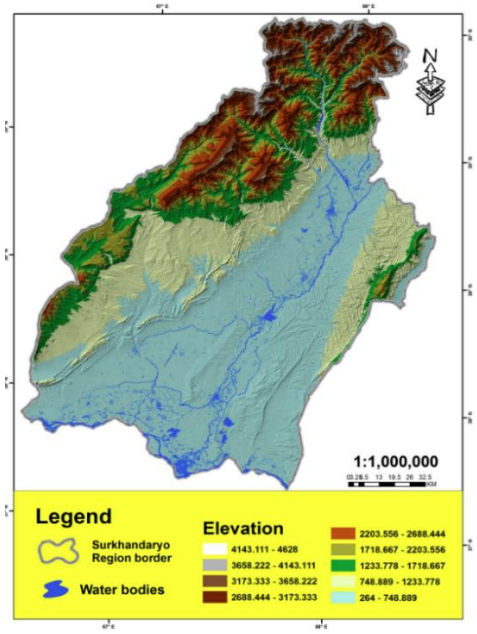
In the Khatlon Region, agriculture has historically been centred around cotton production, a legacy of its time as a major cotton supplier during the Soviet era. This has led to extensive monocropping practices, depleting the soil of nutrients and resulting in increased salinity (USAID, 2020). The region's agricultural sector is currently facing significant challenges, including water scarcity, low productivity, and losses due to natural disasters. Desertification, exacerbated by prolonged salinization and high temperatures, further strains the agricultural system. Soil erosion is widespread and overgrazing and deforestation rampant. Moreover, the outdated irrigation infrastructure is a major obstacle to securing food production (Kodirov et al., 2022). Climate change intensifies existing vulnerabilities in the region, particularly impacting women, youth, children, and people with disabilities in mountainous areas (Strukova Golub et al., 2024).

Surkhandarya region (Uzbekistan)

Surkhandarya region borders Tajikistan (343.1 km) to the north, northeast, and east. The topography of Surkhandarya region consists of mountains and plains, sloping and widening from north to south. Numerous rivers and streams flowing down from the mountains have formed gorges. The plain through which the Surkhandarya and Sheroboddarya flow is surrounded by the high Hissar Range (the highest point is 4643 m) to the north, west, and east. Between the mountains and the plain are the foothills. As a result of the mountains blocking the cold air currents from the north, favourable climatic conditions have been created for growing subtropical plants. In the mountainous zone and foothills, mainly grain is grown, and summer pastures for livestock are provided. Cotton is grown on the Surkhan-Sherabad plain, where vineyards are established. The southern part is covered with wide sand dunes (Government of Surkhandarya region, 2021) (Figure 6). It has a population of approximately 2.8 million people, of which 64% live in rural areas (Statistics Agency under the President of the Republic of Uzbekistan, 2024a). The capital of the region is Termez city, with a population of 142,000 inhabitants (UNDP, 2019).

The region is mostly surrounded by mountains, with the exception of the south, where the Amu Darya river is the key feature along the border with Afghanistan. The region’s topography, climate, and soils differ from the other regions, and it is the warmest region in the country. The topography of the region is depicted in Figure 6, showing the elevation dropping from north to south, and the Surkhandarya river valley (a tributary of the Amu Darya) that constitutes the lower elevation area. According to the official land fund categories of the Republic of Uzbekistan, Surkhandarya has a total of approximately 20,100 km^2 of land, of which 13,600 km^2 (67.6%) are categorized as agricultural lands (Abdivaitov et al., 2021).

Figure 6: Topographic map of Surkhandarya region



Source: Abdivaitov et al., 2021

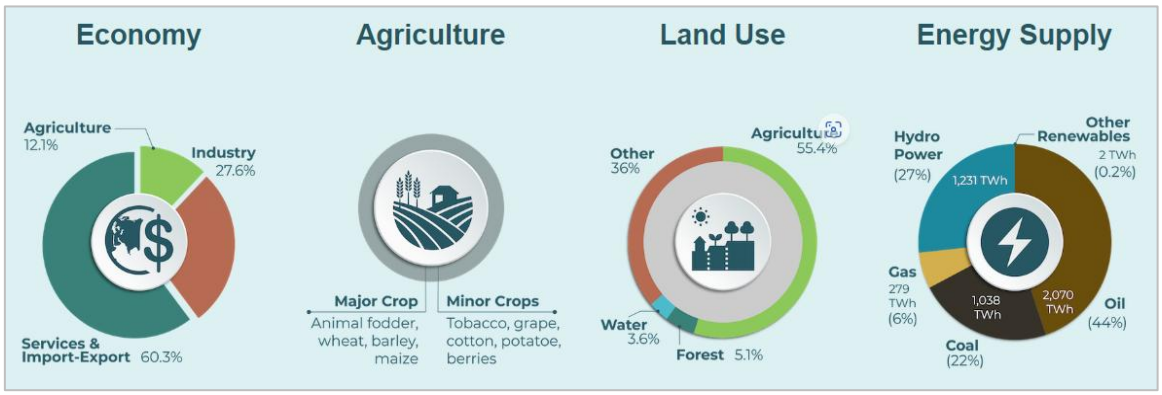
2.1.2 Overall Kyrgyz Republic profile

The Kyrgyz Republic is a land-locked country with a population of 7.2 million people (World Bank, n.d.) and a total area of 199,951 square kilometres that is characterized by predominantly rugged and mountainous terrain. The country shares its borders with four nations: Kazakhstan to the north, Uzbekistan to the west, Tajikistan to the south, and China to the east (Department of Foreign Affairs and Trade- Australian Government, 2024). The Kyrgyz Republic is situated at an average elevation of 2,988 meters above sea level, making it one of the highest countries in the world. The country's highest peak, Dschengisch Tschokusu, reaches an altitude of 7,439 meters.

The Kyrgyz Republic has an extreme continental climate with high inter-annual and spatial temperature and precipitation fluctuations. Temperatures regularly exceed 30°C from June to August but drop to less than -5°C from December to February. Additionally, temperatures vary significantly on a spatial basis from below -10°C at the high altitude Tien Shan mountains to over 12°C in the lowlands to the north and west of the country (World Bank Group & Asian Development Bank, 2021). Arid conditions cover the majority of the country due to close proximity to deserts and remoteness from coastal areas or major waterbodies. However, higher cloud cover and precipitation exist in alpine areas. Topographically, 24% of the country's land area lies at over 3,500 meters of altitude and these areas were historically under permanent snow cover (Kyrgyz Republic, 2016). Mean average annual precipitation therefore fluctuates regionally between 100 mm to 1,000 mm, averaging at 378.3 millimetres (mm) (World Bank Group & Asian Development Bank, 2021).

The country's land cover is predominantly composed of grassland (56%), followed by barren lands (13.1%), croplands (8.1%), snowy terrains (9.9%), and forests (4.6%), while other types of land make up the remaining 8.3% (Park et al., 2021). Grasslands play a crucial role in the country and provide a wide range of ecosystem services, including forage for livestock and wild herbivores, habitat for pollinators and carbon storage. As stated by Khazieva et al (2022), over 60% of the Kyrgyz population lives in rural areas and is directly dependent on natural grasslands for their livelihoods. However, pastures in the country face pressure from population growth and increased reliance on grassland biomass resources. Intensive use without rotation has led to overgrazing of accessible pastures and underuse of remote ones, diminishing the grassland productivity and directly impacting rural inhabitants' wellbeing (Khazieva et al., 2022).

Figure 7: Key facts and figures on the Kyrgyz Republic



Source: Central Asia Climate Information Portal, ndb

As illustrated in Figure 7, the Kyrgyz Republic's economy is primarily driven by agriculture and mineral extraction, with agriculture accounting for 12-14% of GDP. Nearly half of the labour force (48%) is employed in the agricultural sector, which focuses on producing animal fodder, wheat, barley, and maize. While tobacco, cotton, and potatoes also contribute, these are considered minor crops. The country's mountainous terrain limits arable land to just 6.7% of its total area, with over 55% of this land dedicated to agricultural activities. The Kyrgyz Republic's energy supply is heavily reliant on fossil fuels such as oil, coal, and gas, although renewable energy sources, particularly hydropower, play a significant role in the country's energy mix due to its abundant water resources. This reliance on both traditional and renewable energy sources underscores the importance of diversifying energy production to ensure sustainability and economic resilience (Central Asia Climate Information Portal, n.d.a).

2.1.3 Overall Tajikistan profile

Tajikistan is a low-income, landlocked country (World Bank, n.d.) with a population of 10.51 million people (TajStat, 2025). It shares borders with the Kyrgyz Republic and Uzbekistan to the north and west, China to the east, and Afghanistan to the south (UNECE, 2024). The country's geography is dominated by mountains, which cover around 93% of the terrain. These mountain ranges include elevations ranging from 300 meters to above 7,400 meters above sea level, with nearly half of the nation's territory situated at altitudes of at least 3,000 meters. Tajikistan also features around 1,300 lakes and is traversed by two of Central Asia's major rivers, the Amu Darya and the Syr Darya (World Bank & Asian Development Bank, 2021b).

The mountainous terrain of Tajikistan is marked by numerous glaciers, particularly in the eastern regions. These glaciers play a crucial role in water retention, flow regulation, and climate moderation. Glaciers, along with snowmelt and permafrost, are essential sources of water that recharge the Aral Sea basin. Geographically, Tajikistan is divided into four zones: Northern Tajikistan, Southern Tajikistan, Central Tajikistan, and the Pamirs. The western part of the country consists of foothills and steppes, while lowland areas are found along river valleys in southwestern Tajikistan. In contrast, the Pamir Mountains in the east are sparsely populated, characterized by extremely cold winters, heavy snow cover, and brief summers (World Bank & Asian Development Bank, 2021b).

Tajikistan's diverse and mountainous topography makes it particularly vulnerable to a wide range of climate-related hazards. The country faces frequent earthquakes, rockfall, floods, droughts, avalanches, landslides, GLOFs (glacial lakes outburst floods) and mudslides. Areas most at risk include glacier-dependent river basins, which are crucial for hydropower generation and irrigation, as well as fragile mountain ecosystems and isolated forests. The mountainous and riverine terrain further exacerbates the risk of landslides and land degradation (World Bank, 2021b).

Compounding these challenges, 22.5% of the population lives below the poverty line, making them especially susceptible to the impacts of natural disasters (UN, 2022). Tajikistan's limited emergency management capacity also heightens its vulnerability, as the country struggles to effectively respond to and mitigate the effects of these frequent hazards. As a result, Tajikistan's sensitivity to climate hazards remains a significant concern, particularly in its most at-risk regions (World Bank, 2021b).

Tajikistan's population and agricultural activities are predominantly concentrated in the valleys and the western regions of the country. As of 2020, agriculture, which includes forestry and fishing, contributed around 23.8% to the national GDP. The service sector accounted for 35.3%, while industry contributed 32.8%. Despite these figures, agriculture remains the largest employer, accounting for about 46% of total employment. This corresponds to approximately 1.1–1.2 million people in the agricultural workforce as of 2023, out of a total employed population of roughly 2.6–2.7 million (TAJSTAT, 2024c).

The country is endowed with significant natural resources, including water, coal, mercury, gold, silver, salt, limestone, marble, and clay. Water resources are especially crucial, serving multiple functions such as irrigating agricultural lands, meeting industrial and domestic needs, and generating about 95% of the country's electricity. Despite these natural resources, Tajikistan remains one of the most impoverished nations in Central Asia, with many challenges related to economic development and poverty alleviation (World Bank & Asian Development Bank, 2021b).

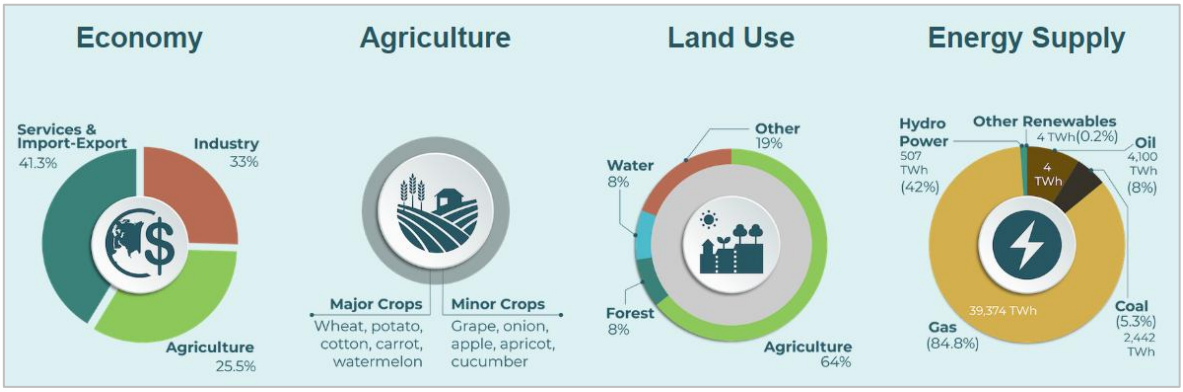
In 2023, Tajikistan was one of the fastest-growing economies in the Commonwealth of Independent States (World Bank, 2024d). Supported by a stable macroeconomic situation, the economy grew by 8.3%. All the major sectors of the economy, such as agriculture, industry, and services, recorded relatively high growth rates. Despite these positive trends, Tajikistan remains susceptible to external shocks. This is due to a heavy reliance on personal remittances, an undiversified economy with a low share of private sector investment, a trade deficit that has averaged around 25% of GDP, and risks associated with public debt. A continued slowdown of the Russian economy will affect labour migration and the inflow of remittances, a major source of income for many households in Tajikistan (UN, 2023).

2.1.4 Overall Uzbekistan profile

Uzbekistan is a doubly landlocked country in the Aral Sea basin, with approximately 80% of its land area covered by temperate deserts and arid regions. The climate is classified as continental and arid, with extreme seasonal variations. The fertile Fergana Valley in the eastern part of the country houses a significant portion of the population, while the central and western deserts are sparsely inhabited (FAO, 2024c). Uzbekistan has a relatively low forest cover, with approximately 3.68 million hectares of forested land making up only 8.6% of the total land area (World Bank, 2022d). Over the past three decades, forest areas have suffered significant degradation due to factors such as uncontrolled livestock grazing, high demand for fuelwood, and the expansion of agricultural lands (FAO, 2024c). The Aral Sea itself, an important geographical feature, has faced severe environmental degradation, leading to increased soil salinity and desertification (CIA, 2024b).

Of the 27.6 million hectares of agricultural land, 82% is rangeland, 16.2% is arable, and 1.2% is dedicated to permanent crops. The country faces significant challenges related to desertification and land degradation, driven by factors such as unsustainable pastoral practices, ineffective irrigation methods, and inadequate governance. These challenges are expected to intensify due to the impacts of climate change (FAO, 2024c). The effects of climate change, such as water scarcity, extreme heat, and increased frequency of dust storms, pose significant risks to the environment and public health. The ongoing ecological crisis of the Aral Sea exacerbates these issues, contributing to desertification and respiratory health problems due to the dispersal of chemical pollutants from the exposed lakebed (CIA, 2024b). The country’s economic model is highly energy and resource intensive. For example, irrigated agriculture accounts for 90% of water use, meaning that crop and food production systems are highly water intensive despite an increasingly water-stressed environment. This, coupled with expected population and economic growth, could lead to a substantial rise in greenhouse gas emissions and strain on natural resources (World Bank, 2023c).

Figure 8: Key facts and figures on Uzbekistan



Source: Central Asia Climate Information Portal, ndb

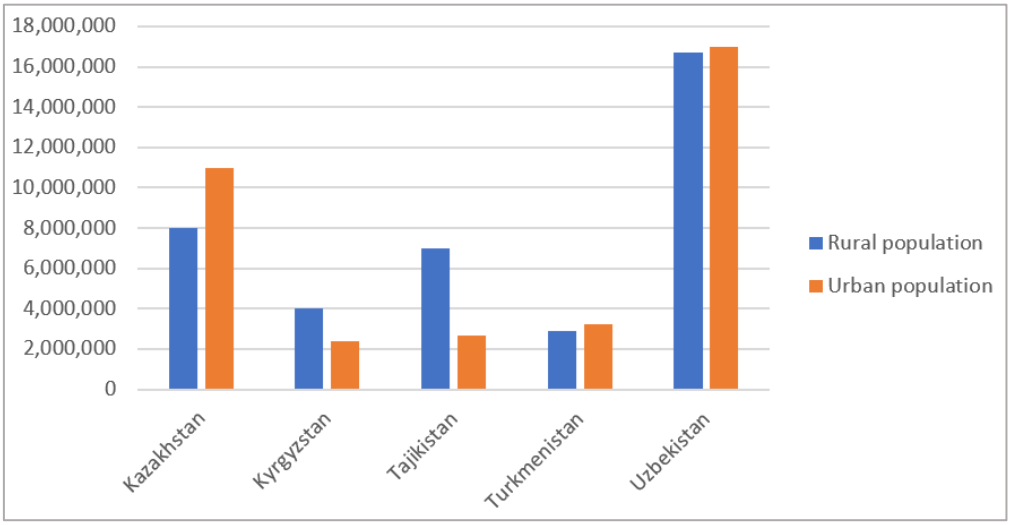
As illustrated in Figure 8, Uzbekistan's economy is driven by the services, import-export, agriculture, and industrial sectors. Agriculture contributes over 25.5% to the country's Gross National Income (GNI), with key crops including wheat, cotton, potatoes, tomatoes, and various vegetables like grapes, onions, and apples. Despite Uzbekistan's challenging climate conditions, agriculture remains a vital part of the economy. In 2018, it employed 27.2% of the population and contributed 28.8% to the GDP (FAO, 2024c). Industry accounts for about 33% of the GNI, further bolstering the nation's economic structure. In terms of land use, over 64% of Uzbekistan's arable land is dedicated to agriculture, while forest areas make up nearly 9% of the country's territory (Central Asia Climate Information Portal, n.d.b.). However, the country has a relatively low income per capita, reflecting the challenges faced by agriculture-dependent economies. Extensive rangelands, which dominate agricultural land use, play a crucial role by supplying 30% of the country's meat and 60% of its wool. However, the high levels of land degradation pose significant risks to the future of this critical sector (FAO, 2024c).

2.2 Socio-economic context

2.2.1 Regional socio-economic profile

As of 2021, Central Asia reached a population of nearly 75.9 million, with a distribution of 37.5 million individuals identified as male and 38.4 million as female (FAO, 2024a). About 60% of the population resides in rural areas Figure 9, particularly in the Aral Sea basin region (UNCCD, 2023).

Figure 9: Demographic distribution: Urban and rural populations in Central Asia

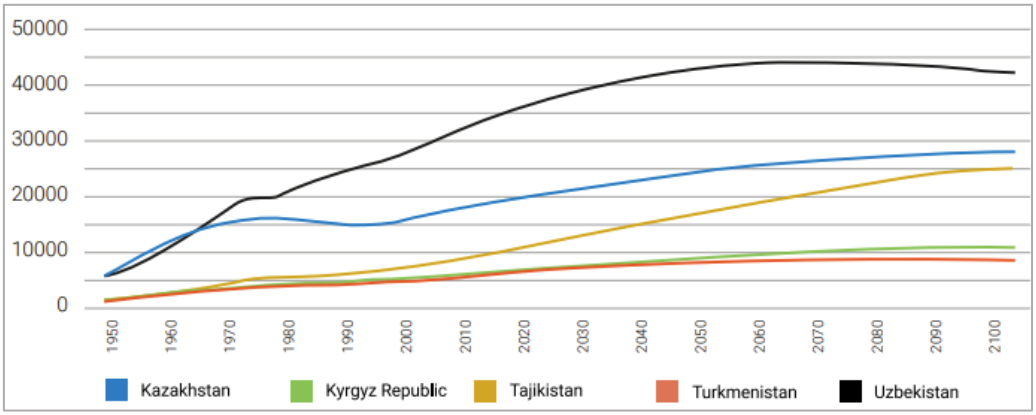


Source: FAO, 2024a

Population growth is a common phenomenon in the region. As of 2022, the average growth rate stood at 2.34%, with Kazakhstan recording the highest growth rate at 3.2%, while Turkmenistan had the

lowest at 1.4% (World Bank, 2022a). The increasing population and the resulting strain on natural resources in Central Asian countries are anticipated to persist until the end of the century (Andreeva et al., 2022).

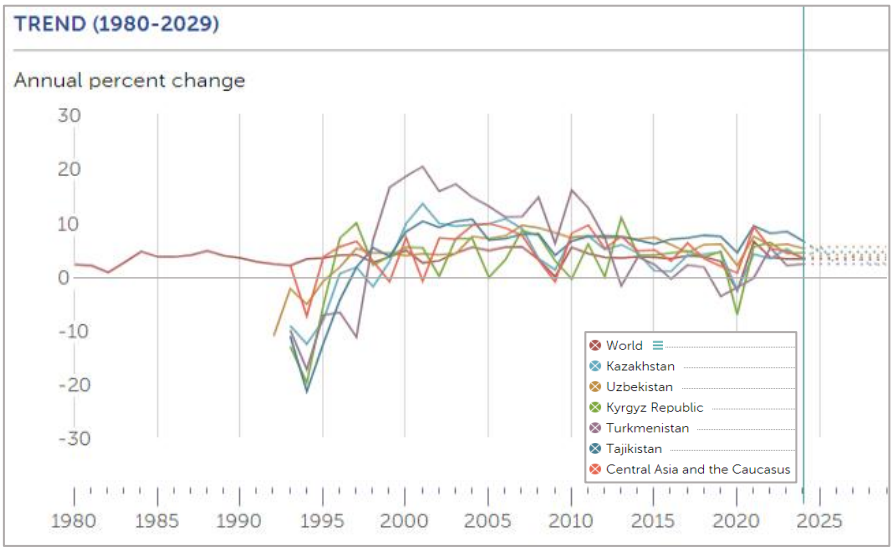
Figure 10: Central Asia population dynamics (1950-2020 with forecast until 2100)



Source: Andreeva et al., 2022

Central Asia is recognized as an economically developing region. Within it, the national income exhibits variation among countries. Specifically, Kazakhstan and Turkmenistan are classified as upper middle-income countries, while the Kyrgyz Republic, Uzbekistan, and Tajikistan fall into the lower middle-income category (Metreau et al., 2024). Figure 11 depicts the fluctuations in annual GDP growth for the Central Asian countries, in comparison with the world average. The trend for all five countries is generally similar, with contractions after independence from the USSR followed by consistent inter-annual variability in the percentage change of GDP, albeit mostly positive change.

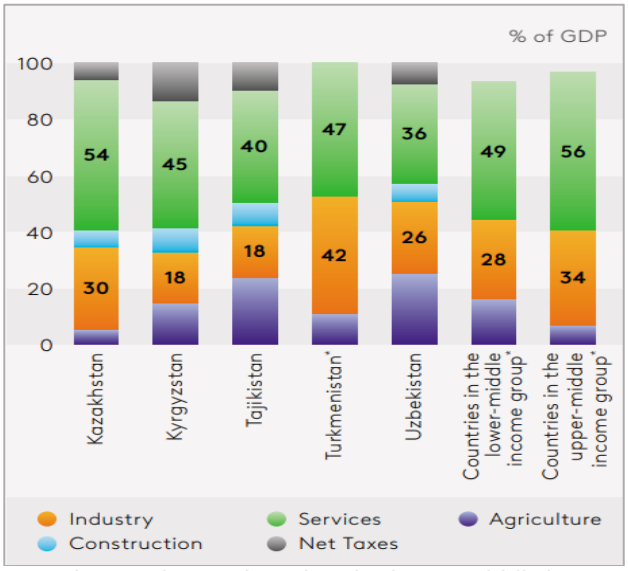
Figure 11: GDP growth of Central Asia – Annual percent change



Source: IMF, 2024e

In addition to different growth rates, Central Asian countries present different economic structures according to their income group. In line with their position in the upper middle-income group, industry is a strong component for Kazakhstan and Turkmenistan, and accounted for 42% and 30% of their GDP respectively in 2021(Eurasian Development Bank, 2022b). An overview of the Central Asian country's GDP components can be found in Figure 12, which shows the importance of agriculture, particularly in the lower-middle income economies of the Kyrgyz Republic, Tajikistan and Uzbekistan. In recent years, regional cooperation has improved, and trade within the Central Asian countries together with investment and tourism are continuously increasing, which is also reflected in the demarcation of certain long-disputed borders (European Bank for Reconstruction and Development, 2024).

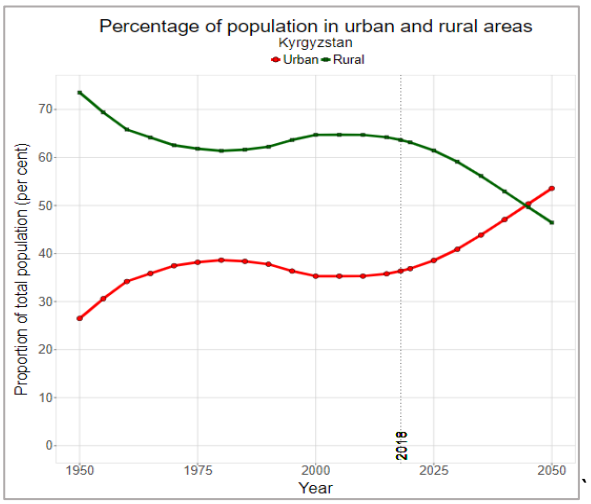
Figure 12: GDP structure of Central Asian countries in 2021



*Note: *For Turkmenistan and countries assigned to the lower-middle/upper-middle income groups, Construction is included in Industry.*
Source: World Bank, 2023b

In 2023, the Kyrgyz Republic had a GDP of USD13.99 billion (current USD) and a GDP per capita of USD1,970.20 (current USD) (World Bank, 2023b). Life expectancy at birth is 71.9 years, reflecting the overall health and well-being of the population and highlighting the country's ongoing development (World Bank, 2023b). The Kyrgyz Republic's HDI value for 2022 is 0.701, which puts the country in the high human development category, positioning it at 117 out of 193 countries and territories (UNDP, 2024b).

Figure 13: Percentage of population living in urban and rural areas in Kyrgyz Republic, 1950-2050 (projection)



Source: United Nations, Department of Economic and Social Affairs, Population Division, 2018

The Kyrgyz Republic's ethnic composition is diverse, though predominantly Kyrgyz (73.8%), followed by significant Uzbek (14.8%) and Russian (5.1%) minorities (CIA, 2024a). About 90% of the population adhere to Islam, mostly Sunni. A small but significant Christian minority, including Russian Orthodox followers, makes up approximately 7% of the population (CIA, 2024a).

The Kyrgyz Republic's youth population is relatively high. As of 2024, there were 2.5 million young people under working age, including children and adolescents up to 16 years old, accounting for 34.2% of the total population (National Statistical Committee of the Kyrgyz Republic, 2024c). In contrast, for OECD countries, the average for young population aged less than 15 years old is 17.3% (OECD, n.d.) For comparison with the rest of the Kyrgyz population, 56.5% of the population are working age (16-62

years for men and 16-57 years for women), and 9.3% are above working age (National Statistical Committee of the Kyrgyz Republic, 2024d). The relatively large proportion of youth in the Kyrgyz Republic has a direct impact on their employability and market readiness due to growing competition for available jobs. This will continue to be an ongoing issue as the population of Kyrgyz Republic continues to become younger in the next decade (Tilekeyev et al., 2019).

As illustrated in Figure 13, the population growth projected over the next 15 years is expected to occur predominantly in Kyrgyz Republic's cities, with Bishkek accounting for half of the total urban growth during that period (UNESCAP, 2020).

Economy

The Kyrgyz economy grew at an estimated 6.2% in 2023, following 9% growth in 2022 (World Bank, 2023b). However, the Kyrgyz Republic still ranks among the poorest countries in the world according to GDP per capita (PPP) figures (World Bank & Asian Development Bank, 2021a). Furthermore, according to the World Bank's definition, the poverty rate[1] was 9.7% in 2023, although it has a steady downward trend (World Bank, 2024c), while for national definitions, in 2021 the poverty rate was 33% (IMF, 2024a).

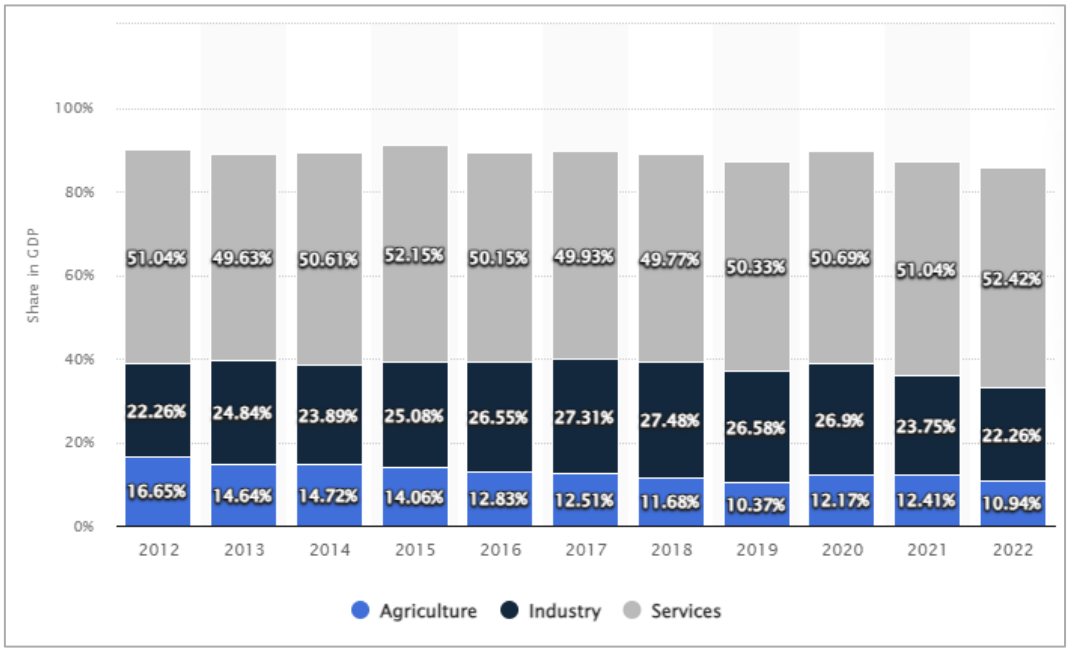
Employment in the Kyrgyz Republic spans both formal and informal labour markets. Between 2008 and 2017, the number of employed individuals increased from 2.18 million to 2.35 million. However, the share of employed people as a percentage of the total population declined from 41% to 38%, largely because the slow growth of the national economy limited job opportunities (Tilekeyev et al., 2019). While the population grew by 16% over the past decade, employment only increased by 7.6%. In 2018, 58% of the employed workforce were men (*ibid.*). Unemployment and unregistered work are more common in the south of the Kyrgyz Republic, where fewer higher education institutions are located, limiting access to education compared to the north. As a result, more youth in the south enter the informal labour market or work as self-employed, while the north sees a higher number of family workers, reflecting regional differences in population density and family size (Tilekeyev et al., 2019). The prevalence of informal or unregistered employment, with 74% of workers informally employed, reflects the fact that the informal sector is estimated to contribute up to 40% of the country's GDP (Pesci & Dzhamangulov, 2023).

A notable trend in the Kyrgyz society has been the high rate of outmigration, with an estimated 0.5% of the population leaving the country annually between 2010 and 2015. In the first half of 2024, remittances grew by 6.4%, and formed a 22.4% share of GDP (lower than the 25.6% in 2023), positioning the country as one of the most remittance-dependent economies in the world . Approximately one-fifth of the Kyrgyz labour force works abroad, with the vast majority employed in Russia. By 2023, Russia remained the top source of remittances for the Kyrgyz Republic, contributing USD 2.53 billion in transferred funds. By the end of 2023, net remittances sent by Kyrgyz migrants had reached record levels, further highlighting the critical role of remittances in supporting the national economy (The Times of Central Asia, 2024).

Meanwhile, the main sectors of the Kyrgyz Republic's GDP are services, agriculture, and manufacturing, (Eurasian Development Bank, 2022c). The agriculture sector's relative contribution to the country's GDP has been steadily declining in the last decade, while the service sector continues to be the main contributor, followed by industry sector, as shown in Figure 14.

[1] Using the threshold for the lower middle-income poverty rate, which is USD 3.65 per day in 2017 ppp. Under the threshold for upper middle-income poverty, which is USD 6.85 per day in 2017 ppp, the poverty rate was 57.2% in 2023.

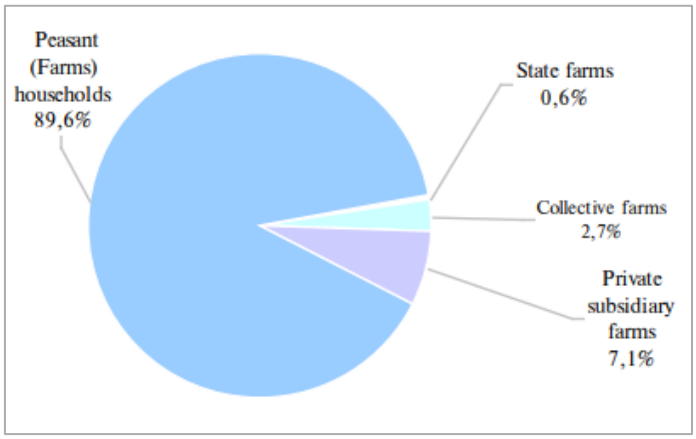
Figure 14: Share of economic sectors in the gross domestic product (GDP) from 2012 to 2022 in the Kyrgyz Republic



Source: O'Niell, 2024

Despite this, the agriculture sector is the largest employer among all sectors with 25% of the workforce in 2022 (World Bank, n.d.), and with a large portion of the population depending on agropastoralism for subsistence. As seen in Figure 15, almost 90% of the sown areas correspond to peasant or household farms, which also accounted for 16.5% of all employment in 2017, for the farmers themselves and usually (unpaid) family members (Kyrgyz Republic Brief Statistical Handbook, n.d.; Tilekeyev et al., 2019; World Bank & Asian Development Bank, 2021a).

Figure 15: Sown areas of crops by categories of farms in Kyrgyz Republic (as a percentage to the total), in 2023



Source: Kyrgyz Republic Brief Statistical Handbook, n.d

Government debt

In 2023, Kyrgyz Republic's public debt decreased to 45.5% of GDP from 49.2% in 2022 (IMF, 2024a), signalling improved debt management driven by strong economic growth and a fiscal surplus. This reduction was supported by higher tax revenues, particularly from VAT on imports, and increased non-tax revenues, which helped offset rising government expenditures on wages, pensions, and infrastructure projects. Debt as a % of GDP is forecast to continue to decline in the coming years, although at a slower rate than the decrease between 2021 and 2023 (World Bank, 2024c).

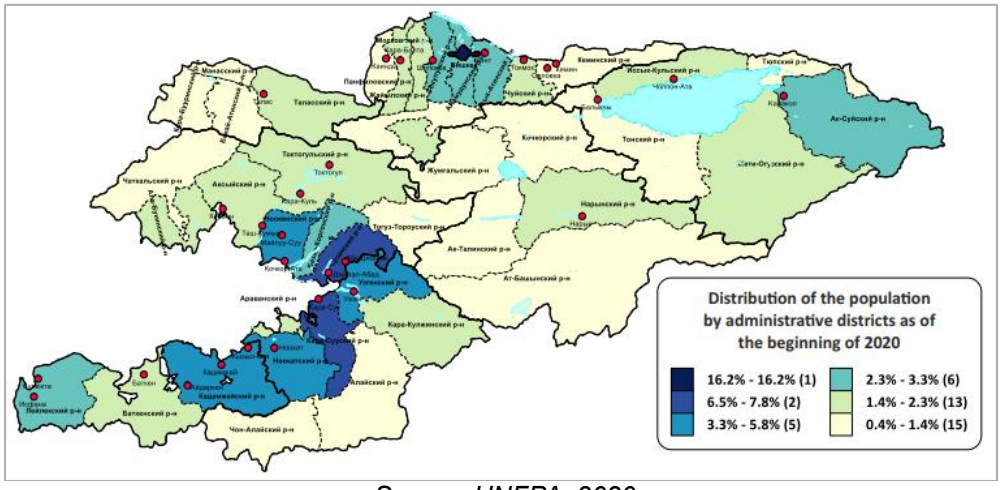
Programme target regions

Fergana valley

Three regions of the Kyrgyz Republic are located in the Fergana valley: Batken, Osh and Jalal-Abad. They account for 39% of the country's territory and 53% of its population.

By January 2024, the region of Osh had a population of 1.5 million, while Jalal-Abad accounted for 1.3 million and Batken 0.6 million, making a total of 3.4 million inhabitants in the three regions. This represents around half of the total Kyrgyz population of 7.2 million (National Statistical Committee of the Kyrgyz Republic, 2024c).

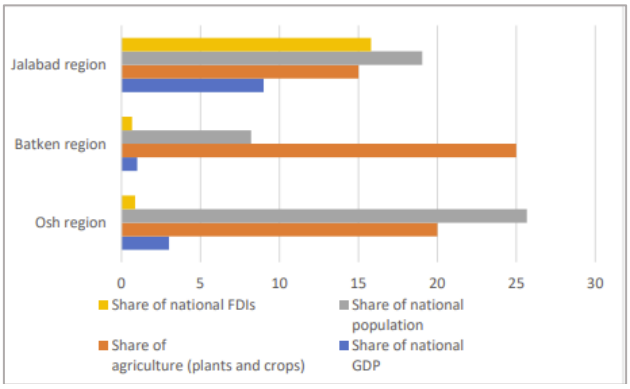
Figure 16: Distribution of the population of the Kyrgyz Republic by administrative districts as of January 1, 2020



Source: UNFPA, 2020

These three regions also play a vital role in the country's economy. In 2023, the three regions accounted for 45% of the total employed population in the country, and Osh region (excluding Osh city) alone is home to 622,000 workers (National Statistical Committee of the Kyrgyz Republic, 2024a). The three regions (again excluding Osh City) also accounted for just 22% of the national GDP in 2023 (National Statistical Committee of the Kyrgyz Republic, 2024b).

Figure 17: Key economic indicators -Osh, Jala-Abad, Batken



Source: Kurbanov, 2021

Of the three Kyrgyz regions that form the Ferghana valley, Jalal-Abad has the largest agriculture production. In 2022, Jalal-Abad produced mainly vegetables (312,900 tonnes) and grains (272,500 tonnes), of which most were maize (192,400 tonnes) followed by wheat and barley, and some lower quantities of oats and millet. The region also produced potatoes (122,700 tonnes), watermelons/melons (96,000 tonnes) and to a lower extent, fruits and berries (42,400 tonnes) and cotton (41,300 tonnes).

Batken's main crops are grains, vegetables, fruits and berries, potatoes and, to a lower extent, rice. In 2022, the region produced 109,800 tonnes of grain, of which 63,000 tonnes were maize, 29,400 tonnes were wheat and 17,400 tonnes were barley. As for vegetables, the total production amounted to 66,800

tonnes, while fruits and berries were 58,500. Batken produced 36,500 tonnes of potatoes and 13,200 of rice in 2022.

Osh has the lowest agriculture production of the 3 regions. In 2022, it produced mainly vegetables (11,900 tonnes) and to a lower extent grains, mainly maize (4,100 tonnes) (National Statistical Committee of the Kyrgyz Republic, 2023).

2.2.2 Tajikistan socio-economic profile

Demographic and social context

Tajikistan's population and agricultural activities are concentrated in the valleys and in the western part of the country (World Bank & Asian Development Bank, 2021b). The country is the least urbanized country in Central Asia and about 74% of the population lives in rural areas. The majority of this rural population engages in agricultural activities (FAO & WFP, 2023). Tajikistan's HDI value for 2022 is 0.679, which put the country in the Medium human development category, positioning it at 126 out of 193 countries and territories (UNDP, 2024a).

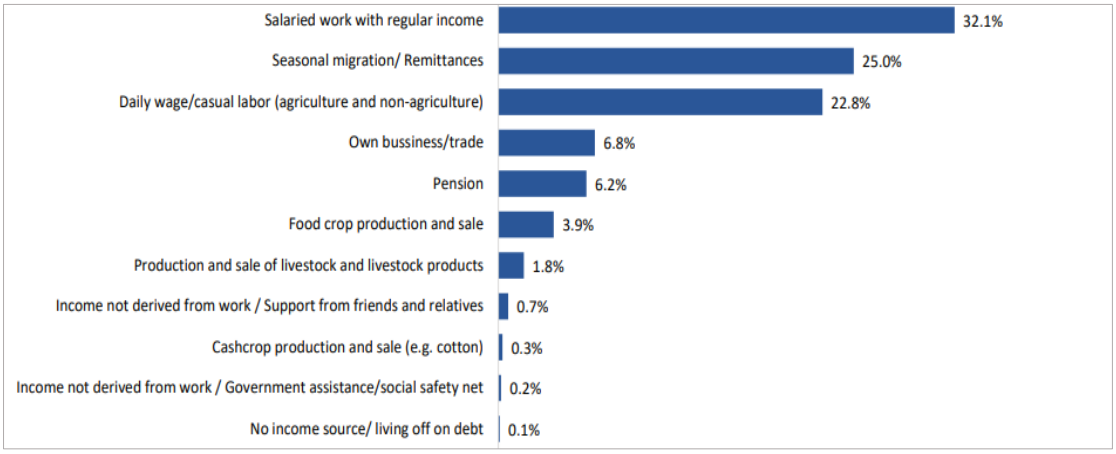
In Tajikistan, societal factors may intensify the impacts of climate change on the poorest groups. A significant concern is that 70% to 80% of income is spent on food, much of which is imported and vulnerable to price fluctuations. Increased drought intensity and frequency pose major risks, disproportionately affecting the poorest, who are more than twice as likely to face drought conditions. Rain-fed and subsistence farmers, lacking resources for adaptation, are expected to be the hardest hit (World Bank & Asian Development Bank, 2021b). Women's vulnerability is further exacerbated by the barriers they face in agriculture, with rigid gender roles, limited financial access, and reliance on men for navigating production networks. However, with rising labour migration among men, women are increasingly managing dehkan farms (small individual and family farms), though their contributions are often unrecognized in official statistics (FAO & WFP, 2023).

Economy

Tajikistan experienced strong economic growth over the past 20 years, resulting in improved living standards across the country. The poverty rate significantly decreased, falling from 32% in 2009 to 9% in 2022, based on the international lower middle-income poverty line of USD 3.65 per day (2017 ppp)(FAO & WFP, 2023; World Bank, 2024e). Robust economic growth and a significant inflow of personal remittances helped to reduce income poverty from 32% in 2009 to 22% in 2022. The GDP per capita in 2023 was USD 1,189 (in current USD) (World Bank, 2024e). The national economy remains heavily reliant on remittances (Figure 18), which originate primarily in the Russian Federation (FAO & WFP, 2023). Remittances accounted for 38% of GDP in 2023, and 25% of households received remittances during the first half of 2024 (World Bank, 2024e).

In 2023, Tajikistan's economy exceeded expectations with an 8.3% growth rate, driven by strong exports, public infrastructure investments, and robust remittance inflows that boosted private consumption. Growth has continued into 2024 as Tajik migrants in Russia continued to benefit from a tight labour market and real wage growth, even amid the depreciation of the Russian rouble (World Bank, 2024d, 2024e). As a result, a combination of remittance-induced household consumption, government investments, and strong prices for Tajikistan's main export commodities mean that the economy was projected to grow by 7.2% in 2024 (World Bank, 2024e).

Figure 18: Tajikistan - Households main source of income in the last six months before the survey



Source: FAO, 2023

In addition to poverty reduction, Tajikistan has also made noticeable progress towards other SDGs, but the progress has been uneven (UN, 2023). Despite these gains, Tajikistan remains the poorest country in Europe and Central Asia, and faces ongoing challenges in achieving broader economic development and reducing poverty further (FAO & WFP, 2023). As a landlocked mountainous country, Tajikistan's transport connectivity is a main constraint to achieving poverty alleviation and other SDGs. Its economy, trade and social development rely on costly road transport (UNECE, 2024).

Government debt

Tajikistan's public debt was equivalent to 30.9% of GDP in 2023, which represents a reduction since the 51.8% ratio in 2020, as shown in Table 3. This spike was driven by several factors, including the depreciation of the Tajik somoni, large fiscal deficits due to increased spending on the Rogun hydroelectric project, and the economic fallout from the COVID-19 pandemic. Additionally, Tajikistan issued a $500 million sovereign bond in 2017 and relied on emergency borrowing to mitigate the effects of the pandemic (IMF, 2024b). Since then, strong GDP growth and a rebounding currency have lowered debt-to-GDP ratios, and a commitment to maintaining a fiscal deficit of 2.5% of GDP over the medium term have led the IMF/World Bank Debt Sustainability Assessment to indicate that Tajikistan's debt is on a sustainable path (*ibid.*). However, the country remains vulnerable to the effects of regional instability, particularly weak growth in Russia reducing remittance flows, and still has high debt distress risks related to Eurobonds for the Rogun hydropower project which are to be repaid between 2025-2027 (World Bank, 2024d).

Table 3: Tajikistan: Baseline debt sustainability analysis (DSA) Assumptions, 2019-2032 (in percent of GDP)

Indicator	Scenario	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028–32
Real GDP growth (%)	Current DSA	7.4	4.4	9.4	8.0	8.3	6.5	4.5	4.5	4.5	4.5
Real GDP growth (%)	2022 DSA	7.4	4.4	9.4	8.0	5.0	4.5	4.0	4.0	4.0	4.0
Real GDP growth (%)	2021 DSA	7.5	-2.0	7.5	4.5	4.0	4.0	4.0	4.0	4.0	7.0
CPI Inflation (%)	Current DSA	7.8	8.6	9.0	6.7	3.5	4.9	6.3	6.5	6.5	6.5
CPI Inflation (%)	2022 DSA	7.8	8.6	9.0	6.6	5.4	6.5	6.5	6.5	6.5	6.5
CPI Inflation (%)	2021 DSA	7.8	8.6	8.8	7.6	6.7	6.5	6.5	6.5	6.5	6.5
Primary fiscal balance	Current DSA	-1.2	-3.4	0.2	0.5	-0.2	-1.8	-1.7	-1.9	-1.8	-1.7
Primary fiscal balance	2022 DSA	-1.2	-3.4	0.2	-0.6	-1.8	-1.8	-1.9	-1.9	-2.2	-2.4
Primary fiscal balance	2021 DSA	-1.2	-3.5	-1.0	-1.9	-1.9	-2.0	-2.0	-2.1	-1.4	-1.7
Overall fiscal balance (incl. PIP)	Current DSA	-2.1	-4.3	-0.7	-0.2	-1.0	-2.5	-2.5	-2.5	-2.5	-2.5
Overall fiscal balance (incl. PIP)	2022 DSA	-2.1	-4.3	-0.7	-1.4	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5

Indicator	Scenario	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028–32
Overall fiscal balance (incl. PIP)	2021 DSA	-2.1	-7.7	-4.4	-2.6	-2.5	-2.5	-2.5	-2.5	-2.5	0.5
Current account balance	Current DSA	-2.2	4.1	8.2	15.6	-0.7	-2.2	-2.2	-2.3	-2.4	-2.8
Current account balance	2022 DSA	-2.2	4.1	8.2	6.4	-1.6	-2.4	-2.8	-2.9	-2.9	-3.0
Current account balance	2021 DSA	-2.3	-7.8	-4.7	-4.6	-4.4	-4.3	-4.3	-4.3	-4.3	-1.3
Public debt	Current DSA	43.5	51.8	42.1	32.5	30.9	30.8	30.2	29.4	28.8	30.3
Public debt	2022 DSA	43.5	49.8	42.5	34.6	32.3	31.3	31.2	31.1	31.0	28.0
Public debt	2021 DSA	44.1	51.3	47.0	44.1	43.6	43.3	42.1	41.0	39.3	37.1

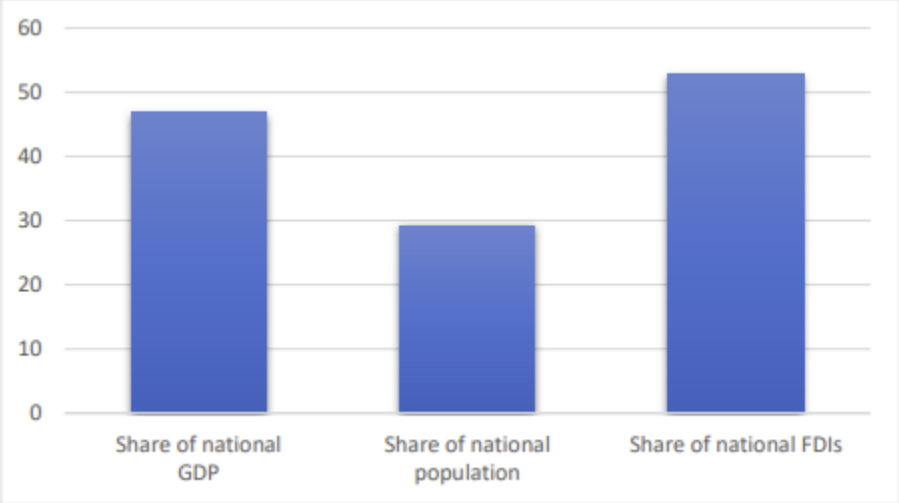
Source: IMF, 2024b

Programme target regions

Fergana valley

The Sughd region is the northernmost region of Tajikistan, geographically located in the Fergana Valley. The regional capital is the city of Khujand, the second most populous city in the country after the capital Dushanbe. In 2020, the Sughd region had a total population of 2.9 million, or 28.4% of the national population (TAJSTAT, 2024a). The province accounts for 17% of the country's territory, but a third of its arable land. It contributed 29% to the national GDP in 2022.

Figure 19: Key economic indicators - Sughd, Tajikistan (%)



Source: Kurbanov, 2021

Due to its location in the fertile Fergana Valley, Sughd's economy is strongly linked to agriculture. In 2023, it was home 35% of the national workforce, with more than half of these workers employed in agriculture, forestry and fishing. The province's services sector and industrial activity, particularly in Khujand, are also areas of growth, as is cross-border trade due to the province's strategic location (TAJSTAT, 2024c).

Khatlon

The region’s population of 3.6 million is predominantly rural, with 2.98 million of the inhabitants living in rural areas, while the capital Bokhtar is home to 130,800 people, almost a quarter of the urban population (TAJSTAT, 2024a). As of 2023, Khatlon region was home to 499,000 working people, or 39% of the national workforce, with 64% of these workers (320,000) employed in the agriculture, forestry and fishing sector (TAJSTAT, 2024c). In 2022, Khatlon accounted for 31% of the national GDP and plays an important role in the country's agricultural production. The province is also home to several agriculture-related industries, such as cotton ginning and food processing, as well as some light manufacturing. The region heavily relies on seasonal migration and remittances, with around 50% of

households reporting family members migrating abroad. This highlights migration as a crucial livelihood strategy. Cross-border trade with Afghanistan and Uzbekistan also contributes to the local economy.

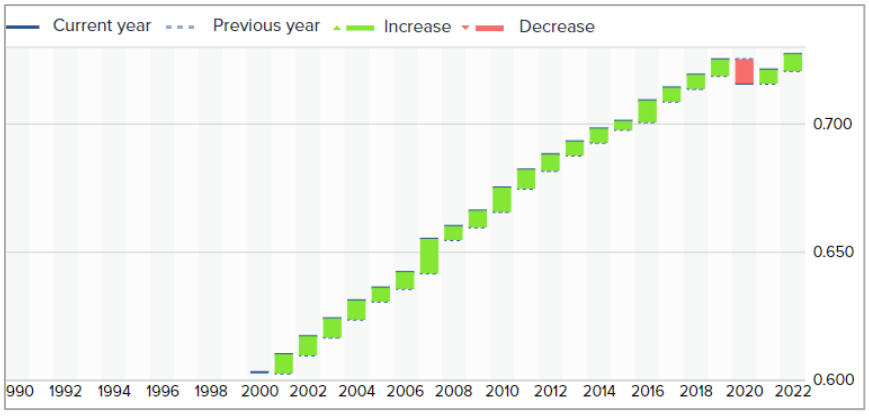
Despite this, the region is one of the poorest in the country, with families relying on a combination of remittances and household agricultural activities for subsistence and income (USAID, 2020). In 2023, it had the second highest poverty rate in the country, with around 35% of its population living in poverty according to the national poverty line (World Bank, 2023a). Socio-economic issues in Khatlon are marked by acute food insecurity, with 20% of households experiencing severe food shortages (FAO & WFP, 2023). Additionally, the region faces disaster-associated displacements, as evidenced by recent flood-induced displacements (IPCC Working Group II, 2023).

2.2.3 Uzbekistan socio-economic profile

Demographic and social context

The Republic of Uzbekistan is one of the largest countries in Central Asia in terms of both land mass and population (FAO, 2019b). It is the most populous country in Central Asia, with a population of 36.2 million people. Its economy is substantial, with a GDP of USD 90.9 billion and a GDP per capita of USD 2,510 (World Bank, 2023d). Almost half of the population lives in rural areas and engages directly in agriculture-related activities, on which they depend for their livelihoods (FAO, 2019b). Uzbekistan's total territory spans 447,400 square kilometres, predominantly consisting of sandy deserts. However, the country also features fertile agricultural areas, such as the Fergana Valley. Despite challenging geographic and climatic conditions, agriculture remains crucial to Uzbekistan’s macroeconomy and is vital for sustaining rural households, particularly through activities like sheep breeding in desert pastures (FAO, 2019b). As illustrated in Figure 20, between 2000 and 2022, Uzbekistan's HDI value increased from 0.603 to 0.727, an improvement of 20.6%. Women make up 50% of the urban population and 49.6% of the rural population in Uzbekistan. However, these aggregated figures disguise the effects of labour migration on localized gender ratios in several rural areas, with some villages predominantly consisting of women, children, and the elderly due to male migration. Conversely, in other villages, it is primarily women who migrate, leaving their husbands behind to care for children and other family members (FAO, 2019b).

Figure 20: Trends in Uzbekistan HDI 1990-2022

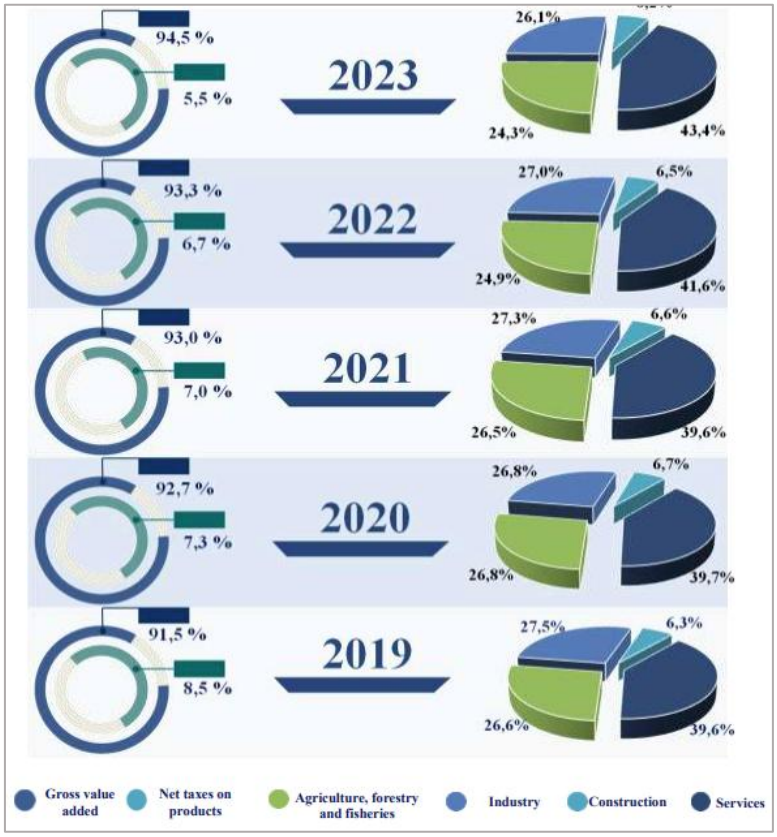


Source: UNDP, 2024d

Economy

Uzbekistan initiated structural reforms in 2017 to transition towards a market economy, through the liberalization of the business environment, prices, commerce and currency market, as well as increasing investment. The key sectors for the country’s GDP are agriculture, forestry and fisheries, industry, construction and services, as shown in Figure 21. Within the industry sector, metallurgy contributed the most in terms of the total output (Eurasian Development Bank, 2022c). The GDP growth of 6% between 2022 and 2023 was driven by the overall service sector (2.6%), industry (1.5%), agriculture, forestry and fisheries (1.0%) - of which agricultural products make about 94% of the total volume of products, net taxes on products (0.5%) and construction (0.4%) (Statistics Agency under the President of the Republic of Uzbekistan, 2024b).

Figure 21: Structure of GDP by type of activity for 2019-2023 (in % to total)



Source: Statistics Agency under the President of the Republic of Uzbekistan, 2024b

In Uzbekistan, unemployment remains high, with much of the workforce engaged in informal employment, and a significant portion of the working-age population not participating in the labour force. In 2020, official statistics indicated that unemployment stood at 10.5% of the active labour force, while 34% of the working-age population were inactive, meaning they were neither working nor seeking work (World Bank, 2023d). Recent income growth has been weak, particularly among the poorest segments of the population. Although incomes increased between 2015 and 2019, the pace of growth was significantly slower than that of per capita GDP. During this period, median income grew by just 1.4% annually, compared to a 4.8% annual increase in GDP per capita, after adjusting for inflation. For the poorest 20%, income growth was even slower, averaging only 0.74% per year (World Bank, 2023d). In 2023, real GDP growth remained robust, rising to 6.0% from 5.7% in 2022. Growth of agriculture increased to 4.1%, manufacturing to 6.7%, and wholesale trade to 9.9% (IMF, 2024d).

Poverty in Uzbekistan is predominantly a rural issue. In 2018, around 79% of the poor lived in rural areas. Regions such as the Republic of Karakalpakstan, Samarkand, and Surkhandarya had poverty rates exceeding 15%, with Samarkand alone accounting for nearly 20% of the total poor due to its larger population. Significant disparities exist between Tashkent and the rest of the country, especially in income levels and growth rates. In 2018, the median wage in Tashkent City was 61% higher than the national average and 88% higher than in rural areas, highlighting the stark economic divide between urban and rural regions (World Bank, 2023d).

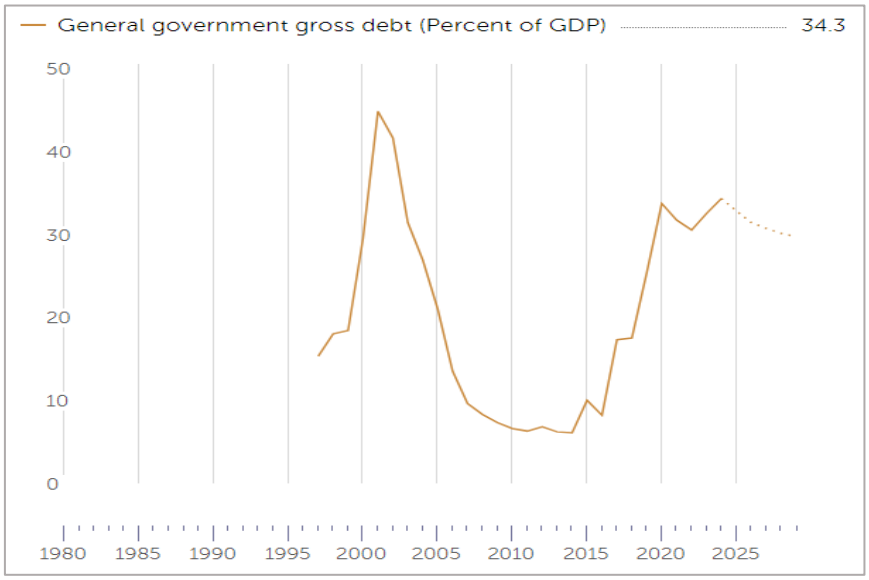
Labor migration is prevalent in Uzbekistan's rural areas due to limited employment and income-generating opportunities, with survey results showing 45% of migrants come from households on the verge of poverty (Karimova, 2024). The migration trends also have roots in the agricultural reforms of the early 2000s, which dissolved agricultural cooperatives (shirkats) and created individual farming enterprises that required less labour. Labor migration is male-dominated, with men accounting for 64% of migrants, although population growth in Uzbekistan and declining opportunities for male migrants in Russia are driving a “feminization of migration” (Solidarity Center, AFL-CIO, 2024). These female migrants, particularly from rural areas, are increasingly going go to Kazakhstan for seasonal agricultural work, typically lasting three to four months. Additionally, women engage in short-term cross-border trips for shuttle trading or take on low-skilled jobs in housekeeping, childcare, and the service sector when

migrating for longer periods (FAO, 2019b). Although they are not as significant as in the Kyrgyz Republic or Tajikistan, remittances still contributed a sizeable 14% of Uzbekistan's GDP in 2024, which helps to offset the country's trade deficit (World Bank, 2024f).

Government debt

As of early 2024, Uzbekistan's public debt increased to USD 34.9 billion, marking a USD5.7 billion rise from the previous year and surpassing expectations by USD 2.8 billion, according to the Ministry of Finance. The general government gross debt represents 34.3% of the country's GDP (IMF, 2024c). The debt comprises both external and domestic components, with external debt at USD 29.6 billion (29.6% of GDP) and domestic debt at USD 5.3 billion (5.3% of GDP). Government-raised debt amounts to USD 23.9 billion, with an additional USD 5.7 billion guaranteed by the state (Daryo.uz, 2024).

Figure 22: Uzbekistan - General government gross debt (Percent of GDP)



Source: IMF, 2024c

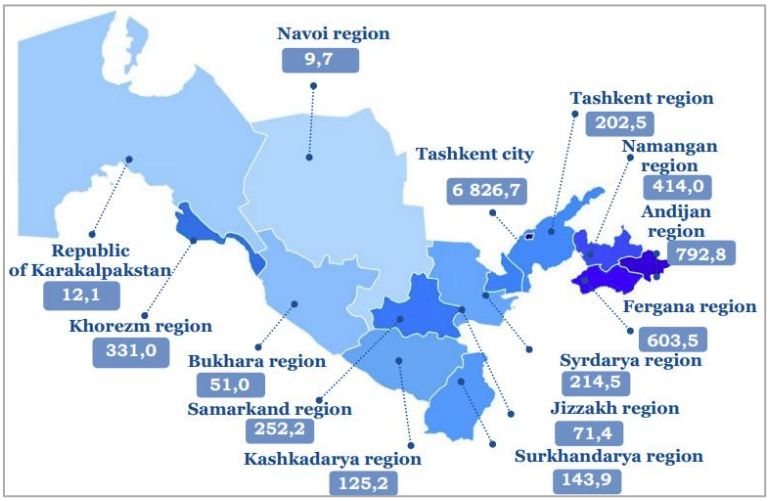
Uzbekistan's public and external debt saw rapid growth before 2020 but has stabilized since then. Total Public and Publicly Guaranteed (PPG) debt grew rapidly from 2016, driven by currency depreciation and economic reforms. By the end of 2020, it had increased to 37% of GDP, primarily due to government borrowing from multilateral and bilateral creditors to finance reforms. At the end of 2023, total PPG debt stood at 36.3% of GDP (USD 31.4 billion), with PPG external debt at 34.3% of GDP (USD 29.6 billion), reflecting a 2-percentage-point increase from the previous year. This rise was mainly due to an increase in the primary fiscal deficit (IMF, 2024d).

Programme target regions

Fergana valley

The provinces of Fergana, Namangan and Andijan form the heart of the Fergana Valley. These three provinces are home to approximately 10.5 million people (Statistics Agency under the President of the Republic of Uzbekistan, 2024b) accounting for nearly a third of the country's population. Figure 23 shows how these regions have the highest population density in Uzbekistan, outside of Tashkent city. Namangan holds 414 people per km^2, while in Fergana has 603,5 inhabitants per km^2 and Andijan has the highest density, with 792,8 per km^2.

Figure 23: Population density for the Republic of Uzbekistan as of April 1, 2024, population per 1 sq. km, people



Source: Statistics Agency under the President of the Republic of Uzbekistan, 2024b

The Andijan region is located in the eastern part of the Fergana Valley. Its area is 4.27 thousand km² and makes up 0.95% of the country's territory. The population is 3,394,400 people or 9.2% of the total population of the country (as of 1 January 2024). The Andijan region has two cities of regional subordination, 14 districts, 11 cities of district subordination, 79 towns, 455 rural settlements (as of 2024) (ibid.). The region borders the Kyrgyz Republic with which it shares 409 km of border. Andijan region borders with Fergana region (101.2 km), with Namangan regions (106.6 km) (Statistics department of Andijan region, 2020).

The share of the gross regional product (GRP) of the Andijan region in the total GDP of the country is 6.4% in 2023. Andijan occupies the second place (after Samarkand region) in the republic in terms of the total volume of production (services) of agriculture, forestry and fisheries, contributing 10.2% weight. The share of agriculture, forestry and fishing in the structure of the GRP is 38.3% (Statistics Agency under the President of the Republic of Uzbekistan, 2024b).

The Fergana region is located in the east of the republic, in the south of the Fergana Valley. It borders Namangan and Andijan regions to the north, Kyrgyzstan to the south and east, and Tajikistan to the west. Its area is 6.8 thousand km2 and accounts for 1.52% of the country's territory. Its population is 4,061,500 people, which is 11% of the total population of the country (as of 1 January 2024). It consists of 15 districts, 4 cities, 5 cities subordinate to districts, more than 25 towns and 164 rural communities.

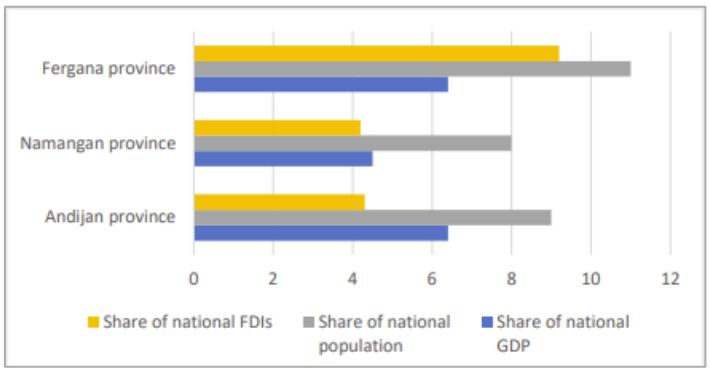
The share of the Gross Regional Product (GRP) of the Fergana regions in the total GDP of the country will be 6.2% in 2023. The Fergana region occupy a leading position (after Samarkand region) in the republic in terms of the total volume of production (services) of agriculture, forestry and fisheries, contributing 9.3% weight.

The share of agriculture, forestry and fisheries in the structure of the GRP is 35.5% (Statistics Agency under the President of the Republic of Uzbekistan, 2024b).

The Namangan region is located in the east of the republic, in the north-western part of the Fergana valley, on the slopes of the Kurama and Chatkal mountains, branches of the Tien Shan mountain range. It is bordered to the north and northeast by the Jalalabad region of the Kyrgyz Republic, to the southeast by Andijan, to the south by Fergana, and to the north and northwest by the Tashkent and Sughd regions of Tajikistan. The area is 7.44 thousand km² and accounts for 1.66% of the country's territory. The population is 3,066,100 people, which is 8.3% of the total population of the republic (as of 1 January 2024). Namangan Region has 11 rural districts, 8 cities, 11 towns and 99 rural settlements. Its centre is the city of Namangan. The gross regional product (GRP) of the Namangan region is 4.4% of the country's total GDP in 2023. The region accounts for 7.7% of the Republic's total output (services) from agriculture, forestry and fisheries. The share of agriculture, forestry and fishing in the structure of the GRP is 41.0% (Statistics Agency under the President of the Republic of Uzbekistan, 2024b).

Three regions of Uzbekistan are situated in the Fergana valley, together home to 10.5 million people, comprising a third of the national population in 2023.

Figure 24: Key economic indicators of Uzbekistan's Fergana valley regions (Percent)



Source: Kurbanov, 2021

Surkhandarya region

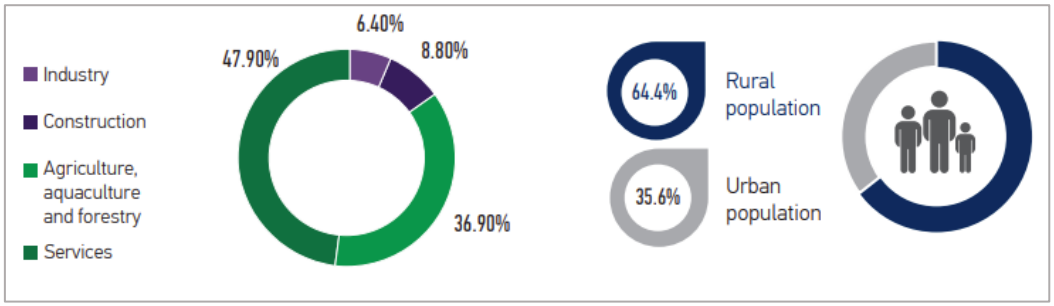
The Surkhandarya region is located in the southeast of the republic, in the Surkhan-Sherabad valley. It borders Afghanistan to the south along the Amu Darya River, Tajikistan to the north, northeast and east, Turkmenistan to the southwest, and the Kashkadarya region to the northwest. Border length 579.3 km: 143.0 km with Afghanistan, 343.1 km with Tajikistan, 93.3 km with Turkmenistan. Within the country, it has a common border of 167.5 km with the Kashkadarya region. Its area is 20.1 thousand km2 and makes up 4.5% of the country's territory. The mountainous and hilly areas are mainly used for growing cereals and summer pastures for cattle. In the Surkhan-Sherabad plain, with an absolute altitude of 300-500 metres, cotton is grown and vineyards have been established. The southern part is covered with extensive sand dunes.

The region consists of 15 districts, 8 cities, 114 towns, 859 rural settlements. The regional centre is the city of Termez (Government of Surkhandarya region, 2021). The population is 2,877,100, which is 7.8% of the total population of the Republic (as of 1 January 2024). 1 1,881,400 people live in rural areas (63.9%). Of the total population, 972,101 people under the age of 16 make up 33.8% of the total population of the region (Statistics department of Surkhandarya region, 2024). The poverty rate in the region as of January 1, 2025 was 9.3% (10.6% in 2023) (Ministry of Poverty Reduction and Employment of the Republic of Uzbekistan, 2025).

The Gross Regional Product (GRP) share of the Surkhandarya regions in the country's total GDP is 3.8% in 2023. Most relevant economic activities is Agriculture, forestry and fishery, which represent a 67.4% of the regional GDP and 2.52% of the national GDP (Statistics department of Surkhandarya region, 2024). The region contributes 7.9% in the Republic in terms of the total volume of production (services) of agriculture, forestry and fisheries, which is the second largest contribution (Statistics Agency under the President of the Republic of Uzbekistan, 2024b). The most important agricultural sectors include grain growing, cotton growing, horticulture, transhumance (grazing) sheep breeding, vegetable growing, sericulture and grape growing. The cultivation of figs, persimmons and citrus fruits is of particular importance for the region (UNDP, 2019).

More than a third of the population of the region is employed in the agriculture sector, as shown in Figure 25.

Figure 25: Employment in % and rural/urban population in the Surkhandarya region



Source: UNDP, 2019

2.3 Agricultural sector context

2.3.1 Regional agriculture sector profile

Contribution to livelihoods

In 2022, the total value added from agriculture, forestry and fishing in the five Central Asian countries was USD 40.4 billion, a 10.2% share of the total GDP (FAO, 2024a). Agriculture contributed more than 23% of GDP in Uzbekistan and Tajikistan, and 12% in Kyrgyz Republic (*ibid*.). Furthermore, the sector is a major employer in these three countries, accounting for an estimated 42.6% of total formal employment in Tajikistan, 23.9% in Uzbekistan, and 16.6% in Kyrgyz Republic in 2021 (*ibid*.). The prevalence of smallholder and household farming systems makes agriculture crucial to rural communities and livelihoods, with around 60% of the region's population being directly dependent on agricultural activities as their primary source of income (UNCCD, 2023).

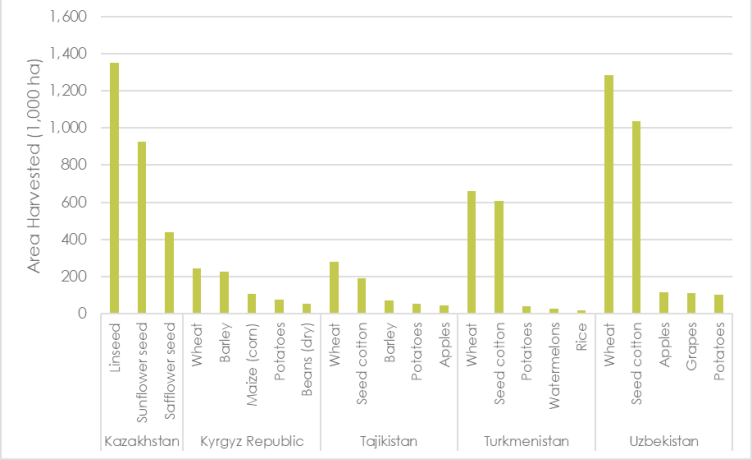
Farming types and land reform

Following the collapse of the Soviet Union, the land reforms in the Central Asian republics transformed farming practices, with the focus on redistributing responsibility for formerly collective large-scale farms to individual farmers leading to the emergence of smallholder and household farms (ADB, 2019a). De-collectivization processes occurred differently in each country, but the agricultural landscape is now generally split between three types of private farm: large-scale agricultural enterprises, resembling the old collective farms; individual dehkan farms, run by a family or small group of individuals on sections of the old collective farms; and household plots, a carryover from the Soviet era involving small plots used for livestock or horticultural production (ibid.). Although the outcomes of land tenure individualization and the market-oriented agrarian economy have been uneven in different countries and for different agricultural commodities, small dehkan or household farms across the region are now responsible for most agricultural production value (Lerman & Sedik, 2018).

Key products and production types

During Soviet rule, each of the Central Asian countries was responsible for specific agricultural commodities, and in some cases, legacies of state intervention for strategic crops remain, particularly cereals (wheat) and industrial crops (cotton) (Kunwar, 2020). By contrast, horticulture and livestock production is now determined by private and household farmers, considering market conditions and their own subsistence needs (ADB, 2019a). In addition to changing cropping patterns, the shift towards market principles has led to price and trade policy reforms, and some reduction of waste (Kunwar, 2020). Wheat is still vital in household consumption, and with state support is the main agricultural product and is allocated most arable land in the region, yet all countries in the region still rely on imports from Kazakhstan to meet demand (Thomas et al., 2021).

Figure 26: Average harvested area from 2020-2022 of the top five most harvested crops[2] in Kazakhstan[3], Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan

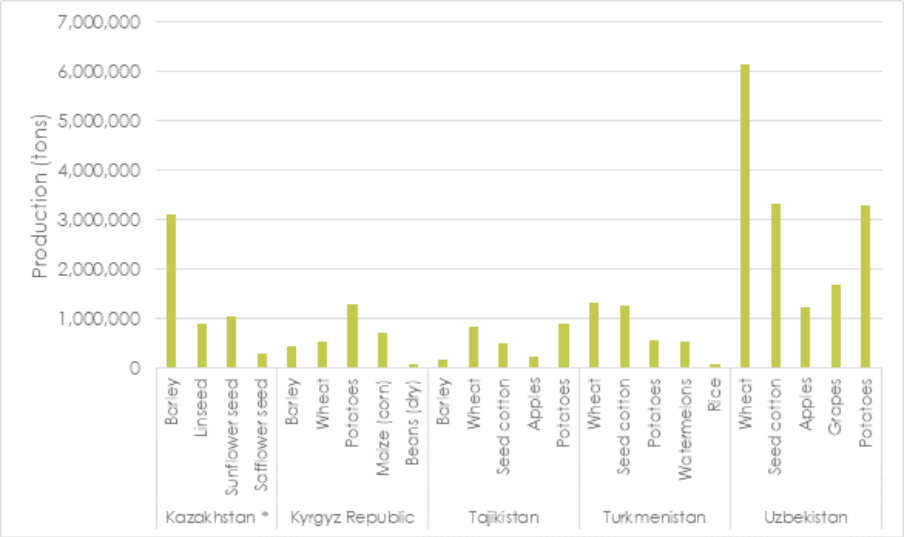


Source: FAO, 2024a

[2] Seed Cotton refers to unginned cotton for both seed and for fibre.
[3] Wheat and Barley are excluded from Kazakhstan, for ease of comparing the other crops. The average annual harvested area of **wheat** in Kazakhstan between 2020 and 2022 was **12,555,445 ha**. The average annual harvested area of **barley** in Kazakhstan between 2020 and 2022 was **2,357,865 ha**.

Agricultural productivity and profitability also remain low across the region, and despite steadily changing land allocation patterns, continued competition for land with wheat (and cotton) inhibits the production of higher-value horticultural products, which the climate and irrigation infrastructure of Central Asia are well suited to (ADB, 2019a). Figure 27 illustrates how cereals, and especially wheat, still account for the largest planted areas, although some horticultural and industrial crops are still nationally significant.

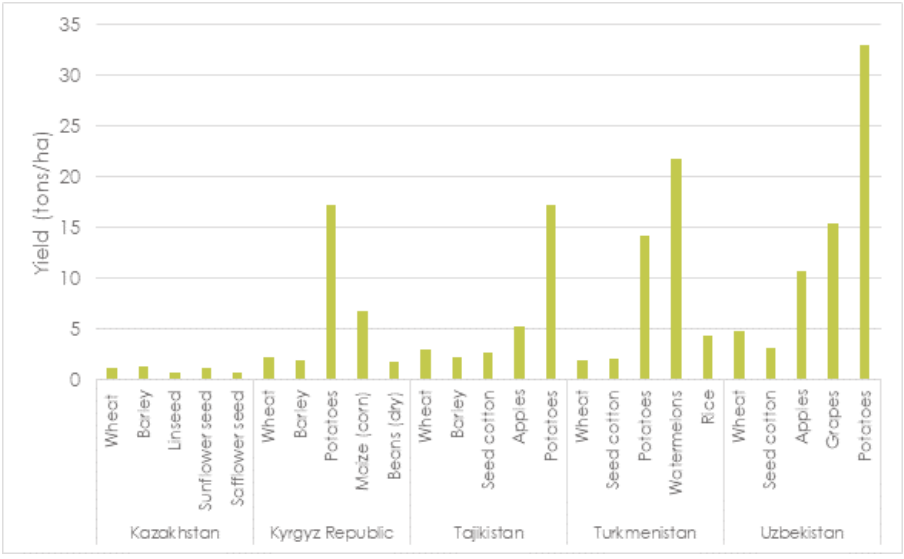
Figure 27: Average production from 2020-2022 of the top five most harvested crops in Kazakhstan[4], Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan



Source: FAO, 2024a

Figure 27 shows the corresponding total production figures, while Figure 28 shows the yields for the different crops, illustrating the similarities and differences in productivity, with the starkest differences for horticultural yields.

Figure 28: Average yield from 2020-2022 of the top five most harvested crops Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan



Source: calculated from FAO, 2024a

Additionally, cereal and industrial crop production remains reliant on irrigation systems established during Soviet rule, with over 90% of agricultural products in the region originating on irrigated farms

[4] Wheat is excluded from Kazakhstan, for ease of comparing the other crops. The average annual production of **wheat** in Kazakhstan between 2020 and 2022 was **14,158,855 tons**.

(UNCCD, 2023). This presents a common challenge in the region, and particularly in the Fergana Valley, which represents a key agricultural hub for all three of Uzbekistan, Tajikistan and Kyrgyz Republic. These irrigated production systems are exposed to losses caused by inefficient land and water use, continued land degradation, soil fertility losses, and soil erosion (Löw et al., 2017).

Land use change, including the conversion of steppes into agricultural fields, has been a key phenomenon leading to habitat loss in the region. Unsustainable agricultural practices have also accelerated desertification (Khan et al., 2018).

Livestock and rangelands

Household farms and other smallholders dominate livestock production, and approximately 80% of Central Asia's land is used for pastoralism, with year-round grazing commonplace (UNCCD, 2023). Livestock remains an important part of the economy and for employment, as presented in the following Table 4. Although the labour productivity in the sector is relatively low, livestock products are typically crucial for the nutrition of poor rural households, so their importance for rural economies is likely underestimated in figures related to GDP (Robinson, 2020).

Table 4: Agriculture and livestock production in the economy

Republic	Agriculture as % of GDP*	Livestock as % agricultural production value (2016)**	Employment in agriculture (% workforce 2017)†	Proportion population living in rural areas (%)††
Kazakhstan	4 (2017)	38	18	43 (2017)
Kyrgyzstan	13 (2016)	48	27	66 (2017)
Tajikistan	21 (2017)	26	61	74 (2016)
Turkmenistan	15 (2016)	54	43	50 (2016)
Uzbekistan	17 (2017)	37	27	49 (2017)

* ANICANET Uzbekistan country report (Naumov and Pugach 2019); Statistical Agency of the Republic of Tajikistan (2018c); ANICANET database (Kyrgyzstan, Kazakhstan, Turkmenistan).

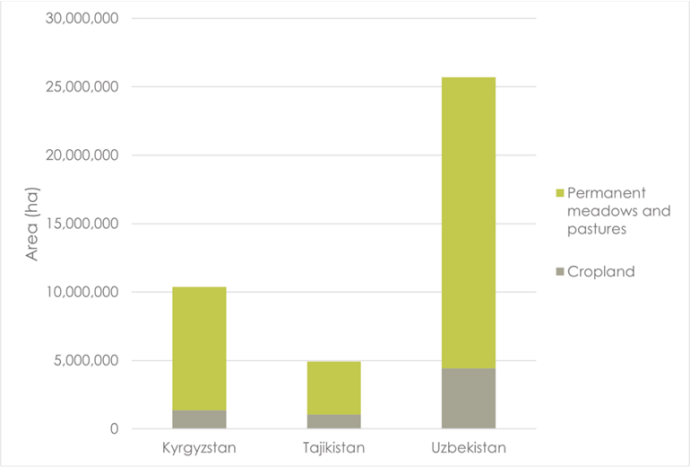
** FAOSTAT. Gross Values in international USD (based on constant prices, 2004–2006).

† ANICANET country reports with exception of Kazakhstan (OECD 2019) and Turkmenistan (State Committee of Statistics of Turkmenistan 2018).

†† ANICANET database.

Source: Robinson, 2020

Figure 29: Prevalence of permanent meadows and pastures in Kyrgyz Republic, Tajikistan and Uzbekistan

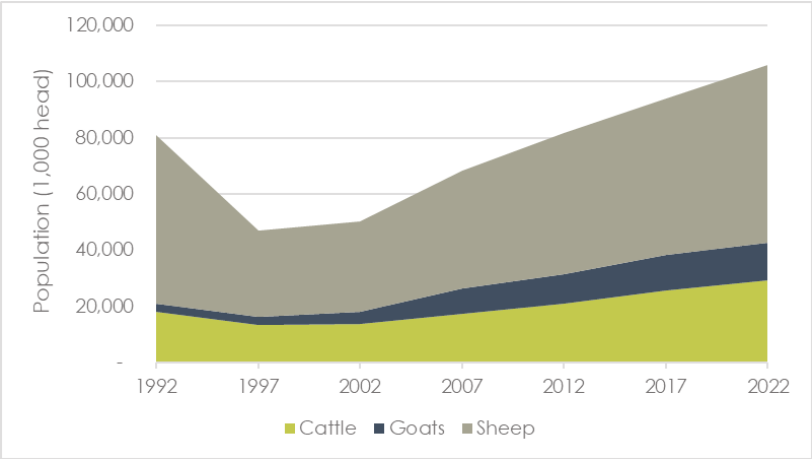


Source: FAO, 2024a

During the upheaval following the end of Soviet rule, ruminant populations crashed, although the steady recovery over the last two decades saw the current ruminant stocks greater than ever (see Figure 30)

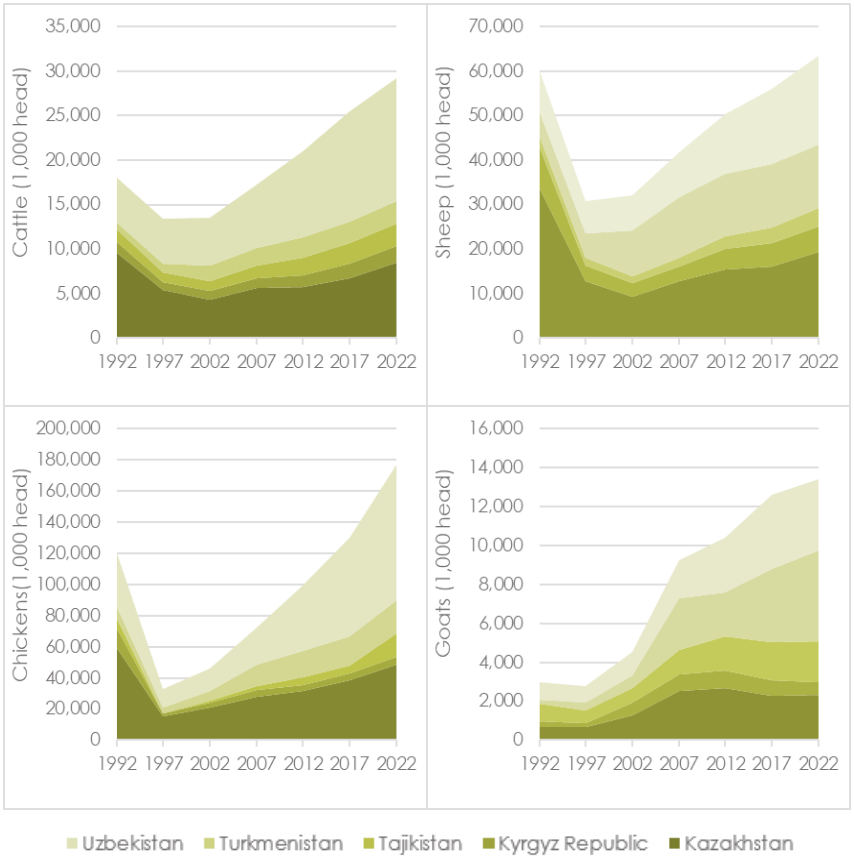
(Robinson, 2020). However, while this trend represents a major expansion of livestock production that supports the livelihoods and subsistence needs of rural populations, it also adds significant pressure on pastureland and, consequently, land degradation and decreased productivity (Lopes et al., 2021).

Figure 30: Stocks of selected ruminants in Central Asia from 1992 to 2022



Source: FAO, 2024a

Figure 31: Key livestock populations in Central Asia from 1992 to 2022



Source: FAO, 2024a

Barriers to agricultural development

Barriers to agricultural development include low productivity and labour-intensive practices, specifically in small-size farms. Fragmented farming plots are hindering more efficient farming practices. Land tenure is not always clear and is frequently government controlled, hindering private investments and commercialization (Hayward et al., 2022). Poorly developed roads make transport and processing difficult. Processing and storage facilities are also underdeveloped. Farming practices are not yet

energy efficient, and mechanization is behind standards. Poor transport conditions negatively impact the quantity and quality of agricultural produce. It is estimated that up to 30% of produce spoils before reaching the market due to improper storage facilities (ASIA-Plus, 2023; Qureshi, 2022).

Most importantly, there are several challenges that are related to climate change or may be exacerbated by climate change. The increase in human and livestock population puts more pressure on agriculture and pastureland. Water use and irrigation are already inefficient, and water availability is expected to decline. Farm practices are not sustainable and lead to land degradation, with poor farm irrigation practices contributing to salinization in farmlands (mainly in Uzbekistan), exacerbated by overgrazing and deforestation, causing soil erosion (Jiang et al., 2022; Measho et al., 2022). Climate-smart farming practices, zero or reduced tillage, permanent soil coverage, and crop rotation are not standard practices. Introducing and scaling these practices would help the adaptation response to climate change, yet without secure property rights, few farmers are willing or able to adopt measures (Kunwar, 2020). Climate-induced disasters such as floods, mudflows, landslides, avalanches, heat waves, strong winds, and hail have increased by 1.5 times. These disasters have become a significant factor in food insecurity, as unpredictable and unfavourable weather conditions disrupt agricultural activities (WFP & GCF, 2023).

2.3.2 Kyrgyz Republic agriculture sector profile

The central zone, characterized by vast alpine areas, is well-suited for livestock production, particularly in pastures above 2,500 meters (World Bank, 2019a). The Naryn region also has favourable winter grazing fields, while potatoes, wheat, and barley are grown despite challenging climatic conditions. The northern region includes the Chui and Talas rivers and the Issyk-Kul Lake basin. The climate around Issyk-Kul is favourable, while the Chui and Talas valleys are more continental and drier. Most cropland in this region is irrigated, though rainfed cultivation is common for cereal crops. The Talas region is known for bean cultivation, accounting for 93% of the country's total in 2015, while the Chui valley produces sugar beets, and the Issyk-Kul region is known for apple production (World Bank, 2018)

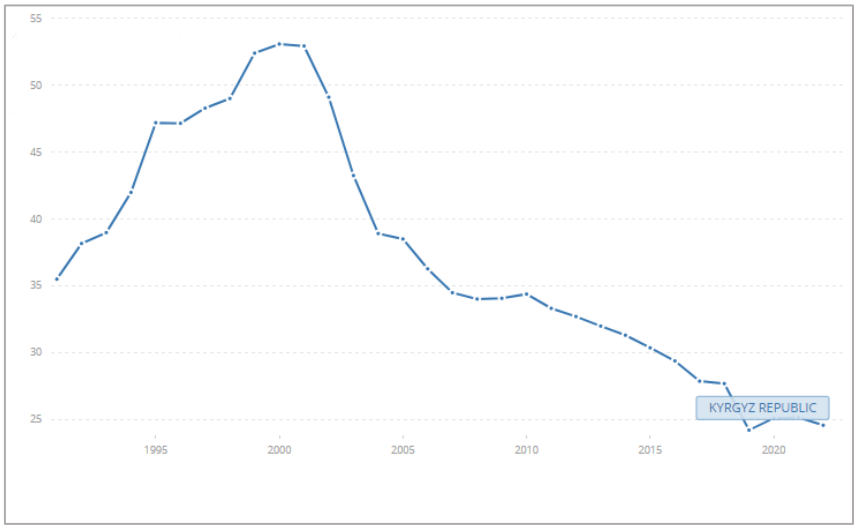
In south-western Kyrgyz Republic, Osh, Batken and Jalal-Abad regions are located in the Ferghana Valley, one of the most agriculturally productive areas in Central Asia. The longer growing seasons, compared to high-altitude or northern regions, and fertile soils make it suitable for horticulture and cereal production. (Park et al., 2021) Osh is one of the important agricultural production areas in Kyrgyz Republic with high quality croplands (Liang et al., 2021) and represents a major production area of potatoes and walnuts. Alongside Osh, Jalal-Abad region is also home to extensive walnut forests, which is a major source of income for rural communities (FAO, 2023; Swoboda, 2019). It is also a regions with significant production of pistachios, potatoes, apricots and wheat. Finally, Batken region is the largest producer of fruits in the Kyrgyz Republic, with apricots being one of the main products, where 70% are drying varieties. It also produces potatoes, walnuts, which supports NTFP value chains, and pistachios.

The sector is primarily dominated by livestock production, contributing about 54% (USD 1.8 billion) to agricultural GDP 2021. Horticulture, consisting mainly of vegetables and fruits, accounted for 18% (USD 603 million), while cereals contributed 9% (USD 300 million) (ADB, 2023). Despite the Kyrgyz Republic's total land area of approximately 20 million hectares, only 6.1% (1.2 million hectares) is classified as arable. Of this arable land, 53% is allocated to grains and legumes, 17.7% to horticulture, and 31.3% to forage crops. In the horticulture sector, potatoes and fruits each occupy 35% of the area, followed by vegetables at 25%sa (ADB, 2023).

Contribution to livelihoods

In 2021, agriculture comprised 43% of GDP (USD 3.3 billion), and accounted for between 18.3% and 25% of the total employment, according to different estimates, although in rural areas the share is likely even higher (ADB, 2023; World Bank, 2024b). The World Bank data, based on ILO model estimates, is shown in Figure 32, where there is a declining trend in the share of the population employed in agriculture over the last 20 years (World Bank, 2024b). Despite the declining share of employment and the declining share of GDP, agriculture remains vital to rural livelihoods, and is highly susceptible to climate change (IMF, 2023). According to other estimates, over half of Kyrgyz Republic’s GDP is derived from climate and weather-sensitive activities, including agriculture (Central Asia Climate Information Portal, n.d.a.). The agriculture sector in the Kyrgyz Republic saw modest growth of 0.5% from 2019 to 2020, but experienced a significant decline of 5% between 2020 and 2021 (ADB, 2023). Agriculture remains a critical component of the Kyrgyz economy and continues to be a major source of income in rural areas, where two-thirds of the population reside (World Bank, 2019a).

Figure 32: Employment in agriculture (% of total employment) (modelled ILO estimate-Kyrgyz Republic)



Source: World Bank, 2024c

Farming types and land reform

Following its independence in 1991, the Kyrgyz Republic implemented rapid market-oriented reforms. Successful land reform policies transformed the agricultural sector into a significant growth engine during the late 1990s, resulting in robust economic expansion. However, growth in agriculture and the overall economy has stagnated in more recent years, with productivity levels remaining low. Most of the population relies on farming primarily for social security rather than as a business venture. Agricultural production is concentrated mainly in small individual (family) farms, which average 2.7 hectares in size (FAO, 2011; World Bank, 2019a).

Farming in the Kyrgyz Republic is marked by low productivity and labour-intensive practices, particularly in horticulture, where traditional production systems still dominate. The fragmentation of agricultural land has intensified, mainly due to land inheritance, leading to smaller farm sizes, reduced production volumes, and less need for mechanization. Between 2011 and 2021, the number of agricultural producers grew by 30%, further fragmenting land holdings (ADB, 2023). In 2021, *dehkan* (family-based) farmers and individual agricultural enterprises comprised nearly all horticultural production, cultivating small plots between 0.6 and 3.0 hectares, and producing 99% of vegetables, 99% of potatoes and 96% of cereals (*ibid.*). 95% of the farmers are classified as small scale farmers ((World Bank, 2019a). Peasant farms occupy 87.4% of the limited arable land in the Kyrgyz Republic, own at least half of livestock in the country, and along with rural households (36%), peasant farms (62%) produced 98% of the agricultural output in 2015 (FAO, 2020).

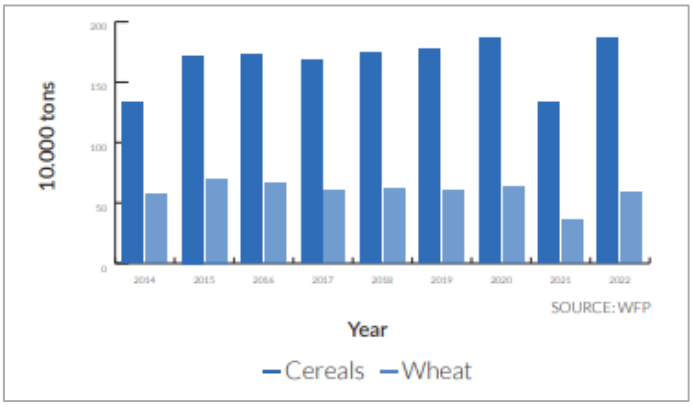
Under the National Development Program of the Kyrgyz Republic until 2026, the government aims to transform small private farms into cooperatives to improve agricultural efficiency. Key reforms include increasing energy efficiency in farming, enhancing regional specialization, improving the processing sector, expanding irrigation, and promoting climate-smart technologies (Kyrgyz Republic, 2021). Presidential Decree No. 202 (2024) outlines efforts to development of the agro-industrial complex of the Kyrgyz Republic. Additionally, the government seeks to establish logistics centres and revive the "Kyrgyzpotrebsoyuz," a union of consumer cooperatives, to support agricultural development (ADB, 2023).

Crop production - key products and production types

The Kyrgyz Republic can be divided into three broad agroecological regions. The Naryn and Kara-Darya rivers support the southern agroecological region, which includes the Fergana Valley, comprising the Osh, Jalal-Abad, and Batken regions. Agriculture is the primary source of income here, but farms are typically smaller due to high population density. A wide variety of crops are grown, including cotton, tobacco, melons, and fruits. The national crop production for cereals and wheat is shown in Figure 33. In terms of total harvested area, wheat (irrigated and rainfed) is the main agricultural product of the Kyrgyz Republic, representing on average 21% for the period 2012–2016, followed by irrigated and rainfed barley (11%), maize (7%), and fodder crops, which are also economically important. Figure 33 shows the consistent significance of wheat production in comparison to all cereals. Potatoes (5%),

vegetables (3%), and beans (mostly kidney beans, 3.5%) occupy a smaller percentage of the total area, although their production has gradually increased in recent years. By contrast, the areas given to industrial crops such as cotton and tobacco are gradually decreasing due to reduced profitability (World Bank, 2019a).

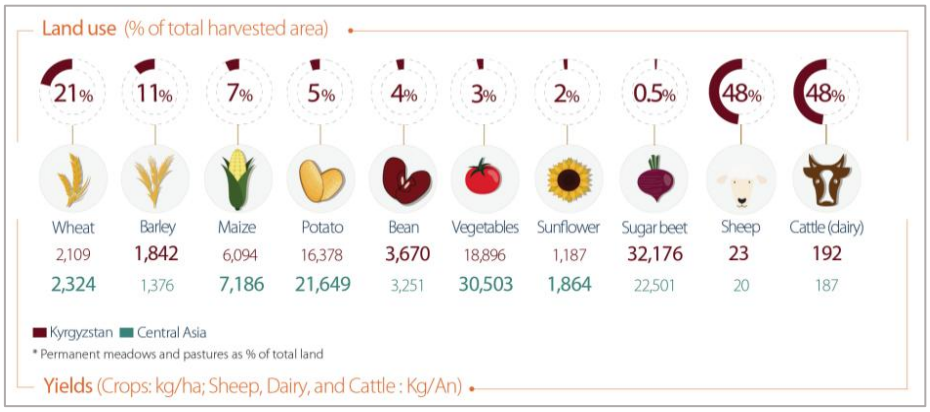
Figure 33: National crop production (gross harvest), all cereals and wheat, 2014-2022



Source: WFP, 2023b

The productivity of various crops in the Kyrgyz Republic compared to the rest of Central Asia can be observed in Figure 34. Wheat and barley are the most important crops in terms of land use. In comparison to average yields for Central Asia, the Kyrgyz Republic has generally lower yields in several of the main crops, productivity gaps that are especially pronounced for potatoes and vegetables.

Figure 34: Main agricultural products and yields in the Kyrgyz Republic compared to Central Asia



Source: World Bank, 2018a

The fruit and vegetable processing sector also remains limited, with processed products accounting for just over 2% of total agricultural production. However, exports of dried fruits have steadily increased since 2016 (International Trade Administration U.S. Department of Commerce, 2024). In general, since almost all farmers are considered smallholders, value-adding activities and investments such as processing or achieving economies of scale are unachievable with the current structure (FAO, 2020).

Animal production and rangeland management

Livestock remains a vital agricultural commodity for most farmers in the Kyrgyz Republic (World Bank, 2019a). IFAD estimates a total of 1.7 million cattle and 6.3 million sheep in the Kyrgyz Republic (IFAD, 2021b). The recovery of livestock numbers between 1992 and 2022, following stark reductions after the fall of the Soviet Union, are shown in Figure 30 and Figure 31. Kyrgyz Republic's cattle herd is split 50-50 between beef and dairy and produced 200,000 tonnes of meat and 160,000 tonnes of milk in 2020 (IFAD, 2021c). Cattle and sheep are kept in summer and winter pastures, causing degradation due to overgrazing. From 1995 to 2014, the largest increase in the livestock population was a change of 141% in Jalal-Abad oblast, followed by Issyk-Kul (108%), and Osh (74%) (Chi et al., 2020).

Large areas of pasture are subject to degradation caused by overgrazing and exacerbated by climate change (IFAD, 2021b). Table 5 gives an estimation of the total pasture degradation that occurred between the periods 2000 - 2004 and 2014 - 2020.

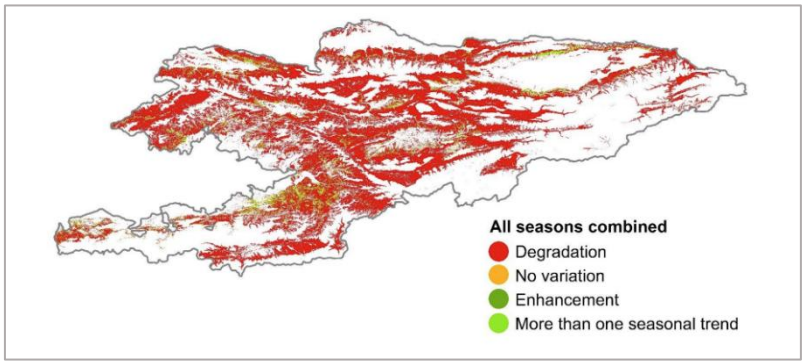
Table 5: Seasonal area in ha and percentage of total grazing area in that season, by rangeland condition

Degradation level	Winter (ha)	Winter (%)	Spring (ha)	Spring (%)	Summer (ha)	Summer (%)	Autumn (ha)	Autumn (%)
Severely degraded	533,598	81.5	1,276,714	33.0	3,347,111	43.0	1,127,757	28.9
Moderately degraded	80,723	12.3	2,116,978	54.7	3,906,920	50.2	2,427,628	62.1
No variation	38,512	5.9	470,001	12.2	525,241	6.7	349,016	8.9
Enhancement	1,802	0.3	4,328	0.1	5,803	0.1	3,462	0.1
Total	654,635	100	3,868,022	100	7,785,076	100	3,907,863	100

Source: IFAD, 2021b

Pastures account for around 85% of Kyrgyzstan's agricultural area and remain predominantly within the State Land Fund; since the 2023 administrative reform, pasture management functions have been carried out by municipal enterprises under local self-government bodies, with 215 municipal pasture management enterprises established by 2025 (Kyrgyz Republic, 2025b). From autumn to early spring, daily grazing occurs on nearby pastures, and then during spring and summer, more remote alpine pastures are used, at higher altitudes and as far as 100km from the villages (GIZ et al., 2021). Table 5 shows that 81.5% of the winter pastures and 43.0% of the summer pastures were severely degraded between 2000-2004 and 2014-2020. Between 2006 and 2020, the number of sheep and goats also increased by 55% and the number of cattle by 46% (IFAD, 2021b). The causes of degradation are consistent overgrazing, a problem exacerbated by rising livestock populations, poor infrastructure to access more remote pastures, weak governance, and encroachment of settlements on pastureland. It was estimated that the productivity of near village pastures decreased from 300kg/ha to around 170kg/ha or less between 2000-2004 and 2014-2020 (GIZ et al., 2021). The following Figure 35 indicates the level of pasture degradation comparing the periods 2000-2004 and 2014-2020.

Figure 35: Combined pasture condition map of all four seasons comparing the periods 2000–2004 and 2014–2020



Source: IFAD, 2021b

The country produces over 1.7 million tons of milk annually, but only 2.5% of this is processed domestically. Although the cost of raw milk in the country is lower than in neighbouring Kazakhstan, local inefficiencies result in most dairy products, such as milk, butter, yogurt, and cheese, being imported from more expensive producers in Russia and Kazakhstan. However, Kyrgyz producers are making progress. Dairy exports nearly doubled in 2020 compared to 2016, and by 2022, exports to Uzbekistan surged to 746 tons. In total, Kyrgyz Republic exported 31,000 tons of dairy products in 2022, valued at $49 million, primarily to Kazakhstan, followed by Russia, Uzbekistan, and Tajikistan. Additionally, 13 Kyrgyz companies obtained certification to export dairy products to China. Increased investment in the local dairy industry could open new export markets for Kyrgyz dairy products (International Trade Administration U.S. Department of Commerce, 2024). Milk yields per cow are also higher in larger enterprises compared to smallholder farms, usually due to better feeding and animal pedigree (Robinson, 2020).

The Kyrgyz Republic's meat market remains underdeveloped, despite the demand for Kyrgyz beef and lamb products in neighbouring Kazakhstan. Between 1992 and 2017, total beef production actually dropped in the Kyrgyz Republic, a weak performance in comparison to Tajikistan, where production was more than 1.5 times the 1992 figure, and Uzbekistan, where production more than doubled (Robinson, 2020). One major issue is the country's lack of sufficient local processing capacity for value-added meat production. However, foreign investment is beginning to enhance meat processing capabilities. For instance, USAID has helped establish a modern slaughterhouse in the Naryn region, which has the largest cattle population in the country (International Trade Administration U.S. Department of Commerce, 2024).

Poultry farming in Kyrgyz Republic also has significant untapped economic potential. However, industrial poultry farming has been in decline since the 1990s, partly due to a shortage of qualified specialists. Although demand for poultry is increasing, much of this demand is met through imports, primarily from Eurasian Union member countries like Kazakhstan and Russia (International Trade Administration U.S. Department of Commerce, 2024).

Extension and other support services

As of today, rural advisory services or agricultural extension services in the Kyrgyz Republic are represented across several sectors, these are described below:

State extension services

Public agricultural extension services in the Kyrgyz Republic are delivered primarily through District Departments of Agricultural Development (DDADs/RUARs) and the recently established Farmer Service Centers (FSCs). Overall, public-sector extension remains the least represented segment of the advisory landscape. Limited financial and human resources constrain these institutions' ability to provide training and advisory support at scale across regions. In practice, farmers most frequently approach DDADs on administrative matters, including land leasing procedures and access to preferential state programs.

Representatives of the Ministry of Agriculture of the Kyrgyz Republic (MoA KR) report ongoing efforts to improve farmers' access to essential knowledge, including the targeted establishment of FSCs. As of 2025, 26 FSCs had been established and reportedly provided advisory support to 2,358 farmers in 2025. Despite this progress, the MoA's training, advisory, and capacity-building activities remain fragmented due to resource constraints and shortages of qualified specialists, and do not yet amount to a comprehensive, systematic extension approach.

Civil Society / Non-Governmental Advisory Services

Advisory services delivered by civil society organizations (NGOs) represent the most prominent segment of the extension landscape in the country. As these organizations have historically relied on international projects and donor funding, they have generally had stronger financial and human-resource capacity to implement farmer training and broader capacity-development activities.

Key civil society advisory organizations include PF "TES Center" (established in 1999), PA "Agrolead" (established in 2009), AVEP (established in 1999), TAIC (established in 1999), PF RAS Jalal-Abad (established in 1999), PF RAS Chui (established in 1999), among others.

In recent years, stakeholders report a decline in donor-funded agricultural programming in the country, including the full phase-out of certain major initiatives (e.g., USAID- and ICCO-supported projects). In response, larger and more established advisory organizations have increasingly sought to strengthen their financial sustainability by creating subsidiary commercial entities and embedding advisory services within the pricing of goods and services delivered to farmers.

Examples of these sustainability strategies include: (i) PA "Agrolead" establishing a seed supply and machinery service cooperative and a microcredit agency offering preferential loans to farmers; (ii) PF RAS Jalal-Abad operating an agricultural input shop (including the sale of plant protection products), a microcredit agency, a guesthouse, and other businesses; and (iii) PF "TES Center" creating multiple subsidiary companies both within and outside the agricultural sector (e.g., cooperatives, guesthouses, microfinance organizations).

On average, each civil society advisory organization is estimated to currently reach approximately 5,000 farmers per year through training and advisory support.

Private Sector (Seed suppliers, plant protection product suppliers, banks, etc.)

Private-sector agricultural advisory services are also expanding in the Kyrgyz Republic. Input suppliers (e.g., plant protection products, mineral fertilizers, seed companies) commonly provide advisory support as part of their sales and marketing strategies, bundling technical recommendations with product supply. To deliver these services, companies employ agronomists who work directly with farmers at the regional level.

Private companies frequently establish demonstration plots to test and showcase products under local conditions and organize field days to promote farmer adoption. Advisory services offered by input suppliers are typically not charged as a separate fee; instead, the cost of technical support is embedded in the product price in line with company policy.

In parallel, given farmers' strong focus on livestock production, demand remains high for private veterinary services and artificial insemination (AI) specialists. In these cases, advisory services are generally fee-based and are often linked to the provision of veterinary medicines or breeding materials (e.g., semen from pedigree cattle). Farmers are typically more willing to pay for livestock-related advisory services, as production outcomes and financial returns are comparatively direct and readily observable.

Associations

The most active market participants—Agrolead, RAS Jalal-Abad, and TES Centre—have established the **Kyrgyzstan Forum of Rural Advisory Services (KGFRAS)** to represent the interests of advisory service providers, advocate on sector priorities, and increase the visibility of advisory activities. Membership currently comprises 32 organizations.

Other relevant membership-based structures include Water User Associations (WUAs), Associations of Land Users, and Forest User Associations, which are formally mandated to strengthen the capacity of their members.

In principle, these associations are expected to operate in a member-driven manner, financed through member contributions and delivering services aligned with members' needs. In practice, however, most associations in the Kyrgyz Republic remain largely dependent on donor and international project financing and are often engaged primarily as implementing partners for externally funded activities, rather than functioning as sustainable, member-financed service organizations.

Existing Challenges in the Development of Agricultural Advisory Services

Extension service staff often do not have specialized training in climate change, adaptation measures, and climate risk management, which limits their capacity to provide farmers with relevant and practical guidance. In addition, the extension system lacks innovative approaches and demonstration solutions, including access to modern technologies, digital tools, climate data, and the equipment required to test and introduce climate-resilient agricultural practices at the local level. Insufficient funding, outdated technical infrastructure, and weak linkages with research institutions and the private sector further constrain knowledge upgrading and the dissemination of best practices. As a result, extension services are unable to fully perform their critical role in technology transfer, significantly slowing the adoption of climate-resilient solutions and increasing farmers' vulnerability to the impacts of climate change.

Some advisory services have a limited ability to sell services to commercial entities due to gaps in the skills and competencies required to design market-driven offerings. Effective engagement with the commercial sector requires different capabilities, including negotiation, persuasion, and value chain development. Attracting youth to the agricultural sector also remains a challenge, as several advisory organisations report difficulties in recruiting young professionals into agricultural advisory roles, largely due to low salary levels in the regions.

Barriers to agricultural development

Over the past 12 years, the frequency and scale of climate-induced disasters such as floods, mudflows, landslides, avalanches, heat waves, strong winds, and hail have increased by 1.5 times. These disasters have become a significant factor in food insecurity, as unpredictable and unfavourable weather conditions disrupt agricultural activities. In 2021, unusually high temperatures combined with a shortage of irrigation water led to considerably lower yields for several key crops (WFP & GCF, 2023).

Climate change poses a significant threat to food security in the Kyrgyz Republic. Shifts in precipitation patterns have already caused more frequent short-term crop failures and long-term declines in agricultural productivity. Additionally, heat stress is likely to lead to substantial livestock losses due to

higher mortality rates and lower reproduction rates. Hotter summers and an increase in extreme weather events are also reducing the ability of livestock farmers to produce adequate fodder for their animals (WFP, 2023a). Extreme drought events will further endanger agriculture in the Kyrgyz Republic. Studies indicate that areas with higher vulnerability in the agricultural system are located in the eastern mountainous regions, as well as in the northwest and southwest, around the Fergana Valley. In contrast, regions with lower vulnerability are primarily concentrated in the central part of the country (Liang et al., 2021).

The lack of efficient irrigation facilities has significantly increased the vulnerability of agricultural systems. With the ongoing impacts of climate change, the region is likely to experience more severe droughts, posing even greater challenges to agriculture (Liang et al., 2021). The Central Asia region has been recognized as a potential hotspot for dryland expansion due to future climate change. In some areas, there is also a risk of desertification. Evidence from 2017 indicated that the Kyrgyz Republic contains the largest portion of land currently most vulnerable to desertification (World Bank & Asian Development Bank, 2021a).The future health of land and soil in the Kyrgyz Republic will largely depend on local land management and development practices. Key factors include activities like preventing biomass burning and soil conservation efforts. However, the sustainability of these practices is expected to face increasing challenges due to the impacts of climate change (World Bank & Asian Development Bank, 2021a).

Table 6: The type and length of the irrigation network in provinces of the Fergana Valley

Provinces	Gross irrigated lands (10^3 ha)	Inter-farm irrigation network – Total length (km)	% earthen	% concrete	Specific length (m/ha^{-1})	On-farm irrigation network – Total length (km)	% earthen	% concrete	Specific length (m/ha^{-1})
Andijan	274	2200	53	47	8.0	12,000	79	21	43.9
Fergana	366	2400	47	53	6.6	18,400	89	11	50.3
Namangan	282	2600	61	39	9.2	8,200	81	19	29.0
Osh	184	1212	70	30	6.6	2,934	91	9	15.9
Djalalabad	133	656	54	46	4.9	3,632	77	23	27.3
Batkent	31	361	N/A	N/A	11.8	N/A	N/A	N/A	N/A
Sogd	304	1045	29	71	3.4	8,402	73	27	27.7

Data for 2010
Data source: CAWATERinfo (2012), Dukhovny et al. (2012), NWO EECCA (2010)
N/A – no information available
Source: Kenjabaev & Frede, 2016

Water management presents a significant challenge for agricultural development in the Kyrgyz Republic. Seasonal variations often result in mismatches between water supply and agricultural needs, such as wheat requiring irrigation during spring and early summer when river flows are low, leading to frequent water shortages. This issue stems from inefficiencies in water organization and management rather than supply, given the relative abundance of water in Kyrgyzstan. The 1,030 irrigation canals and drainage systems are managed by Water Users' Associations (WUA), independent organizations responsible for farm-level irrigation (World Bank, 2019a). However, the irrigation infrastructure is in a poor state, and the utilization rate of water for agriculture is very low, which acts as a barrier to improving agricultural production, and creates vulnerability in the face of shifting water abundance under climate change (Liang et al., 2021).

Land degradation in the Kyrgyz Republic, driven by both human activity and ecological factors, is a growing concern, with 35.5% of the population exposed to land degradation in 2019, with key degraded areas in the north and southwest (UNCCD, 2019). Around 45.7% of agricultural land is affected by water and wind erosion. Harmful soil tillage practices using heavy machinery further threaten soil structure and health, especially in mountainous areas. Across the Kyrgyz Republic, pasture areas have suffered considerable degradation, with severely degraded pasture conditions, with spring, summer and autumn pasture areas in the western and southwestern areas being particularly hard hit (IFAD, 2021b). Overgrazing has led to the depletion of biodiversity, soil compaction, and erosion, with 70% of winter pasture areas being affected, particularly in densely populated regions like the Chui and Fergana valleys. Additionally, uncontrolled grazing and firewood collection have exacerbated the depletion of natural resources, contributing to deforestation in certain areas of the country (World Bank, 2019a).

Meanwhile, the government is making significant efforts to convert non-irrigated land into arable farmland. However, this task is challenging, as over 90% of the country's territory is mountainous. Most

of the Kyrgyz Republic's domestic water supply, which comes from glaciers and snowmelt, is primarily used for agriculture (Liang et al., 2021). Despite this resource, water scarcity remains a major concern due to significant water losses caused by aging infrastructure. These issues pose serious risks to the country's food system and agricultural sustainability (WFP & Dikoda, 2023).

The Kyrgyz Republic's mountainous terrain, combined with poorly developed road and railway infrastructure, makes transportation from producers to consumers costly and time-consuming. Additionally, the country's inadequate storage capacity has a significant negative impact on both the quantity and quality of agricultural produce.

Kyrgyz farmers are generally not integrated into modern supply chains, with most food products being distributed through open markets or bazaars, typically in an unprocessed form (O'Connell & Kiparisov, 2018). Several factors hinder their integration into modern supply chains, including an unstable macro-economic and political climate, a weak judicial system, a lack of foreign direct investment (FDI), and the predominance of small-scale farming operations. These challenges limit the development of a more efficient and modern agricultural distribution system (FAO, 2011).

Agricultural extension services in the Kyrgyz Republic currently lack sufficient knowledge, skills, and resources to effectively promote climate-resilient technologies and practices (see section above).

Table 7: Specific challenges preventing the adoption of climate-resilient technologies in the selected value chains in the Kyrgyz Republic

Value chains	Challenges preventing the adoption of climate-resilient technologies at production level	Challenges preventing the adoption of climate-resilient technologies at processing, marketing and export levels
No-till rainfed cereal production	• High Cost of Specialized Equipment. Direct sowing seeder (no-till drills) are significantly more expensive than conventional seeders/plows/harrows (starting at $22,000); small farmers often cannot afford them. • Limited access to specialized equipment and services. In remote areas, there are no service centers or spare parts for specialized seeders. • Limited Access to Credit and Leasing. Banking products are either unavailable or have high interest rates and complex requirements. • Lack of or limited incentive programs and subsidies. Insufficient targeted subsidies for the purchase of no-till equipment or for training. • Risk of low yields during the transition period (farmers' expectations). The first 1–2 years may not always produce stable yields, which reduces farm liquidity. • Fragmentation and Small Field Size. Small, scattered plots (1–3 hectares) hinder the efficient use of machinery service and maintenance services. • Land tenure and grazing on stubble residues. • High weed and overwintering disease infestations. • Limited crop rotation. Many farms grow a limited range of crops (single crops or narrow rotations), which reduces the effectiveness of no-till. • Lack of knowledge and practical experience. Many farmers are unfamiliar with no-till principles, residue management, fertilizer adaptation, and optimal crop rotation planning. • Resistance to change and tradition. Habitual plowing, fear of new methods, lack of examples of successful local practices. • Limited access to certified seeds, fertilizers, and plant protection products.	• Lack of modern storage facilities. • Insufficient logistics for harvest aggregation and the purchase of fertilizers/plant protection products. • Market risks. Unstable grain prices, dependent on imports from neighboring countries, increase the risk for farmers with a limited safety net.
Fruits	• Due to increasingly frequent low yield years as a result of weather (frost and rain during flowering, too early too hot temperatures, droughts, hail damage and others), investments in advanced fruit orchards are risky, because advanced technologies (high quality seedlings, drip equipment, wells, pumps etc.) are costly. • Farmers lack knowhow on advanced practices. Those who gained semi-advanced know-how in recent years, need next-level specialised know-how. Limited expert capacities on drip irrigation,	Processing companies: • Knowledge about climate-resilient of low-carbon technologies is largely absent (e.g. energy-efficient equipment, water-efficient practices). • Promotion of climate-friendly technologies for processing companies by the government is very limited. • No attractive loans for investments in climate-friendly technologies are available. Exporters:

Value chains	Challenges preventing the adoption of climate-resilient technologies at production level	Challenges preventing the adoption of climate-resilient technologies at processing, marketing and export levels
	intensive fruit orchards, ecologically sound pest and disease management. • Limited access to finance (e.g. document requirements, interest rates, collateral needs). • In some places, irrigated land plots are very small. It makes uniform production and marketing difficult. • Market prices fluctuate strongly between years, which discourages investments in advanced technologies.	• Exporters' climate-change problems are to a large extent closely related to fruit production at farm level. Due to climate change the variability of harvest volumes increases, fruit quality is affected (pest and disease damage, sunburn, sugar content, firmness etc.), supply seasons change (e.g. earlier maturity, shorter supply windows). • Exporters need to adapt their whole supply chain and delivery system to climate change conditions. This includes investments in logistics systems and to work with producers.
Horticulture	• Limited access to quality seeds, seedlings, planting materials and other appropriate technologies for smallholders. • High upfront costs and weak access to finance. • Weak /extension systems and knowledge gaps on irrigation, integrated pest management, soil management. • Irrigation constraints, including unreliable water supply and inefficient irrigation networks.	• Underdeveloped cold chain, storage, sorting, grading, packing and processing infrastructure, causing high post-harvest losses. • Fragmented supply chains with many intermediaries, making aggregation, quality control, and traceability difficult. • Limited access to finance for post-harvest and processing investments such as cold storage, packhouses, and equipment. • Weak compliance capacity for food safety, standards, certification, testing and documentation required by formal and export markets.
Seed potato	• A large amount of worn-out equipment and machinery and a lack of modern agricultural machinery • Lack of qualified agronomists • Lack of knowledge of farmers in agricultural technology for growing seed potatoes	• Lack of modern storage facilities • Lack of knowledge about resource-saving technologies (solar panels, heat pumps, etc.) • Limited awareness of long-term cost savings and resilience benefits. • Lack of subsidies for the implementation of resource-saving technologies • Unreliable energy and water supply, reducing the effectiveness of climate-smart solutions.

2.3.3 Tajikistan agriculture sector profile

Tajikistan is a landlocked nation characterized by extreme mountainous terrain, with elevations exceeding 7,000 meters. Extensive glaciers in its central region serve as a crucial water source, supplying irrigation during the arid summer season. Nearly half of the country's area consists of the Pamir highlands (higher than 3000 m.a.s.l.), while fertile lowlands are scarce, representing a mere 7% of the territory. This includes the hyper-arid deserts of the Eastern Pamir (FAO, 2001). Tajikistan, characterized as a lower-middle-income nation, had a GDP per capita in 2023 of USD 1,189.00 (current USD) (World Bank, 2024e). Despite limited arable land due to its mountainous terrain, agriculture serves as the pivotal economic sector, employing 46% of the official workforce (TAJSTAT, 2023).

Out of 4.7 million hectares of agricultural land in Tajikistan, 3.83 million hectares, or 83 percent, consist of pastureland, 85 percent of which are subject to erosion (Khakimov et al., 2023; World Bank, 2021a). This includes 782,541 hectares in the Sughd region and 1,223,372 hectares in the Khatlon region. Of the total pasture area:

- 778,262 hectares are winter pastures;
- 2,057,305 hectares are summer pastures;
- 710,206 hectares are spring-autumn pastures; and
- 284,853 hectares are pastures used year-round.

The climatic conditions in Tajikistan vary significantly with geography. The valleys of the southwest are characterized by extended frost-free periods of 230 to 260 days. Moving northward, this duration shortens, as evidenced by Khujand’s 214-day period. Transitional zones—such as the Zeravshan Valley, the central mountainous regions, and the western Pamirs—experience a marked shift to cooler, dry summers. A key feature of these areas is a steady temperature decline with increasing elevation (WFP, 2017). Characterized by a dry continental climate, Tajikistan sees extreme variation in precipitation, from 60 mm annually in the east to 1,800 mm in the center. High evaporation rates of 1,200–1,600 mm further strain water resources (Dukhovny & Sokolov, 2002). Despite favourable solar radiation and soils, rainfall provides just 10–30% of crop water needs, rendering irrigation indispensable for growth.

Tajikistan’s irrigated agricultural land (5.4% of its territory, or 766,300 ha) and water resources (accounting for over 85–90% of total water intake equal to 8-13 billion m3) are critical, supporting more than 80% of national food production. A total of 181,444 farms and organizations of various sizes are currently engaged in producing agricultural goods in this important sector of the economy (TAJSTAT, 2024d). Around 300,000 ha of the irrigated areas are under zone of machine irrigation (ALRI, 2025).

Based on technical equipment, irrigated areas fall into four categories: modern systems (282,000 ha); systems with unlined main canals lacking proper hydraulic controls (202,000 ha); systems with rehabilitated networks and large main channels (200,000 ha); and under-equipped systems (53,700 ha).

Major part of Tajikistan's irrigation sector is structured around 242 Water User Associations (WUAs), organized by hydrographic zone and servicing over 433,000 hectares (13.5% of which are kitchen gardens). These associations were created to ensure efficient system maintenance, equitable water distribution, and improved farmer welfare. While this mandate remains unchanged, the outcomes after almost 30 years, consistent with regional trends, are concerning. Farmer satisfaction is low, and the WUAs themselves confront numerous challenges due to a combination of factors (Yakubov et al., 2025).

Crop production accounts for 69% of the agricultural sector's value-added, with the primary farming zones concentrated in Khatlon, Sughd, and the Districts of State Subordination (DSS). As much of the country's terrain is mountainous and unsuitable for cultivation, agriculture is largely confined to irrigated valleys, which contribute 90 percent of the Gross Agricultural Output (GAO), and rain-fed downhill areas. Regional specialisation is pronounced: Sughd is the leading producer of barley, maize, and rice, while Khatlon dominates in cotton and wheat production.

Research underscores Tajikistan's acute vulnerability within the ECA region. World Bank, (2010) found it to be the most climate-sensitive country with the least adaptive capacity, warning of sweeping impacts on ecosystems, the economy, and society. This fragility is critical for food security, as climate-induced water stress and disasters threaten to exacerbate the nation's pre-existing low agricultural productivity (Reva et al., 2012).

Climate change presents a fundamental challenge to Tajikistan's primary strategic goal—enhancing living standards—and its related priority of ensuring food security and access to quality nutrition by 2030, as outlined in the National Development Strategy (NDS) 2016–2030 (P. Khakimov et al., 2020)

Contribution to livelihoods

In the last 20 years, the agricultural sector has been a key driver of Tajikistan's economy, despite its limited natural resources and vulnerability to climate risks. This sector experienced an average growth of 6.4% from 2010 to 2019, and even higher growth rates of 8.8% in 2020 and 6.6% in 2021 with a particular focus on the cultivation of vegetables, grains, and hay (TAJSTAT, 2021)). Agriculture contributed to 22.9% of the total GDP in 2022 and is the backbone of the rural economy (FAO & WFP, 2023; World Bank, n.d.). The sector employs nearly half of the country's workforce. The share of crop production accounted for 72% and animal husbandry 28% of the gross agricultural output. The national industry depends significantly on agricultural products (FAO & WFP, 2023). The production value of the food industry accounted for 28% of the total manufacturing industry in 2010, and nearly two-thirds of existing industrial enterprises are involved in agribusiness (ibid.). The share of the labour force working in the agriculture sector is significant (60.8% in 2020), although it has been declining from 2010 to 2020 (Diao et al., 2023). Women are generally overrepresented in lower-paying sectors like healthcare and education, as well as in agriculture and other low-skilled occupations (ILO, 2020) and constitute the majority of agricultural employees (53%) (Asian Development Bank, 2016). Women frequently participate in informal employment, particularly within the rural agricultural sector, thereby contributing to a higher proportion of individuals involved in agriculture than officially reported (Mukhamedova, N., & Wegerich, K, 2018). Due to male out-migration women are taking on traditionally male roles, challenging established gender norms and power structures within society. Gender roles in Tajikistan are influenced by societal values and historical, political, and economic contexts, and impact activities and development at various levels (ADB, 2020). Women are primarily engaged in unpaid farm work for household consumption, while female-headed households, both rural and urban, face challenges in land ownership and rely on various sources for sustenance (World Bank, 2021).

In 2021, 71.2% of the population in Tajikistan resided in rural areas (TAJSTAT, 2021). Rural areas were home to 75.4% of the total workforce, underscoring the vital role of the agricultural sector in livelihoods (ILO, 2020).

Table 8: Share of agriculture in GDP, Labour, Export and Public expenditure 2010 to 2020

% share of agriculture in:	2010	2015	2020
GDP	22.1	25.1	22.6
Labor force (TAJSTAT)	67.0	64.9	60.8
Labor force (WDI)	46.1	43.2	40.5
Export	18.9	22.5	19.3
Public expenditures	n/a	2.4	2.8

Source: Diao et al., 2023

Tajikistan is the most food-insecure country in Central Asia (Hayward et al., 2022). A substantial proportion of Tajik households face food insecurity, with 24% experiencing it in December 2017 (WFP, 2018). Winter months see increased household spending on food, reaching a point where three out of four households allocate over 75% of their income to food (WFP, 2018). The major drivers of food insecurity in Tajikistan include heavy reliance on agricultural outputs, livestock, remittances, and the availability of essential foods, which are prone to price fluctuations and periodic shortages (WFP, 2018). This also results in certain regions in Tajikistan being especially vulnerable to food insecurity due to uneven socioeconomic development and poverty, institutional strengths, exposure to climatic factors, and elevation and accessibility. Additionally, nutrition security in Tajikistan exhibits seasonal variations, closely linked to the cyclic nature of food production (WFP, 2023c). The COVID-19 pandemic exacerbated food security issues, causing rising prices, diminished livelihoods, and decreased remittances.

The share of household expenditure on food has increased since 2021. In August 2023, surveys showed that almost half of the population, 4.7 million people, spent more than 65 percent of their monthly budgets on food, which limits household capacity to cover non-food essential needs, such as health and education (FAO & WFP, 2023). Khatlon region has the highest level of acute food insecurity, with 20% of households affected, compared to the national estimate of 16% of households (1.56 million people) (ibid.).

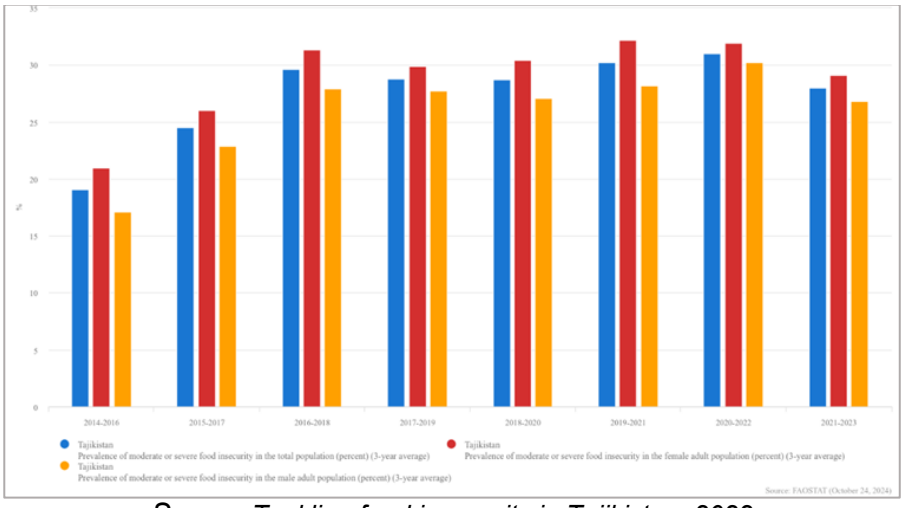
Tajikistan's food security situation is critically challenging. The adverse impacts of natural and biological hazards on agriculture severely restrict access to nutritious food, leading to significant food and nutrition

insecurity. This is reflected in Tajikistan having the highest rate of malnutrition among former USSR countries and the poorest nutritional indicators in Central Asia (Welthungerhilfe & Concern Worldwide, 2021). While long-term data on undernourishment is scarce, recent assessments highlight acute problems. The country exhibits one of the highest levels of food insecurity in the Europe and Central Asia region, with an average of 9.6% of the population experiencing severe insecurity and 30% facing moderate or severe insecurity during 2016–2018 (FAO, 2019a). Compounding this, the 2018 Fill the Nutrient Gap analysis estimates that 30% to 56% of households cannot afford a nutritious diet, a burden that falls hardest on vulnerable groups such as pregnant and lactating women and girls.

Climate change compounds food security challenges in Tajikistan, leading to soil degradation, desertification, and reduced water quantity and quality. Smallholders and rural households are particularly vulnerable to climate change, impacting both their physical and economic access to food (WFP, 2017). Calculations by the World Food Programme (2017) highlight the vulnerability of households to climate change, with the eastern Districts of Republican Subordination (DRS), southern Sughd hills and Khatlon region's hills and lowlands all particularly vulnerable due to their high reliance on agriculture for livelihoods and as a direct food source. Ongoing policy efforts, including the 2010 law on food security and the Food Security Program for the Republic of Tajikistan (2018-2023) developed by the Tajik Academy of Agricultural Sciences (TAAS), aim to address these multifaceted challenges and enhance the nation's food security. Tajikistan is judged to be highly vulnerable to livelihood risks (Lerman & Sedik, 2018), which is marked by low income levels and high poverty rates.

The exposure to climate change hazards and other natural hazards such as droughts, floods, earthquakes, wildfires further exacerbates the levels of food insecurity, which can be observed in Figure 36 (Tackling Food Insecurity in Tajikistan, 2022).

Figure 36: Prevalence of moderate and severe food insecurity (%) (3-year average)



Source: Tackling food insecurity in Tajikistan, 2022

Farming types and land reform

A quarter of Tajikistan's total land area (14 million ha) is agricultural land (Asian Development Bank, 2016) distributed across five land use categories: arable land, perennial cultures, pastures, meadows, and storage areas.

Tajikistan's mountainous topography restricts arable agriculture to 6% of its total land area. Out of the country's total land area of 139,960 km^2, agricultural land is estimated at 4.92 million ha (35% of the land area), of which only 838,000 ha (17%) are arable land, while 3.88 million ha are classified as pasture land (FAO, 2024a) see Table 9). This results in the country's ratio of people per hectare of arable land being one of the highest in the world (FAO & WFP, 2023). Of the arable land, around 70% is irrigated, while the remainder is rainfed. The main agricultural areas are Khatlon and Sughd, followed by DRS and GBAO, with 40% of agricultural land and 48% of arable land found within Khatlon province (Lambrecht et al., 2023). More than half of Tajikistan's pastures are high mountain summer pastures (located at altitudes ranging from 1,700 to 3,500 m above sea level and can be used for 100-120 days a year (Lopes, 2021). Arable agriculture is mainly concentrated in river valleys, with 68% of farmed land relying on irrigation, contributing 90% of gross agricultural output (World Bank, 2024a). Although

irrigation coverage increased from 757,000 ha in 2010 to 817,000 hectares in 2021, the actual irrigated area amounts to approximately 567,000 hectares (FAO, 2024a) due to deteriorating infrastructure.[5]

Table 9: Use of agricultural land in Tajikistan, 2010 – 2021 ('000 ha)

Types of land	2010	2015	2021
Agricultural land	4,756	4,844	4,917
Arable land	747	829	838
Land equipped with irrigation	757	817	817
Agriculture area actually irrigated	N/A	817	567
Permanent crops	134	140	204
Meadows and pastures	3,875	3,875	3,875

Source: FAO, 2024a (2021 is the most recent year for which data are available); N/A = not available

Legislations and regulations related to land use and ownership have undergone various cycles of change since the fall of the Soviet Union in the early 1990s. An agrarian transformation of land was driven by a wave of privatization of land in different forms (Hayward et al., 2022). The 1992 Law on Land Reform and the land code from 1996 were among the guiding legal frameworks for changes in land ownership and management (Hayward et al., 2022). This has led to a 20% share of household plots and a 65% share of dehkan farms (Lerman, 2012), a form of organization that emerged after the law on land reform in 1992. Effectively, the use of cultivable land in Tajikistan has been individualized in the past three decades. While household farms are almost exclusively on arable land, dehkan farms control about two-thirds of all pasture (Hayward et al., 2022; Lerman, 2012).

Land in Tajikistan remains state-owned, with plots held under different forms of user rights, such as perpetual use, limited or fixed-term use, and life-long heritable tenure (Hayward et al., 2022). State Reserve Land and State Forest Land are managed by different state agencies, and individuals can obtain fixed-term land use contracts for these areas, often used as summer pastures (Hayward et al., 2022). Ownership of land use rights is officially documented through certificates issued by the State Unitary Enterprise for the Registration of Immovable Property (Hirsch, 2018). A significant development occurred with the amendment of the Law on dehkan Farms in 2016, which defined dehkan farms as legal entities and enhanced legal rights protection for farmers, marking a substantial step towards a market for land use rights (Hirsch, 2018). By the end of 2016, registered smallholder dehkan farms cultivated a significant 81% of arable land with about 90,000 dehkan farmers registered, following a continuous decline of large-scale collective farms (agricultural enterprises) (Mukhamedova, N., & Wegerich, K, 2018; Hayward et al., 2022).

More recent reforms and donor interventions focus on advancing commercialization in the farm sector, in terms of export potential and internal organization (Hayward et al., 2022). This implies that the attraction of private investors is crucial to implement the government agenda of transforming the agrarian-based industry into an industrialized agrarian economy.

Crop production - key products and production types

As a result of diverse agroecological conditions, Tajikistan's agricultural landscape encompasses a range of winter and spring crops, with winter wheat, vegetables and potatoes being cultivated on the largest land areas. Winter crops include winter wheat, rye, and barley. Spring crops feature a diverse range, including wheat, barley, maize, rice, oats, various other grains and beans, as well as cotton, flax, potatoes, vegetables, and melons (Table 5). This variety of crops plays a vital role in the country's agricultural sector and food production (TAJSTAT, 2019). In the lowlands, large-scale irrigation was introduced during the Soviet era mainly to establish cotton production. Nowadays, the main crops produced on irrigated lowlands are cotton, rice, and vegetables. On non-irrigated land, wheat production dominates at the lower elevations.

While wheat and cotton remain the country's main crops, Tajikistan's recent agricultural growth has actually been driven by diversification and the incorporation of new land areas since 1992. Notably, horticulture, encompassing potatoes, vegetables, fruits, melons, and grapes, experienced substantial

[5] Note: data from the State Committee for Land Management and Geodesy in Tajikistan deviate somewhat from FAO data, reporting lower values for arable and irrigated arable land at 672,000 ha and 470,000 ha, respectively, in 2022.

growth from 18% of area allocation in 2005 to 30% in 2018 (World Bank, 2021a). The inclusion of new land areas for agricultural use resulted in an increased proportion of cultivated areas dedicated to these crops (TAJSTAT, 2021). The area devoted to wheat, the country's primary staple crop, declined from 46% in 2010 to 32% in 2022. Nonetheless, productivity increases of 44% led to an increase in production, from approximately 819,000 MT in 2010 to 935,000 MT in 2022 (FAO, 2024a) (see Table 10).

Table 10: Key agricultural commodities in Tajikistan and recent trends in ha and kg/ha

Commodity	Area (ha)			Yield (kg/ha)		
	2010	**2015**	**2022**	**2010**	**2015**	**2022**
Cereals	459,900	422,900	390,531	2,410	2,770	3,330
Wheat	342,600	295,600	271,067	2,390	3,040	3,450
Barley	69,400	77,200	68,161	1,790	1,800	2,300
Maize	12,500	19,000	17,870	4,060	4,710	5,790
Rice	14,800	11,700	12,891	3,440	4,490	5,500
Cotton	162,400	159,600	181,542	1,930	1,730	2,270
Potatoes	31,800	39,800	56,096	22,970	22,170	11,910
Vegetables	44,800	55,400	69,992	20,580	24,790	28,610
Fodder	87,700	102,400	115,135	N/a	N/a	n/a
Melons and gourds	20,900	21,400	20,664	20,420	23,340	31,240

Source: Agency for Statistics under the Government of the Republic of Tajikistan (TAJSTAT), (TAJSTAT, 2013, 2016, 2023)

From Table 10 above it can be seen that Tajikistan's main crops are cereals (mainly wheat) and cotton (ADB, 2023). The importance of cereals and legumes is increasing on a yearly basis, while the relevance of industrial crops, mainly cotton, is decreasing. The crop yields are also increasing, as shown in Table 11 and Table 10.

Table 11: Tajikistan Crop yields in kg/ha

Crop	Average 2005–2008	Average 2015–2018	Percentage change
Raw cotton	1,64	2,03	24%
Wheat	2,027	3,225	59%
Potatoes	20,437	21,006	3%
Vegetables	18,797	28,565	52%
Fruits	2,597	3,405	31%
Grapes	3,25	5,988	84%

Source: World Bank, 2021a

Despite agriculture's prominent role in Tajikistan's economy, the country heavily depends on food imports for food security, while food exports are comparatively low. Notably, Tajikistan imports more wheat (1.09 million MT in 2019) than it can domestically produce (around 837,000 MT in 2019), with Kazakhstan supplying 96% of all imports due to proximity, accessible railway transportation, and its comparative advantages in wheat production. Additionally, about one-third of rice consumed in Tajikistan is imported (MoA, 2020). In terms of production types, irrigation agriculture is dominant, with more than 90% of arable land under irrigation (ADB, 2023).

Animal production and rangeland management

The following Table 12 shows Tajikistan's livestock populations between 1991 and 2022. The increase can be observed in the last column in percent.

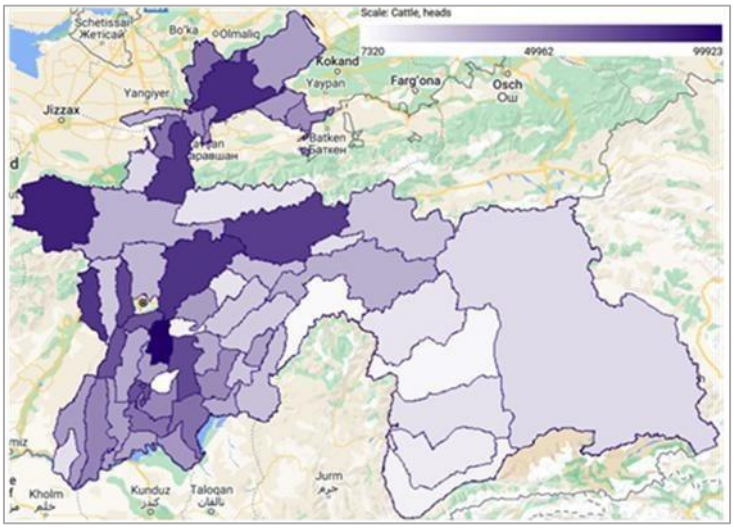
Table 12: Livestock populations in Tajikistan from 1991 - 2022 (in thousand heads)

Livestock	Number (in thousands)			Percentage change
	1991	2013	2022	*From 1991 to 2022*
Cattle (all)	1,390.0	2,327.5	2,553.0	+83%
Cows	585.8	1,207.1	1,325.2	+127%
Sheep & goats	3,354.9	5,620.2	6,317.1	+88%
Horses	52.6	80.8	85.6	+63%
Donkeys	63.3	136.8	126	+99%
Yak	15.1	25.5	26.8	+77.5%
Birds of all kinds	6,586.4	5,217.0*	11,286.3	+71%
Pig	128.1	160.0*	284.0	+122%

**Numbers from 2017*
Source: TAJSTAT, 2023

Figure 37 shows the areas where cattle are farmed (Atlas of the National Investment Plan of Tajikistan, n.d.). 93% of the total cattle population is owned by household farms, which are characterized by their small size and limited land availability. Household farms are mainly located in mountainous areas, especially in Eastern Khatlon, Gorno-Badakhshan Autonomous Oblast (GBAO), and Sughd regions. Household farms keep on average 2 – 5 cattle in dual-purpose systems to produce both milk and meat, and the cattle graze on collective pastures throughout the year. Animals are moved twice a year from winter pastures near villages to more remote summer pastures, over distances of up to 500-600 km, which may jeopardize the biosecurity of livestock production. In the High Pamirs, yak herders practice vertical transhumance moving animals from 3,000 m up to 4,000 m a.s.l. and above. Yak operations range from small (up to 15 heads per farm), medium-sized (15-80 heads), and large operations (up to 1,000 heads).

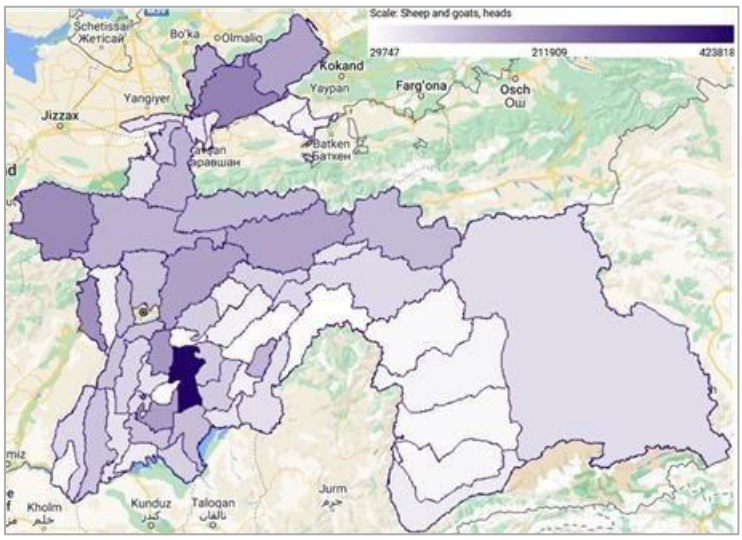
Figure 37: Distribution of cattle in Tajikistan



Source: Atlas of the National Investment Plan of Tajikistan, n.d.

Figure 38 shows the areas where small ruminants are kept. Similarly to cattle, 82% of small ruminants are kept on household farms, often together with cattle, and are reared in collective grazing systems. Only a small share of small ruminants (18%) is kept in larger flocks with several hundred heads. These herds are migrated across regions, lowland and mountainous areas.

Figure 38: Distribution of small ruminants in Tajikistan



Source: Atlas of the National Investment Plan of Tajikistan, n.d.

Most dehkan farms hold livestock, whose numbers experienced a significant overall increase, including a rise in cattle, sheep and goats, poultry, horses, yaks, and bee colonies (MoA, 2022). Livestock populations have not only recovered, but also increased, since Tajikistan's independence, reflecting increased importance of livestock for poverty alleviation and nutritional needs (Robinson, 2020).

This surge in livestock led to higher meat, milk, egg, wool and honey production. However, the surge in livestock coupled with reduced feed supplies has negatively impacted productivity, resulting in low milk and meat yields, along with land degradation (IFAD, 2018). This has the potential to negate the benefits of livestock farming for poor households and instead exacerbate poverty among farming households in the country in the coming years (ibid.).

Pasture accounts for approximately 80% of agricultural land, but pasture stocks are rapidly deteriorating, mostly because of poor management. According to a World Bank assessment, factors include: the transition from the socialist system of livestock production and its organization of pasture management; a simultaneous increase in the number of livestock units (for example, the cattle population grew by 70% between 1991-2019); the challenges of sustainably managing pastures as a public good, while over 90% of animals are held in household farms; the limited effectiveness of pasture user unions (PUUs) due to an incomplete transfer of land use rights and financial liabilities; the additional pressure on resources from the rural population more than tripling over the past 50 years; and climate change impacts, particularly the increasing erosive capacity of rainfall, exacerbating soil erosion (World Bank, 2022b).

Following the collapse of the Soviet pasture management system, there has been a lack of strategic funding for restoration and maintenance of pastures and related infrastructure. About 85% of pastures are subject to erosion. Growing livestock numbers have increased pressure on pastures near to settlements, while remote and summer pastures are underutilized. The actual stocking rate represents 205% of the carrying capacity of pastures (World Bank, 2022b).

To avoid further land degradation and conflicts of pasture use rights, Pasture User Unions (PUU) were established based on the "Law on Pastures" first introduced in 2013 (No. 951).The PUUs' legal framework assigns individual responsibilities within PUUs with the aim to mitigate free-riding behaviours, preventing overexploitation of pastures and subsequent land degradation (IFAD, 2018). Between 2014 and 2021, total of 400 PUUs were established across Tajikistan (IFAD, 2018, 2021a).

The key change in pasture management since Soviet times is that the lowest level of management (corporate farms) no longer functions effectively, without adequate resources for pasture upkeep or adequate management system. The weak management system enables overexploitation of pasture, and the development of a vicious cycle of ever-lower animal yields and rural income, as farmers can independently decide to increase their livestock production by adding animal units. This, creates a greater demand for feed, leading to a decrease in the feed per animal ratio, and to a deterioration of the grazing land. This cycle has caused a dramatic fall in livestock productivity, with low milk and meat yields alongside land degradation in the country, further worsening poverty (IFAD, 2018).

Extension and other support services

The state of agricultural extension services in Tajikistan is characterized by significant deficits in reach and capacity. Current professional extension services, encompassing both public and private entities with approximately 2,250 personnel (about 600 of whom are formally trained), reach only an estimated 5% of the country's 180,000 farms and 14% of its arable land. The system is mixed, featuring public, private, and non-governmental providers. Public services, offered free of charge, face severe constraints due to limited government funding, which allocated only 2.4% of total public agricultural expenditure to extension and advisory services between 2016 and 2019 (World Bank, 2021). Private and NGO services may operate on fee-based or project-funded models. Key service providers include:

- The Ministry of Agriculture (MoA): Provides public advisory services through its district and provincial agricultural departments, though publicly available information on its activities is scarce.
- Private Sector & NGOs: A limited number of entities, such as the Neksigol Group of Companies and the Sarob Cooperative, provide fee-based or donor-funded advisory and input supply services nationally and in specific regions like Sughd. Neksigol promotes climate-resistant seeds, bio-fertilizers from biodigesters, and digital advisory tools (e.g., AgroSpace platform) that could integrate climate data (AgroSpace digital platform, 2025; Aliev et al., 2025; Neksigol Mushovir & Neksigol Navovar, 2025) Sarob Cooperative explicitly lists the implementation of Climate-Smart Agriculture (CSA) and water-efficient technologies among its core service areas and has built a network of over 300 advisors (M. Muminov, personal communication, 2025).

Mechanization and advisory services for smallholders are generally limited and specialized. While the Sarob cooperative facilitates access to machinery and promotes conservation practices like no-tillage, the Neksigol group focuses on providing digital tools and technical consulting. Both organizations primarily target market-oriented farmers engaged in the production of key commodities, such as cotton, fruits, and cereals, rather than maintaining a full nationwide outreach for all smallholders.

Existing Challenges in the Development of Agricultural Advisory Services

Several interrelated challenges need to be addressed to strengthen climate-smart agricultural advisory and extension services. Overall, there is a significant shortage of qualified personnel in agricultural consulting, while the demand for climate change adaptation specialists is increasing annually. At present, national universities do not provide dedicated training in this field, a situation that is also observed in neighbouring countries. As a result, both public and private extension providers require substantial strengthening. This calls for a dual approach: in the short term, targeted capacity building of existing consultants through practical training courses on climate change adaptation delivered with international expertise; and in the longer term, the development of national expertise through cooperation with universities and international educational institutions, including curriculum reform and support for advanced studies abroad.

Extension providers also need better access to localized, timely, and actionable climate information, including agro-meteorological data and forecasts, as well as training on how to translate this information into practical farm-level advice. The link between research and farmer adoption remains weak. Stronger mechanisms are needed to move proven climate-resilient technologies from research institutions and experimental stations into scalable extension packages and demonstration activities.

Finally, extension services need strategies and practical tools to address the specific barriers that prevent farmers from adopting resilient practices. For example, promoting CRLE practices and technologies requires solutions to obstacles such as high machinery costs, weed management under no-till systems, and residue management.

Barriers to Agricultural Development

Severe resource degradation undermines productivity and increases vulnerability, including land degradation affecting 82% of land, inefficient irrigation with approximately 50% water loss, and soil salinization (Khudaybergenova et al., 2019). Economic constraints further weaken the sector, as low agricultural profitability, high farmer vulnerability, and dependence on remittances reduce both investment capacity and the ability to pay for services. At the same time, climate change is intensifying risks to agriculture through increasing temperatures, erratic precipitation, and extreme weather events, which directly threaten yields and make climate-informed advisory not an option but a necessity. These pressures are compounded by institutional and infrastructural deficits, including limited public

investment in research and development, advisory services, and the maintenance of critical water infrastructure, which hinders systemic innovation and adaptation (ADB, 2019a; MoA, 2020).

Across the selected value chains, a number of barriers continue to prevent the adoption of climate-resilient technologies at production level. These include limited knowledge and skills of farmers about technologies, as well as lack of knowledge, experience, and skills among extension services. Adoption is further constrained by limited or no incentive mechanisms to promote and adopt climate-resilient technologies, high prices for equipment and technology for a single smallholder farmer, limited or no access to market, and limited knowledge among producers about customer requirements for producing and exporting goods. In relation specifically to no-tillage, high prices for equipment and machinery, as well as a lack of knowledge, experience, and skills in CA and no-till technologies, are key constraints. Adoption is also constrained by a long-established preference among local farmers for conventional ploughing and tillage (M. Muminov, personal communication, 2025).

Barriers also persist at the processing, marketing, and export levels. These include limited knowledge and skills among farmers and SMEs in processing, packaging, labelling, and product promotion technologies. Additional constraints include the lack of laboratories for product testing, certification services, and compliance with export market requirements. Weak or unreliable logistics, high post-harvest losses, and limited access to markets further constrain sector performance. While the grouping of producers through cooperatives and associations is widely recognized as important for improving access to services and markets and for increasing incomes, current legislative frameworks in many cases provide greater support and incentives to individual and family-based farming. As a result, there are limited incentives for producers to formally organise. Strengthening collective action would therefore require enabling policy and legislative reforms, including the introduction of tax incentives, simplified administrative and reporting requirements, and other measures to create a more favourable environment for cooperatives and farmer associations.

Table 13: Specific challenges preventing the adoption of climate-resilient technologies in the selected value chains in Tajikistan

Value chains	Challenges preventing the adoption of climate-resilient technologies at production level	Challenges preventing the adoption of climate-resilient technologies at processing, marketing and export levels
No-till rainfed cereal production	• Lack of knowledge, experience, and skills in conservation agriculture and no-till technologies. • High prices for equipment and machinery Lack of knowledge, experience, and skills among extension services. • Limited or no incentive mechanisms for the purchase of no-till equipment or for training. • Grazing on stubble residues limiting permanent soil cover and on-site mulching. • Limited practice of crop rotation. • Resistance to change and tradition with ploughing a standard practice.	• High competition with wheat produced in Kazakhstan • N/A
Fruits	• Limited knowledge and skills of farmers about improved orchards technologies. • High cost for equipment and technology for a single smallholder farmer, with financial risk as production is unreliable in the context of climate change (e.g., late frost events) and price fluctuation • Limited access to finance (e.g. document requirements, interest rates, collateral needs). • Lack of knowledge, experience, and skills among extension services for training on improved orchard and adaptation technologies.	• High post-harvest losses, including due to pest. • Limited knowledge among producers about customer requirements for producing and exporting goods. • Limited knowledge and skills among farmers and SMEs in processing, packaging, labelling, and product promotion technologies. Weak or unreliable logistics. • Limited access to soft loans for investments in climate-friendly technologies are available.
Horticulture	• Limited knowledge and skills of farmers about climate change adaptation practices and technologies in horticulture. • High cost for equipment and technology for a single smallholder farmer, with financial risk as production is unreliable and price fluctuate from year to year • Limited access to finance (e.g. document requirements, interest rates). • Insufficient number of qualified extension services for training on Climate resilient horticulture.	• High post-harvest losses due to underdeveloped cold chain, storage, sorting, grading, packing and processing infrastructure, • Fragmented supply chains with many intermediaries, making quality control, and traceability difficult. • Limited knowledge among producers about customer requirements for producing and exporting goods.
Seed potato	• Outdated equipment and machinery • Lack of qualified extension services • Limited or no incentive mechanisms to promote and adopt climate-resilient technologies. • Lack of knowledge of farmers in agricultural technologies and adaptation options for seed potatoes growing	• Lack of modern storage facilities • Limited access to soft loans for investments in climate-friendly technologies are available.

Uzbekistan agriculture sector profile

Uzbekistan is a doubly landlocked country located in the Aral Sea basin. In total, the country has 27.6 million ha of agricultural land, of which 82% is classified as rangeland, 16.2% as arable land, and 1.2% as permanent crop land.

Uzbekistan has a diverse agricultural sector that plays a crucial role in the overall economy. The sector not only provides employment and income for a significant portion of the population but also contributes to the country's export revenues. With its varied climate and geography, Uzbekistan has the potential for a wide range of agricultural activities. Agriculture accounts for 25% of the GDP and employs around 26% of the workforce (International Trade Administration, 2023) Agriculture occupies about 10% of the country's land, though much of this is low-productive pastureland. Only 4.3 million hectares are irrigated and suitable for cultivation.

Table 14: Volume of products (services) of agriculture, forestry and fisheries in the Republic of Uzbekistan (January-December, trillion sums)

	2019	2020	2021	2022	2023
Total	224.3	261.9	317.0	362.9	426.3
including:					
Crop and livestock farming, hunting, and provision of services in these areas	217.3	253.2	306.9	350.1	411.6
of them:					
agricultural products	216.3	250.3	303.4	345.2	404.6
Forestry	5.5	6.8	7.5	9.6	10.4
Fisheries	1.5	1.9	2.6	3.2	4.3

Source: National Statistics Committee of the Republic of Uzbekistan, 2026

Cotton and grain are the most prominent agricultural products, partially a legacy of Uzbekistan's role in Soviet agriculture, yet market-oriented reforms in 2020 and 2021 have triggered a shift towards more high-value horticultural products (International Trade Administration, 2023). Uzbekistan's agriculture sector is on a path of economic liberalization (Juraev & Ahn, 2023) and external cooperation with Eurasian Economic Union (EAEU) countries and China to improve trading infrastructures. As of 2022, agricultural products account for 8.4% of the countries' external earnings (International Trade Administration, 2023).

Contribution to livelihoods

In 2018, agricultural activities employed 27.2% of the total population and made-up 28.8% of the nation's GDP, although this has been shrinking as a portion of the nation's GDP. Of this, 53.2% of economic output in the agricultural sector was created through crop production, with 46.8% coming from livestock breeding and production (Yuliy Yusupov, 2019). The GDP per capita in Uzbekistan was USD 2,788.90 in 2023 (current USD) (World Bank, 2024f). As mentioned above, total agricultural land use by area is dominated by extensive rangeland. Rangeland areas supply 30% of the country's meat output and 60% of wool, along with providing livelihoods for a large part of the rural population (Makhmud Shaumarov & Regina Birner, 2013). Given the importance of rangelands to Uzbekistan's agricultural economy, the existing high levels of land degradation are of great concern in terms of the future of the sector (FAO, 2024b).

Agriculture is a key employment source in Uzbekistan, and has a particularly strong influence on poverty reduction, given that 80% of Uzbekistan's poor live in rural areas, where agriculture is prevalent (World Bank, 2020b). In 2019, around 4.2 million people were employed in agriculture, with about 3.8 million (90%) of these in primary agriculture, and the remainder in food industry, processing and services (ibid). The recent focus on crop diversification and the related emphasis on horticulture products is seen as a great chance to improve rural livelihoods, reduce impoverishment and promote faster growth. Specifically, it is considered to empower rural women in Uzbekistan (Suray Charyyeva & Thomas Herzfeld, 2024).

Farming types and land reform

Beginning in 1992, Uzbekistan embarked on a process of land reform that radically changed economic patterns of agriculture and forestry. Between 1992 and 1997, the state decollectivized all state farms (sovkhoz), and then from 1998 and 2002, large farms were fragmented into smaller production units, with agricultural rights transferred to smallholders known as dehkan farmers (Zorya & Ilina, 2019). The result of these changes was to shift the level of decision making about agricultural land primarily to small-scale producers themselves, with the aim of increasing productivity and autonomy. However, by

2008 the relatively poor performance of small farms meant that some re-consolidation in priority commodities (wheat and cotton) occurred (FAO, 2024b).

Despite the land reforms, the government maintained control over strategic crops (wheat and cotton) through purchase orders, meaning that individual forms often have limited opportunities to grow other crops, even if wheat and cotton is not or little economically profitable (Makhmud Shaumarov & Regina Birner, 2013) . The main distinction nowadays can be made between farm units (large private producers with plots of at least 35 ha that are leased for various decades) and dehkan farms (household plots of minimal size). While commercial farm units account for about 85% of arable land, dehkan farms cover 10% of arable land, with 5% divided among other farms (Yuliy Yusupov, 2019). Around 40% of those employed in agriculture are working in commercial farms, which have an average size of 100 ha, while figures for the exact number of household and dehkan farms are slightly less clear, since few are registered (World Bank, 2020b). Estimates ranges from almost 5 million dehkan and household farms, farming 0.5 million ha, to just 47,000 farms on 0.014 million ha (according to the Land Cadastre in 2018) (ibid.). This uncertainty is a symptom of the shifting reforms that have produced a two-tiered system where both small and large land users are managing state-owned land on long term lease agreements (FAO, 2024b). This means that the state retains a strong controlling interest in both crop production choices and the land itself, as the ultimate owner of most farmland.

Crop production - key products and production types

Table 15 below shows the key agricultural production statistics for key crops in Uzbekistan from in 2019. Uzbekistan is well known for its cotton production, often referred to as "white gold", and the commodity remains widely planted and a major export commodity. Besides cotton, the country produces wheat, grain, fruits, vegetables, and silk. The agricultural sector is gradually diversifying to include more high-value crops, such as horticultural products, to meet both domestic and international demand (International Trade Administration, 2023). Dynamics in the production cycle organize large farms as the main producers of cotton and wheat, while the small dehkan farms grow most of the horticulture and livestock-related products. Dehkan farms receive little to no government support but produce 66% of vegetables, 76% of potatoes, and 54% of fruit.

Table 15: Crop production and employment characteristics in Uzbekistan in 2019

Crop	Primary crop sown area ('000 ha)	Second crop sown area ('000 ha)	Estimated number of workers ('000)
Grains	1,585	133	344 (317)
Cotton	1,065	0	884 (884)
Potatoes	88	44	236 (157)
Vegetables	216	539	1,583 (453)
Melons	54	22	122 (87)
Fruits and berries*	211	0	169 (169)
Wine grapes	119	0	124 (124)
Fodder crops	262	105	59 (42)
TOTAL	3,599	843	3,522 (2,233)

Note: Sown area with mature production; 0 employment in the primary production season.

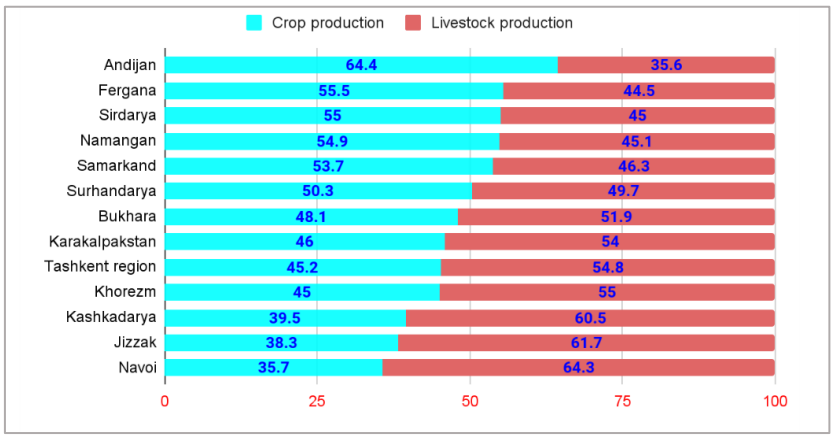
Source: WB staff estimate based on the data from SSCU and MOA.

Source: World Bank, 2020b

The distribution of the volume of agricultural production by region can be observed in Figure 39. It shows how several regions also have stronger emphases on crop production rather than livestock production, most notably the regions in the Fergana Valley, Andijan, Fergana and Namangan, make up 3 of the top 4 regions for having crop production as the larger share of their agricultural production.

Uzbekistan's ecological characteristics give it a comparative advantage in horticulture (World Bank, 2018). Therefore, as Uzbekistan continues to develop its agricultural sector, there are benefits to replacing some arable land currently used for grain and cotton production with more horticulture. This would also embrace the shift from centralized agriculture and decision-making to more liberalization. The advantages of horticultural products include higher profitability and relatively high demand at a stable level. Additionally, expanding horticulture is expected to have positive effects on food security and job creation (World Bank, 2020b).

Figure 39: Distribution of the volume of agricultural production by regions



Source: FAO, 2024b

The fifth, and most recent completed stage of the farm restructuring reforms was a five-year plan between 2016 and 2020, which focused on optimizing the production mix, to expand and diversify agricultural production. In practice, this means reducing the total area sown under cotton through ambitious plans to increase potato, vegetables, fodder crops, intensive gardens, oilseeds, and other crops. This re-structuring focus reflects shifts away from cotton (and wheat) as the ultimate priority crops, even without considering potential impacts of climate change on the suitability of these crops (World Bank, 2019b).

Table 16: Value of agricultural production in Uzbekistan in 2017

Crops	Million soms/ha
Grains	3.2
Cotton	4.4
Potatoes	111.5
Vegetables	54.0
Melons	34.6
Fodder/feed	17.0
Orchards/Fruits	28.9
Grapes	62.9

Source: World Bank, 2019, using data from Uzbekistan's State Statistics Committee

Table 16 shows how the shift towards non-cotton and wheat production also makes economic sense when considering the value per hectare of production. The unfulfilled potential of Uzbekistan's agriculture for job and value creation is made clear in the same World Bank policy note from 2019 which collated these figures. The authors estimated that shifting production generally away from cotton and wheat dominance towards a more balanced outlook could increase agricultural production by 5%, employ 16% more people, and save 11% of water consumption by 2030 (compared to 2017) (World Bank, 2019b).

Animal production and rangeland management

Livestock farming is an integral part of Uzbekistan's agriculture, with sheep, cattle, and goats being the main animals raised. The country's rangelands are extensive, providing grazing grounds for livestock. Livestock production accounts for approximately 40% of Uzbekistan's agricultural output, with dehkan farms responsible for approximately 95% of this production (van der Hoek & Notenbaert, 2023). Dehkan farms are highly dependent on livestock, which constitute between 45% and 67% of household incomes, as well as over 90% of their animal-protein consumption (Asian Development Bank, 2023). Natural rangelands and hayfields cover nearly 50% of Uzbekistan's territory, however, many of them face threat through degradation and desertification (World Bank, 2017)

Livestock is one of Uzbekistan's key economic sectors that constitutes 13% of total GDP and employs about 27% of agricultural workers, which is broken down by livestock type in Table 17. However, it is the source of over 13% of the country's total greenhouse gas emissions (GHG) and most of the agricultural emissions (World Bank, 2023f). Livestock employment may be even higher, given the

standard practice of almost every rural households farming informally with a couple of cows and several goats or sheep (World Bank, 2020b).

Table 17: Livestock populations and employment characteristics in Uzbekistan in 2018

	Number of animals, '000	Labour requirement norms, man per year	Estimated number of workers, '000
Cattle	12,841	0.02	256.3
Dairy cows	4,626	0.05	231.3
Sheep and goats	21,581	0.0012	25.9
Poultry	86,375	0.0005	43.2
TOTAL			556.7

Source: World Bank, 2020b

Livestock production has increased over the last three decades. Nevertheless, production is predominantly on dehkan farms, and productivity remains low compared to that of neighbouring countries and compared to local intensive farming. For milk production, average productivity is 3 litres of milk per cow per day for dehkan, 8 litres for commercial farmers, and 20 litres for agribusinesses (World Bank, 2023f). For beef, the average weight of beef cattle at slaughter for dehkan farms is 350 kg, compared to over 560kg for local intensive farms (Asian Development Bank, 2023). Ultimately, production is not meeting the growing domestic demand. It is projected that by 2035, under a business-as-usual scenario, the production of milk and meat will satisfy only 59% and 52% of domestic demand, respectively (World Bank, 2023f). To improve this, dehkan farmers need access to modern inputs, information, technology, and finance (ibid.).

Extension and other support services

Uzbekistan's agricultural extension system is currently in a transitional and hybrid phase, evolving from a historically centralized, state-driven advisory model toward a more integrated and innovation-oriented framework under the Agriculture Knowledge and Innovation System (AKIS), established in 2021. This framework aims to align research institutions, higher education, extension services, and private sector actors into a coordinated ecosystem that supports productivity growth, climate resilience, and market competitiveness.

However, to fully understand the current state of extension services in Uzbekistan, it is important to recognize the broader post-Soviet legacy. Across Uzbekistan, agricultural extension systems have historically been limited, underdeveloped, and fragmented. During the Soviet period, knowledge transfer was embedded within centralized planning systems, large collective farms, and state agronomic services. Following independence, the dismantling of these structures created a significant institutional vacuum in advisory services, which has not yet been fully replaced by a modern, market-oriented extension system.

As a result, for many years extension services remained:

- Weakly institutionalized
- Underfunded and lacking field-level capacity
- Disconnected from market and private sector needs
- Focused more on administrative guidance than practical farm-level problem solving

Only in recent years has the Government begun to systematically address this gap, recognizing extension services as a critical constraint to agricultural productivity and competitiveness. The introduction of AKIS represents a major step in this direction, aiming to rebuild a national system that integrates knowledge generation, dissemination, and application.

In formal terms, extension services today remain predominantly public and state-funded, ensuring that advisory support is accessible to farmers at no direct cost. This model supports inclusivity, particularly for smallholders. However, the effectiveness of extension services must be evaluated not only by institutional presence, but by their ability to address the structural bottlenecks across the entire agricultural value chain, including production efficiency, post-harvest handling, compliance, and market integration.

AKIS consultants currently operate in selected districts through mobile, demand-driven advisory teams, providing field-level consultations and technical support. This is complemented by emerging infrastructure such as mobile extension stations equipped with machinery, as well as government-supported training initiatives including edu.fermermaktab.uz (Farmer School) and suvchimaktabi.uz

(Irrigators' School) led by Agrobank. These initiatives reflect a clear policy effort to modernize extension delivery and improve farmer access to knowledge, particularly in areas such as agronomy and irrigation under increasing climate and water stress.

Nevertheless, despite these positive developments, the system remains in an early stage of maturity, and a critical structural reality persists: the most active and practically relevant extension services in Uzbekistan are largely delivered outside the formal public system.

In practice, farmers rely heavily on the following actors for day-to-day technical advice and operational decision-making:

- Input suppliers (fertilizers, agrochemicals, seeds, irrigation systems).
- Independent agronomists and private consultants.
- Exporters, traders, and processing companies.

In addition, a distinctive and highly influential feature of Uzbekistan's extension landscape is the widespread use of Telegram-based farmer knowledge networks. Across different crop sectors, farmers and private consultants participate in large, crop-specific Telegram groups, often with hundreds or even thousands of members. These groups function as real-time, peer-to-peer advisory systems, where farmers exchange knowledge, troubleshoot field problems, and share practical solutions that are often unavailable through formal channels.

This multi-layered system: public, private, and informal, creates a dynamic but fragmented extension environment:

- Public extension provides institutional coverage and basic knowledge.
- Private sector advisory delivers practical, market-linked guidance, though often product-driven.
- Digital farmer networks offer speed and accessibility but lack quality control.

Across all layers, a common constraint remains: the issue is not the absence of information, but the limited depth, consistency, and commercial applicability of advisory services.

Looking ahead, Uzbekistan's extension system has strong potential to evolve into a more effective and modern model. However, this will require moving beyond infrastructure creation toward functional integration, where:

- Public systems (AKIS, training platforms)
- Private sector expertise
- Informal digital networks
- Value chain actors (exporters, processors, aggregators)

are aligned into a coherent, performance-driven extension ecosystem.

In this context, Uzbekistan is not building an extension system from scratch, but rather reconstructing and modernizing a historically underdeveloped function, with AKIS serving as a foundational, but still evolving, platform for long-term transformation.

Existing Challenges in the Development of Agricultural Advisory Services

Uzbekistan is increasingly exposed to climate-related pressures, including rising temperatures, water scarcity, salinity, and energy constraints. While climate information such as weather forecasts, irrigation recommendations, and general adaptation guidance is becoming more accessible, its practical integration into farm-level decision-making remains limited.

At present, climate-smart extension in Uzbekistan is largely informational rather than operational. Farmers often receive general recommendations, but lack the technical, financial, and system-level support required to implement climate-resilient solutions effectively. In addition, climate-smart practices are often promoted as standalone technologies, rather than as part of integrated farm systems linked to finance, energy, and markets, and underpinned by solid climate information.

Barriers to agricultural development

Uzbekistan's agricultural sector faces substantial institutional and regulatory barriers that constrain development and farmer autonomy. The state maintains a monopoly on agricultural land ownership, which prevents farmers from establishing long-term investment plans and discourages adoption of modern technologies essential for climate resilience (Toshboeva, 2026). A system of mandatory production quotas for strategic crops, particularly cotton and wheat, continues to create coercive conditions for farmers, with penalties including land seizure for non-compliance. These quota-based

mechanisms undermine independent decision-making and discourage private investment in agricultural modernization, in particular in medium size farms. Additionally, the legal framework governing agribusiness remains fragmented, with no single comprehensive law regulating agricultural activity, creating implementation challenges and conflicts that adversely affect the sector's development trajectory (Toshboeva, 2026). Government-created agro-industrial clusters receive preferential treatment and state support, creating unequal competitive conditions that hinder the uniform application of agricultural cooperation principles and limit opportunities for smaller, independent producers (Toshboeva, 2026).

Value chain inefficiencies represent another critical barrier to agricultural competitiveness and farm profitability. The current system incurs high costs for collection, transportation, storage, processing, packaging, and certification of products, significantly reducing competitiveness and profitability of Uzbek agri-food producers (UNECE, 2024). The low level of development of the food processing industry further limits opportunities for value addition and constrains the volume and quality of products reaching final consumers. Farmers also face significant debt burdens from investments in machinery, irrigation technologies, and equipment, with some carrying high which constrains their capacity to invest in additional climate-resilient technologies (Jalolova, 2026). Non-payment or delayed payment by clusters and agricultural companies to farmers further undermines their cash flow and financial security (Uzbek Forum, 2026).

Climate change and an impending water crisis, population growth, economic globalisation and industrial development are also a significant limiting factor for the development of the sector. Despite advances in irrigation and farming techniques, climate remains a key influence factor on agricultural productivity (Republic of Uzbekistan & UNFCCC, 2021). Diminishing freshwater reserves, unsustainable farming practices, and reliance on water for development worsen existing water stress, especially in the western region (UNECE, n.d.). In the agricultural sector, the challenge will be to strongly increase water efficiency. 97% of cultivated land is under irrigation, which almost entirely relies on flood irrigation. Improved irrigation technology and management will be key to use available water more efficiently, for example through a drip irrigation system (World Bank & Asian Development Bank, 2021c).

Climate change could influence food production via direct and indirect effects on crop growth processes. In a study modelling wheat production in Uzbekistan under different future scenarios and emissions pathways, it was found that only under the ‘sustainability scenario’ (SSP1-RCP2.6) would the wheat-related food security in Uzbekistan be guaranteed (Babadjanova et al., 2024). The same study found that the effects of heat and salinity stress in particular would lead to yield drops of between 24–29% by the end of the century under the two more pessimistic scenarios (SSP3-RCP7.0 and SSP5-RCP8.5), and result in a supply–demand gap of up to 2.7 million tons (ibid.). For wheat, local precipitation levels did not have a major impact, because most production is irrigated, although water stress at a regional level is frequently identified as a current and future constraint on agricultural production, and driver of probable financial losses (Bekchanov & Lamers, 2016). In the 2016 modelling study, the researchers found that a 10-20% drop in water availability for irrigation in Uzbekistan alone (in line with more optimistic projections for 2050) would reduce the irrigated area by 241,000–374,000 hectares and may cause unemployment to a population of 712–868,000 (ibid.). Shifts in the optimal and viable spatial ranges of certain crops are also inevitable, though the extent and speed of those shifts remain dependent on the emissions pathway.

Table 18: Specific challenges preventing the adoption of climate-resilient technologies in the selected value chains in Uzbekistan

Value chains	Challenges preventing the adoption of climate-resilient technologies at production level	Challenges preventing the adoption of climate-resilient technologies at processing, marketing and export levels
No-till rainfed cereal production	• System incompatibility with dominant rotations and residue use: the predominance of wheat–cotton rotations and entrenched conventional tillage norms. Residues are often removed, burned, or grazed, undermining residue retention. • Weak extension and advisory services on conservation agriculture, residue management, and no-till agronomy. • Limited access to appropriate machinery and machinery services for no-till seeding. • Climate and water risks, especially drought in rainfed areas, increase farmers' risk perception and hesitation to adopt new practices.	• Weak grain-quality management and storage systems can reduce quality and price realization. • Market and price volatility reduce incentives for investment in upgraded production systems.
Fruits	• Weak access to quality planting material and modern orchard systems. continued reliance on uncertified saplings and older varieties. • Fragmented smallholder orchards make it difficult to coordinate replanting and standardize varieties and quality. • Shortage of trained horticulture advisors and limited transfer of practical skills in pruning, canopy management, irrigation scheduling, climate-risk management, and IPM. • Finance and risk-management constraints, including slow uptake due to long orchard payback periods and limited insurance coverage.	• Many producing areas still lack affordable access to pre-cooling, cold storage, grading, sorting, and packhouse services. • Traditional drying remains common, while investment in more hygienic and controllable drying technologies is not yet widespread. • Dependence on a few export markets increases price volatility. • Weak compliance capacity for export standards, including certification, laboratory services, food safety, and traceability.
Horticulture	• Weak farmer skills in horticulture production, irrigation, plant care, and post-harvest handling reduce quality and marketability. • Limited access to efficient irrigation, IPM knowledge, and other technical know-how constrains adoption of more knowledge-intensive resilience packages. • High costs of climate-smart technologies and weak access to finance, especially for smallholders. • Uneven strength of advisory and extension systems and incomplete practical support to producers. • Limited access to quality and climate-resilient planting material.	• Limited and technologically poor storage and processing capacity, including major deficits in cold storage, processing, and handling technologies. • Limited access to finance for post-harvest and processing investments. • Insufficient training of value-chain actors on proper post-harvest handling of perishable horticultural produce. • Weak standards, certification, and laboratory systems limit access to higher-value and export markets.
Seed potato	• Water scarcity, drought stress, and heatwaves reduce farmers' willingness and ability to invest in seed potato production. • Production is concentrated on smallholder plots, and fragmented landholdings make seed production more difficult and reduce access to advanced techniques. • Weak seed-system capacity and limited access to high-quality planting material. • Limited access to finance for irrigation, storage, and seed-level investments. • High pest and disease pressure, including virus risks and degenerated seed, undermines seed quality.	• Inadequate storage and post-harvest systems cannot maintain the stable conditions needed to preserve seed quality. • Underdeveloped processing and weak market coordination between seed producers, farmers, traders, and processors reduce incentives for value addition and quality upgrading.

2.3.4 Agricultural finance

Agricultural finance in the Kyrgyz Republic, Tajikistan, and Uzbekistan is central to rural livelihoods, food security, and agri-food value chain development, yet it remains constrained in its ability to support investments in climate-resilient and low-emissions measures at scale. Financing needs in the AFOLU sectors are shaped by the seasonality of production, exposure to climate shocks, and the long payback periods associated with many priority investments, including orchard establishment and rehabilitation, irrigation modernization, on-farm energy solutions, livestock productivity improvements, and post-harvest and processing infrastructure.

Across the three countries, the market is largely credit-driven and dominated by bank intermediation. Products are usually structured as working capital loans for seasonal production and trade, and fixed asset loans for modernization and value addition. In the product landscape, horticulture, livestock and dairy, cotton, agro-processing, and cluster type agribusinesses are recurring segments, showing both the economic importance of these value chains and the concentration of formal finance where repayment capacity can be demonstrated. The segmentation of borrowers is consistent across the region, with products differentiated for small farms or dekhan farms, medium sized farms, clusters, and large scale agricultural enterprises, and with loan size and tenor scaling accordingly (please refer to Appendix B that showcases the different finance products available in the region).

Key channels and instruments

International and development partner credit lines remain a critical channel for agricultural and green aligned lending in the region. These lines are usually intermediated through domestic banks and, in some contexts, MFIs, and they fund both working capital and investment lending. The product terms observed under these structures include medium to long tenors for investment loans, sometimes reaching up to 120 months for larger borrowers, and include both national and foreign currency pricing, which is relevant to currency exposure for borrowers with local currency revenues.

Domestic concessional programmes can play a catalytic role where they exist and are operationalized through partner banks and public financing institutions. In the Kyrgyz Republic, the concessional architecture spans farm level support for seasonal agricultural works, leasing windows for equipment, and targeted programmes that support value chain upgrading and agribusiness clustering. This includes examples of programmes with defined concessional terms and eligibility criteria, as well as development partner programmes delivered through national structures, including grant-based interventions such as KOICA support for a post-harvest management system and processing logistics infrastructure, and grant-based support to pasture communities and forest-dependent livelihoods under ADAPT. There are significant challenges for the accessibility of these domestic concessional finance programmes.

Leasing and equipment finance is also utilised as practical mechanism in the agriculture sector as it enables investment in machinery and using the financed asset as security. This modality is particularly relevant in the Kyrgyz Republic and to a lesser extent in Tajikistan.

Challenges

Several constraints limit the financial sector's ability to support scaling up investment in the adoption of CRLE measures.

Collateral requirements remain high across most products, with real estate mainly serving as the preferred form of security and supplemented by equipment, insurance, and guarantees. Some programmes include flexibility for smaller tickets, including limited uncollateralised thresholds, but these are the exception and usually not available for the type of investments that would be required for CRLE.

Shorter maturities remain common for small producers and working capital, which creates a mismatch as many resilience and emissions related investments require longer repayment periods.

Currency can also be an additional constraint. The presence of foreign currency lending, while potentially offering lower rates, can create exposure for agricultural borrowers whose revenues are largely in local currency, particularly in years affected by climate shocks or price volatility.

2.3.4.1 Kyrgyz Republic

As outlined above, the Kyrgyz Republic is a mountainous country where agricultural livelihoods are highly exposed to climate variability and climate related hazards, with impacts transmitted through water availability, pasture and rangeland condition, and the stability of production systems in rainfed and

irrigated areas. In this context, agriculture finance is key for enabling investments in CRLE measures that reduce vulnerability and protect incomes across rural areas.

The national climate policy framework reinforces the relevance of agriculture and land use investments as part of the broader transition agenda. In 2025, the Kyrgyz Republic prepared and published its updated Nationally Determined Contribution, which sets unconditional targets to reduce net greenhouse gas emissions by 2030 and 2035 relative to the projected baseline, with higher conditional ambition with international support (Kyrgyz Republic, 2025b). The updated NDC is positioned as a basis for planning and for mobilising finance, and is aligned with national development objectives and sectoral priorities(UNDP Kyrgyz Republic, 2025).

There is potential to focus agricultural finance interventions on investment types with longer payback periods and strong resilience and emissions relevance, including improvements in water use efficiency and irrigation management, pasture and livestock productivity measures, and post-harvest and processing investments that reduce losses and strengthen market access. The relevance of such investments is further reinforced by ongoing efforts to strengthen national capacity to access and deploy climate finance, and to translate climate policy commitments into implementable investment pipelines(Kyrgyz National News Agency, 2025).

Financial sector

As of the end of Q1 2025, the Kyrgyz Republic had 21 commercial banks with around 300 branches, and five banks operating under Islamic finance principles (National Bank of the Kyrgyz Republic, 2025). Non-bank financial institutions also play an important role in financial inclusion, and leasing provides an additional financing channel, including for agricultural equipment (National Bank of the Kyrgyz Republic, 2025).

Agricultural finance in the Kyrgyz Republic is provided through a mix of commercial banks and non-bank financial institutions, with leasing providers also used as a channel for equipment finance. From the demand side, access to finance depends on meeting standard credit requirements, particularly collateral and documentation, while smaller producers often rely on shorter term products and channels with stronger rural outreach. Appendix B shows that banks and MFIs are active in financing agriculture and agribusiness, and that products are offered across horticulture and agro-processing, including emerging green aligned credit lines.

The National Bank of the Kyrgyz Republic (NBKR) serves as the country's central bank, tasked with maintaining monetary stability, safeguarding the national currency's purchasing power, and ensuring the safety of the banking and payment systems. Its mandate is defined by the Kyrgyz Republic's Constitution and the Constitutional Law on the National Bank of the Kyrgyz Republic, which grant it operational independence from governmental authorities (NBKR, 2022). In response to global and domestic priorities, the NBKR has increasingly focused on integrating Environmental, Social, and Governance (ESG) principles into the financial sector to address risks like climate vulnerability, biodiversity loss, and economic instability (UNDP, 2026). In 2024–2025, the NBKR issued Recommendations for the Identification, Monitoring, and Disclosure of Financial Risks Associated with Sustainable Finance Factors (ESG Risks), as amended by resolutions in September 2024 (No. 39/1) and December 2025 (No. 57/5). These guidelines aim to strengthen risk management frameworks, enhance transparency, and align the sector with international sustainable finance standards, reflecting the NBKR's dual role as both regulator and institutional leader in promoting long-term resilience.

Further, the country has developed a Green Taxonomy, which was approved by the Cabinet of Ministers in 2025, establishing a national framework for identifying and promoting environmentally sustainable economic activities across key sectors. It provides clear eligibility criteria, definitions, and reporting standards to guide public authorities, financial institutions, and private sector actors in assessing "green" goods, services, and technologies. The taxonomy covers energy, transport, energy efficiency, waste and water management, and sustainable agriculture, linking regulatory measures with fiscal incentives and compliance mechanisms. It is designed to mobilize investment into green projects, simplify regulatory procedures, and align the Kyrgyz Republic with international sustainable finance standards. For businesses and the agricultural sector, the framework offers clear pathways for accessing green finance, encourages the adoption of low-carbon and resource-efficient technologies, and supports climate-resilient practices while strengthening institutional capacity and enabling environment reforms.

The Kyrgyz Stock Exchange (KSE) joined the Sustainable Stock Exchange Initiative in 2021 and issued Sustainable Reporting Guidelines applicable to listed companies. Financial institutions are building up capacity in ESG. The Union of Banks, as a member of the Sustainable Finance and Banking Network (SBFN) has developed knowledge-sharing and capacity-building programs for member banks on ESG risks assessment, sustainable finance, disclosure and reporting with international partners and donors.

There is already some experience with the issuance of green and thematic bonds in the country. Two bonds were issued under the KSE Sustainable Development Sector initiative, the Bank of Asia issued a social bond in 2022 and Dos-Credobank issued a green bond in 2023.

Key channels and segmentation for agricultural finance

Agricultural finance in the Kyrgyz Republic is provided through a mix of commercial banks and non-bank financial institutions, with leasing providers also used as a channel for equipment finance. From the demand side, access to finance depends on meeting standard credit requirements, particularly collateral and documentation, while smaller producers often rely on shorter term products and channels with stronger rural outreach. Appendix B shows that banks and MFIs are active in financing agriculture and agribusiness, and that products are offered across horticulture and agro-processing, including emerging green aligned credit lines.

Agricultural finance in the Kyrgyz Republic is primarily provided through credit products, and the market can be described through three main channels.

The first channel is domestic concessional programmes implemented through partner banks and public financing arrangements. These programmes provide preferential terms for priority segments in agriculture, including seasonal agricultural works and selected value chains, and specify ceilings, tenors, grace periods, and differentiated collateral requirements by loan size. See Appendix B for product examples.

The second channel is lending supported by international and development partner programmes, including investment programmes delivered through national structures and partner banks. These include programmes aimed at strengthening agri-food value chains and post-harvest systems, with some programmes combining financing with technical assistance and or grant elements, and with eligibility that targets actors beyond primary production, such as storage owners, processors, aggregators, logistics companies, and trade and logistics centres.

The third channel is leasing and equipment finance. Leasing is used as a practical approach for farm modernisation because the financed asset can serve as the primary security and repayment can be structured over longer periods relative to standard working capital lending. This is reflected in domestic concessional programme design, where leasing windows are explicitly included alongside credit windows, and in the agricultural finance product landscape.

From the perspective of lending purpose and borrower type, agricultural finance is typically structured around working capital and fixed asset products, aligned with seasonal production cycles and investment needs for modernisation and value addition.

Working capital lending supports seasonal production and trade, while fixed asset loans and leasing support investment in equipment, infrastructure, and processing related assets. A value chain approach is present in parts of the concessional and partner supported financing architecture, with finance oriented to strengthen aggregation, storage, processing, and logistics functions that underpin repayment capacity and market access.

Constraints and gaps

Several constraints limit the ability of the financial sector to scale investments in CRLE measures in the AFOLU sector.

Collateral requirements remain high across most agricultural finance products. Real estate is commonly required as the preferred form of security and is often supplemented by equipment pledges, insurance, and guarantees. Shorter maturities remain common for small producers and working capital products, creating a mismatch with the payback periods of many CRLE investments. Currency exposure is also a constraint where foreign currency lending is present, as revenues are largely in local currency and repayment capacity is sensitive to shocks. Institutional capacity constraints persist, including gaps in technical support for pipeline development and the preparation of bankable proposals. Finally,

accessibility of concessional programmes can be constrained by eligibility requirements, documentation, and the practical application of collateral requirements by partner banks.

2.3.4.2 Tajikistan

As explained above, Tajikistan is highly exposed to climate variability and climate related hazards, with impacts transmitted through water availability and water scarcity, as well as land degradation dynamics that affect agricultural productivity. In this context, agriculture finance is important for enabling investments in CRLE measures that reduce vulnerability and protect incomes across rural areas.

Tajikistan has taken steps to address climate change challenges through its national climate policy framework, including the update of its Nationally Determined Contribution in 2021 and follow up implementation planning(Republic of Tajikistan, 2021).

The country has benefited from international credit lines, particularly in addressing vulnerability to climate change and water scarcity. The EBRD and ADB have financed interventions that support investments relevant to CRLE measures, including drip irrigation systems and energy-efficient farming technologies. The EBRD GEFF has provided funding for small and medium sized enterprises to adopt measures that strengthen resilience and resource efficiency. The World Bank has also supported initiatives relevant to land management and reducing soil degradation. Despite these efforts, limited access to credit for rural farmers and the relatively underdeveloped financial system remain constraints to scaling investments in CRLE measures.

Financial sector

As of June 30, 2025, there were 65 credit financial institutions operating in Tajikistan, including 15 conventional banks, 1 Islamic bank, 1 nonbank credit institution, 23 microcredit deposit institutions, 3 microcredit institutions, and 22 microcredit funds. The total number of their branches was 1,942. Assets and liabilities of credit financial institutions at the end of June 2025 amounted to 52.2 billion somoni (USD 5.61 billion) and 42.1 billion somoni (USD 4.53 billion), while equity capital amounted to 10.1 billion somoni (USD 1.09 billion)(National Bank of Tajikistan, 2025).

The volume of loans issued amounted to 13.7 billion somoni (USD 1.47 billion), of which 12.6 percent was directed to agriculture. The volume of microloans issued amounted to 10.2 billion somoni (USD 1.10 billion). The average weighted interest rate on loans was 22.4 percent in national currency and 11.8 percent in foreign currency(National Bank of Tajikistan, 2025).

Tajikistan has made efforts to transition to a green economy, but the institutional framework for green finance in is still emerging. The central bank (NBT) has established a Green Finance Unit to develop and implement green finance taxonomy. NBT has issued guidelines on sustainable banking, encouraging banks to consider environmental and social risks in their lending decisions. However, there is a need for more specific regulations to support the development of green loans and financial products.

There is also a nascent green bond market in the country. In 2024, Eskhata Bank issued the country's first green bond with the assistance of the International Finance Corporation (IFC) with use of proceeds aimed supporting MSMEs in their climate smart projects.

Agricultural finance in Tajikistan is provided through banks and microfinance institutions. Appendix B shows that products are available for the horticulture and agribusiness segments, with a predominance of working capital and fixed-asset lending funded through IFI credit lines, and with collateral commonly defined as movable or immovable property.

Key channels and segmentation

Agricultural finance in Tajikistan is provided through banks and microfinance institutions. Appendix B shows that products are available for the horticulture and agribusiness segments, with a predominance of working capital and fixed-asset lending funded through IFI credit lines, and with collateral commonly defined as movable or immovable property. Agricultural lending is largely structured around credit, and three main channels can be observed in the delivery of finance to the sector.

The first channel is lending supported by international and development-partner credit lines, intermediated through domestic banks and microfinance institutions, and it remains central to the agricultural finance landscape.

The second channel is dedicated green lending and advisory facilities implemented with development partners, including the EBRD Green Economy Financing Facility, which supports participating financial

institutions with financing and technical assistance to expand green lending, including for agriculture and agricultural value chains (EBRD, n.d.).

The third channel is leasing and equipment finance. Leasing remains comparatively limited, but it can be relevant for equipment investment when available, particularly given collateral constraints and the need to finance productive assets over longer repayment periods.

Agricultural products are primarily structured as working capital lending for seasonal needs and fixed-asset finance for investment, with segmentation by borrower type reflected in the product landscape. Working capital lending is used mainly for seasonal production and trade activities, while fixed asset products finance equipment and agribusiness investment, including dairy-related assets.

Constraints and gaps

Collateral requirements remain high across most agricultural finance products, and collateral is commonly defined as movable or immovable property, which can be a binding constraint for smallholder and rural enterprises. Affordability and tenor constraints remain significant, and the weighted average interest rate reported for end June 2025 was 22.4 percent in national currency (National Bank of Tajikistan, 2025). Foreign currency lending can offer lower nominal rates, but it can also create repayment risk for borrowers with local currency revenues. Institutional capacity constraints persist, including uneven expertise in appraising and monitoring CRLE relevant investments and continued need for technical assistance. Finally, access to finance for rural farmers remains constrained, and expanding financial inclusion and developing tailored products remains important for wider adoption of CRLE measures.

2.3.4.3 Uzbekistan

As outlined above, Uzbekistan's agriculture sector is highly exposed to climate related pressures, particularly due to its heavy reliance on irrigation and the increasing constraints associated with water availability. In this context, agriculture finance is key for enabling investments in CRLE measures that reduce vulnerability and support productivity and value addition across priority value chains.

The national climate policy framework underscores the importance of agricultural and land-use investments as part of the broader transition agenda. Under the Paris Agreement, Uzbekistan has progressively strengthened its climate ambition, and the development of its NDC has been supported through national coordination processes (UNDP Uzbekistan, 2025b).

Uzbekistan has seen significant progress in green-aligned agricultural finance, supported by a combination of sector reforms, stronger institutional capacity, and international technical and financial support. The World Bank, ADB, KfW, and EBRD have supported programmes and investments aimed at improving water efficiency, promoting diversification and value chain competitiveness, and reducing the environmental impacts of agricultural production. Illustrative examples include solar powered irrigation, water saving irrigation technologies in cotton production, support for organic farming and soil conservation, and renewable energy solutions for greenhouse farming. In parallel, support has been provided to strengthen bank-led delivery of agricultural finance linked to sustainability objectives. This includes the launch of a targeted Climate Smart Agriculture financing facility linked to the sustainability bond issuance of Sanoat Qurilish Bank, supported by GGGI (GGGI, 2024).

Financial sector

The financial sector in Uzbekistan is bank-dominated and provides the main channel for credit to the real economy, including agriculture and agribusiness. Central Bank of Uzbekistan statistics report the number of commercial banks and provide regular summary indicators of commercial banks, including system assets, loan portfolios, capital, and deposits(Central Bank of the Republic of Uzbekistan, 2025).

The country has taken steps to build a sustainable finance enabling environment. This includes work on sustainable finance policy and the introduction of a national green finance taxonomy through the Central Bank and the Ministry of Finance. The National Green Taxonomy was adopted in 2023 through Cabinet Resolution No. 561. The taxonomy introduces binding, science-based definitions of eligible green economic activities aligned with international sustainable finance principles. For AFOLU, eligible categories include climate-smart agriculture, regenerative and conservation soil practices, organic farming, efficient irrigation systems, afforestation and agroforestry, and biodiversity conservation. Screening criteria incorporate "Do No Significant Harm" safeguards and performance thresholds related to water efficiency, soil fertility, carbon sequestration potential, and ecosystem protection. Piloting in the

financial sector is ongoing, and application will be mandatory for publicly supported finance from late 2024. This regulatory transition is expected to reduce risks of greenwashing, enhance project bankability, and strengthen investor confidence.

Further, a Green Finance Platform has been initiated to support capacity building and to improve access to information on green finance tools and programmes, including in agriculture. Institutional arrangements for climate policy coordination include the Climate Council, and the International Strategic Centre for Agri Food Development supports strategic planning and coordination in the agri food sector.

There is already y experience in the country with the green bonds in the country. The country issued a sovereign green bond in 2023, and there have been issuance by Agrobank of USD 400 million and of SQB bank for USD 400 million.

Key channels and segmentation in agriculture finance

In the agricultural finance product landscape, banks provide both working capital and fixed asset lending for agricultural producers and agribusinesses, and products are differentiated by beneficiary type and value chain segment. Appendix B shows that products are offered across different segments, with loan size and tenor scaling across small farms, medium sized farms, clusters, and large agricultural enterprises. Funding sources include bank own funds as well as credit lines supported by international development partners. Most agricultural finance is intermediated through credit, and the main delivery pathways can be grouped into three channels.

The first channel is lending supported by international and development partner programmes, typically intermediated through domestic banks. These programmes focus on investments that improve water efficiency, support modernisation, and strengthen agricultural value chains, and they remain a central driver of green-aligned finance for investments in CRLE measures.

The second channel is domestic preferential finance and support programmes, including special credit lines, grants, and subsidies intended to support agricultural modernisation and the adoption of measures aligned with CRLE objectives, particularly for small and medium-sized farmers and agribusinesses with limited access to standard commercial finance.

The third channel is leasing and equipment finance. Leasing is relevant for financing productive assets where longer repayment periods are required and where the financed equipment can provide security.

The market is structured around working capital for production and trade, and investment finance for fixed assets, with segmentation by farm size and by value chain role.

Constraints and gaps

Several constraints limit the ability of the financial sector to scale investments in CRLE measures in the AFOLU sector.

Collateral requirements remain a key constraint, particularly for small scale farmers and smaller agribusinesses. Affordability and tenor constraints also remain significant, particularly for investments with longer payback periods such as irrigation modernisation, renewable energy solutions for agriculture, and post-harvest infrastructure. Capacity constraints persist, including limited experience in structuring and appraising CRLE relevant investments and continued need for technical assistance, tools, and guidance. Finally, data and disclosure limitations constrain effective scaling, particularly where standardised climate related data, risk assessment tools, and practical guidance for applying the green finance taxonomy are limited.

2.3.4.4 Market demand for concessional finance

The level of maturity of the financial markets differs across the target countries, with direct implications for any DFI/IFI credit line. Uzbekistan has a more sophisticated banking sector, with stronger institutions and greater access to international funding, while the Kyrgyz Republic and Tajikistan remain more constrained in their access to external refinancing and therefore rely more heavily on international financial cooperation. Financial institutions also differ widely in outreach, maturity, and intermediation capacity, highlighting the need for a differentiated approach across countries (interview with KfW). Consultations were held with key financial institutions in November 2025 to qualitatively size the potential interest in intermediating a loan programme for an IFI/DFI.[6]

[6] A sovereign loan at 1–2% can still translate into final borrower rates of around 17–18%

Kyrgyz Republic

In the Kyrgyz Republic, consultations indicated clear interest in intermediating concessional finance for the agricultural sector. Aiyl Bank and Eldik Bank both referred to active demand for soft loans in agriculture, including for cooperatives, livestock, cluster development, drip irrigation, and smallholder farmers. The State Development Bank likewise pointed to an upcoming MSME facility offering low interest rates and longer repayment periods, suggesting familiarity with concessional on-lending models and interest in comparable structures.

Local consultations in Kara-Suu, Osh Region, further suggested that demand would depend not only on the availability of concessional finance, but also on the design of delivery mechanisms. Stakeholders from the agricultural sector and local bank officers stressed that financing instruments should be aligned with existing banking practices and avoid additional documentation requirements that could exclude smallholders. They also emphasized the importance of technical assistance to help farmers prepare loan applications and meet formal lending requirements.

With regard to revolving funds which operate mainly through equipment leasing, the local consultations in the Osh region proposed the strengthening of cooperatives that provide 'turnkey' services and revolving funds, with the aim of enabling smallholders to access inputs and machinery. Aiyl and Eldik banks also advised expanding revolving fund models, combining grants with leasing via microfinance institutions, and integrate technical assistance costs into financing packages, underlining that grant elements and risk-sharing are needed to make agricultural investments bankable and viable.

Uzbekistan

In Uzbekistan, consultations also pointed to clear interest in intermediary lending structures for targeted segments, including agriculture-related value chains. The Business Development Bank outlined its experience with subsidized MSME lending, uncollateralized financing for microenterprises under state programmes, and plans to establish a new credit line, including through microfinance institutions.

The Ministry of Agriculture also emphasized the relevance of matching grant mechanisms and the importance of clear segmentation, with smallholders and cooperatives requiring higher concessionality than more commercially oriented borrowers.

At the level of potential beneficiaries, stakeholders repeatedly identified access to affordable finance as one of the main constraints to climate-resilient agriculture. Local consultations in Yangikurgan and Besharik highlighted the need for concessional finance, grant support, and improved access to credit for farmers and MSMEs. In Yangikurgan, farmers and a local bank specialist highlighted the importance of financing mechanisms that combine investment support with technical assistance.

Women’s focus groups in the same area highlighted the need to improve access to finance and grants for small farmers and agricultural enterprises. In Besharik, stakeholders emphasized that programme grants and financing mechanisms should reach vulnerable farmers and communities. These findings suggest that, even in a relatively more developed market, concessional and targeted financial instruments remain essential for inclusive agricultural resilience.

Tajikistan

In Tajikistan, institutions consulted (SBB, Eskhata and Amonatbank) expressed interest in support for green and agricultural lending, noting that lending terms improve when donor-supported funds are channelled through public sources. The banks identified subsidized interest rates and performance-based reimbursement mechanisms as relevant instruments. The banks also emphasized the need for technical assistance and stronger internal capacity to appraise agricultural and green investments, indicating both demand for concessional resources and willingness to engage with accompanying support measures.

At the level of potential beneficiaries, agribusiness and farmer representatives outlined the need for high-grant, low-interest support for smallholders and MSMEs. Discussions with the EBRD GEFF team also confirmed that local financial intermediaries can effectively channel finance to agricultural and green investments, including water-efficient irrigation, greenhouses, soil protection, and cold storage, when credit is combined with investment incentives and technical assistance, and verification support.

2.4 Forest sector context

2.4.1 Regional forest sector profile

The countries of the Central Asian region have very low forest cover, between 4% and 8.7%, and an average of just 5.7% for the region, as shown in Table 19 (which also shows values for the Caucasus region). There is a wide variety of forest types, including mountain forests, xerophilous forests (shiblyak), forest steppe, fruit/nut forests, desert and semi-desert forests and flood plain (tugay) forests as well as shelterbelts and planted forests. There are strong anthropogenic pressures on the forests throughout the region, notably from fuelwood demand for local communities, leading to illegal/excessive logging, as well as from overgrazing, leading to forest degradation, and from irrigation and hydroelectric schemes along the rivers, leading to loss of riparian tugay forests (UNECE, 2019d). The Kyrgyz Republic has 1.66 million ha of forest and other wooded land, corresponding to 8.3% of the total land, while Tajikistan has just 560 thousand ha, or 4% of total land, and Uzbekistan has 3.37 million ha, or 7.5% of its total land.

Table 19: Overview of the forest resource and supply of services and goods, around 2015

	Forest and other wooded land (FOWL)	FOWL as % of total land	Share of public ownership of forest land	Share of forest area designated for protective functions	Share of forest area conserved for biodiversity	Employment per 1,000 ha of forest	Estimated total harvest
	1,000 ha	**%**	**%**	**%**	**%**	**FTE/1,000 ha**	**1,000 m³**
Armenia	395	13.3	100	67.1	33.2	9	536
Azerbaijan	1,139	13.2	100	77.5	10	1.8	90
Georgia	2,829	40.6	100	78	9.5	0.6	3
Caucasus	4,364	23.4	100	77	11.4	1.6	3,626
Kazakhstan	12,904	4.7	100	97.4	20	3.2	371
Kyrgyzstan	1,663	8.3	100	93	6.2	2.3	18
Tajikistan	563	4	100	73.3	26.1	4.8	9
Turkmenistan	4,264	8.7	100	100	2.4	0.4	10
Uzbekistan	3,369	7.5	100	82.5	12	3.1	36
Central Asia	22,763	5.7	100	93.2	10.8	2.2	525
Caucasus and Central Asia	27,127	6.5	100	89.1	11	2	4,151

Source: UNECE, 2019d

The forest resources of Central Asia can be observed in Figure 40, with a notable mixture of forests in the higher-elevation areas surrounding the Fergana Valley:

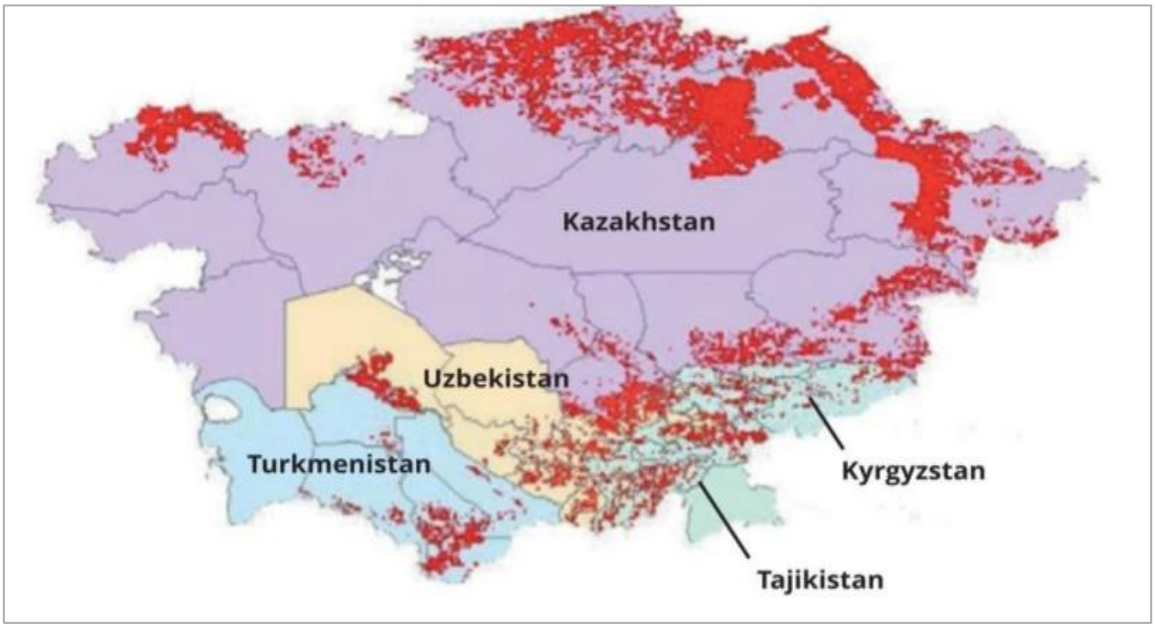
Figure 40: Forest resources in Central Asia



Source: FLERMONECA 2015 cited in World Bank, 2023e

In Central Asia, land degradation and deforestation are particularly prevalent in border areas, increasing the vulnerability of natural ecosystems and causing cross-border externalities. The Central Asian countries face similar land management challenges due to a region-wide increase in land degradation related to animal husbandry, rangeland overuse, irrigated agriculture and salinization, soil erosion, encroachment of agriculture into marginal lands, vulnerability to climate change, and high population in rural areas (especially along the borders). Land degradation directly affects rural populations which are the most vulnerable to poverty and unemployment. Many border areas also experience degradation-related natural disasters such as landslides and floods, which impact key transboundary infrastructure such as roads, railways, transboundary trade, transboundary watersheds (such as the Amu Darya and Sir Darya River basins), and tourism development along the Silk Road. The degradation and hazards also negatively impact the region's transboundary biodiversity corridors and mountain biodiversity hotspots in the Tien Shan and Pamirs, home to some globally important migratory routes and critically endangered species. Climate change reduces the vitality of forests, which are key providers of ecosystem services in the semi-arid Central Asian environment. Alterations in species distribution or drought-induced tree mortality might result in a loss of biodiversity and other ecosystem services, as evidenced through impacts on juniper trees in the Zaamin National Park (World Bank, 2022b). Figure 41 shows the hotspots of degraded land in Central Asia, with many areas located along national borders.

Figure 41: Hotspots of land degradation in Central Asia (determined by changes in normalized difference vegetation index in the region). Degraded land is shaded in red.



Source: Nkonya, E. et al. 2016 cited in World Bank, 2022c

In all Central Asian countries, all forests are publicly owned, mostly through a state forest fund, which imposes specific rules on land use, although not all land under the state forest funds is forested, and sometimes there is forest outside these areas. In all countries there are also local forest agencies which implement forestry measures on the ground, but in some, these are managed centrally, while in others, these local management units (often referred to as leskhoz) are quite autonomous or answer to separate local authorities. Almost all the funding for forest management comes from the central State budget, as there are few opportunities for the local units to generate revenue from their activities. Given the low economic and policy visibility of forest issues, most local management units are underequipped and underfunded, and are therefore unable to effectively carry out their mission of sustainable forest management (UNECE, 2019d). Table 20 below summarizes key barriers to sustainable forest management and restoration in the Kyrgyz Republic, Tajikistan and Uzbekistan.

Table 20: Summary of barriers to sustainable forest management and restoration in the selected countries

Country	Barriers to sustainable forest management and restoration
Kyrgyz Republic	- Unclear management responsibilities for forest areas outside the State Forest Fund - Integrated forest management planning not institutionalized nationwide - Governance and enforcement weaknesses - Persistent financing constraints and weak incentives for investing in reforestation/restoration
Tajikistan	- Lack of updated forest inventory and of a national forest monitoring system - Weak institutional structure, unclear responsibilities, and limited enforcement capacity - Chronic underfunding and inadequate resources for state forest enterprises - Financial barriers to scaling joint forest management and private sector engagement
Uzbekistan	- Outdated forest inventory and land reclassification preventing a clear picture on forest conditions - Limited participatory/community-based forest management arrangements - Insufficient financing for restoration despite recent increase of state financing

Sources: multiple, see Sections 2.4.2, 2.4.3 and 2.4.4 below

In the region, many forests have been destroyed or degraded, leading to a demand for forest landscape restoration. In June 2018, under the auspices of the Bonn Challenge, seven of the countries in the Caucasus and Central Asia region met in the Ministerial Roundtable on Forest Landscape Restoration in the Caucasus and Central Asia and six of them, including the Kyrgyz Republic, Tajikistan and Uzbekistan, committed to identify degraded lands and work to restore and afforest them by 2030 (Astana Resolution) (UNECE, 2019d).

Forest degradation and deforestation are major developmental challenges in the region, with the annual cost of land degradation totalling around USD 6 billion. Furthermore, around 30% of the rural population live near forests and depend on forest products for their livelihoods or subsistence (Djanibekov et al., 2016). However, there is a lack of published studies identifying the extent and impacts of land degradation in the region using observed data at national or regional scales (Khan et al., 2018). Table 21 below summarizes the drivers of deforestation and degradation in the three countries.

Table 21: Summary of key drivers of deforestation and degradation in the selected countries

Country	Drivers of deforestation and degradation
Kyrgyz Republic	- Overgrazing and livestock pressure limiting regeneration and tree growth - Fuelwood removals beyond the volumes legally permitted, due to energy demand - Climate change impacts affecting forest distribution and key species, and driving pest outbreaks
Tajikistan	- Overgrazing and livestock pressure in forest landscapes, limiting regeneration and tree growth - Heavy dependence on fuelwood due to unreliable energy supply in rural areas - Climate change impacts, including erratic precipitation, fire, pests, and disease
Uzbekistan	- Unregulated fuelwood harvesting and rising demand for wood and other forest products - Overgrazing and livestock pressure limiting regeneration and tree growth - Expansion of irrigated agriculture, especially in tugay (riparian) forests - Climate-related pressures, including pests, disease, salinity (mainly outside the programme area), and desertification

Sources: multiple, see Sections 2.4.2, 2.4.3 and 2.4.4 below

2.4.2 Kyrgyz Republic forest sector profile

Forest cover

The Kyrgyz Republic had a forest cover of 8.6% according to the last national forest inventory, published in 2022 (Unique land use, 2022). Six major forest formations were defined: Spruce-Fir forests, Juniper forests, Walnut and mixed fruit forests, Pistachio and Almond forests, other mixed broadleaved forests, and other wood or shrub forests.

The following Table 22 indicates the land cover and the forest area in percent and in ha:

Table 22: Land cover and tree cover classification of the six main forest formations by remote sensing (Sentinel-2)

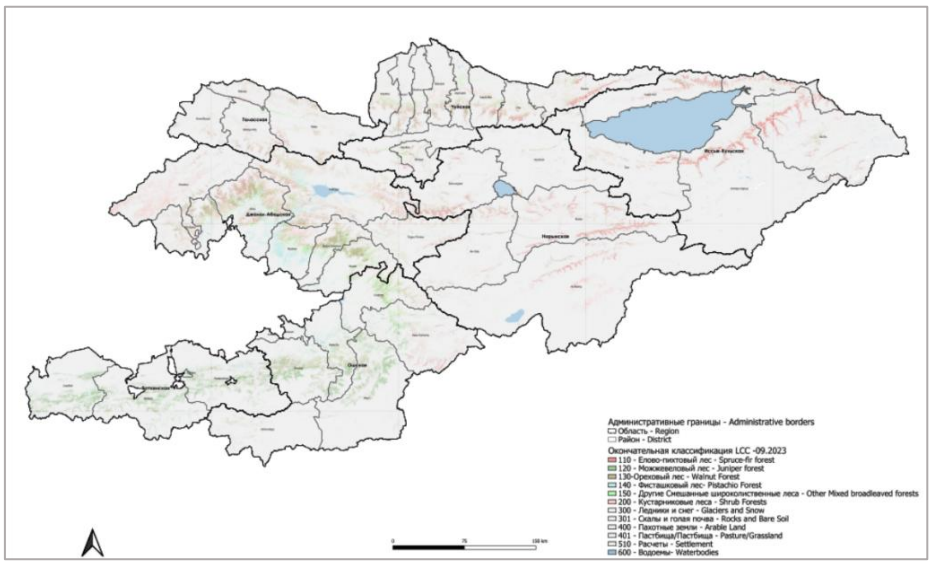
Value	Pixel count	% Class	Area (ha)
Spruce-Fir Forest	31,159,733	1.56	311,407.1
Juniper forests	44,018,670	2.20	439,897.6
Walnut and mixed fruit forests	5,765,546	0.29	57,658.6
Pistachio & Almond forests	11,323,644	0.57	113,195.8
Other mixed broadleaved forests	27,136,908	1.36	271,204.6
Other wooded land / Shrub forests	68,906,653	3.44	688,585.3
Forest and other (woodlands shelter belts...) and trees outside forest	188,311,154	9.41	1,881,949.2
Glaciers and Snow	59,658,126	3.0	596,550.4
Rocks and Bare Soil	852,722,516	42.6	8,526,853.8
Arable Land	203,764,202	10.2	2,037,582.1
Pasture/Grassland	609,046,177	30.5	6,090,361.8
Settlement	8,969,261	0.4	89,732.3
Waterbodies	77,203,027	3.9	772,059.3
Non-Forested area	1,811,363,309	90.59	18,113,139.8
Total	1,999,674,463	100.0	19,995,089.0

Source: Unique land use, 2022

The main forest class is the 688,000 ha of “other wood and shrub forests”, comprising 3.4% of the total land area. The main land cover is rock and bare soil, with 42.6% of the country, followed by 30.5% of land area being grassland.

The following map shows the forest formations, as classified by the NFI.

Figure 42: Map of the land cover classification



Source: Unique land use, 2022

Forest ownership and forest management

Kyrgyz forests are all owned by the state and most forests are under operational management of the Forest Service under the Ministry of Emergency Situations.

Until 2019, all forests were owned by the state. However, of the total area of forest and other wooded land (1.66 million ha), 900 thousand ha are under the operational management of the Forest Service under the Ministry of Emergency Situations. Another 700 thousand ha (outside the State Forest Fund) has not yet been transferred to any state organization (Unique land use, 2022). Since then, several re-organisations have taken place, but the newest data is not available. The Government of Kyrgyz Republic is still in the process of deciding to whom the management of this forest should be transferred, possibly to municipal organizations. According to the last NFI, most of the forests are inside the State Forest Fund (SFF), with 1.2 million ha, or 6.1% of total land area, while less than half as much is outside the SFF, with 500 thousand ha, or 2.5% of total land area.

Current forest legislation foresees the application of long-term forest management plans which are updated every 10-15 years (UNECE, 2019d). State forest enterprises base their work on these plans, which are then broken down into annual operational plans. Integrated management plans looking not only into forest resources but also into all forest-related activities, including grazing, have been developed in almost half of the state forest enterprises in conjunction with GIZ and WB projects. Nevertheless, the institutionalization of such integrated plans still needs to be consolidated across the whole Kyrgyz Republic.

The Kyrgyz Republic is committed under the Bonn challenge to reducing landscape degradation through reforestation and afforestation of 23,000 hectares of forests by 2030. A forest restoration plan covering walnut forests and their development has been developed in the light of climate change, which includes effects on the growing conditions of walnut forests and cultivating walnut trees, as well as other useful species such as apple, pear, and almond (Khan et al., 2018). Kyrgyz Republic's forest sector is facing several threats. Climate change will contribute to the altitudinal advance of the deserts toward the upper border by 400 m. Steppes may advance by 250 m, forests by 150 m, and the subalpine cover by 100 m, leading to changes in many plant types and the main forest-forming species. The lower limit of the European walnut will rise by 100 – 150 m due to increased soil moisture requirements, although this will be conditioned by the increase in the active temperature (FAO, 2010)

Goods and products from the forest include "wood, mostly for energy, nuts and berries for sale and self-consumption, grazing for meat and dairy livestock, shade and local climate control, water supply and protection against erosion, [and] tourism" (UNECE, 2019d). Wood for energy and livestock activities are the most important in terms of area of forest used. Protection is a designated management objective on nearly 70% of forests, but only 6.2% of forests are managed to conserve biodiversity. Nearly 10,000 m^3 of fuelwood removals are recorded, but it is accepted that there are large volumes of unrecorded fuelwood removals for sale, mostly by local communities or by leskhoz, and that this is a significant

pressure on the forest (UNECE, 2019a). Trade and consumption of forest products is at a low level (0.3 m³ roundwood equivalent per head, as compared to 0.86 in Europe) (UNECE, 2019d) and most forest products are imported from the Russian Federation. Employment in the forest sector and tenancy on forest land also varies by region, with 460 leskhoz staff members and 17,378 tenants for 41,443 ha in Jalal-Abad, 160 leskhoz staff and 1,789 tenants on 4,903 ha in Osh, and 123 leskhoz staff and only 539 tenants on 2,721 ha in Batken.

Forests and climate change challenges

The period of forest management plans for forestry enterprises is 10 years, compared to 15 to 20 years in protected areas. From 2001 to 2016, the first cycle of forest management plans was completed, and the second cycle of forest management plans was started. According to the forest management planning data, more than 315 thousand ha of forests are outside the territory of both the SFF and protected areas, represented mainly by shrubby thickets (classified as other wooded land / shrub forest) (Unique land use, 2022).

Forestry policies are integrated into the country's sustainability agenda, which rank economic, social, and ecological indicators of forest management and development equally, also with a view to forests' important role as a mitigation ecosystem of global climate change.

In the Kyrgyz context, challenges for the forest sector include forest degradation due to pressure from grazing and energy wood removals; the need to improve livelihoods of forest dependent people; forest sector governance; corruption and illegal logging; and improving effectiveness and efficiency of forest management (UNECE, 2019d). The Kyrgyz Republic declared the preservation of mountain ecosystems, biodiversity and forests as priority directions for the country's climate actions at the 21st Conference of the Parties to the UNFCCC in Paris and at the 72nd session of the UN General Assembly in New York (UNECE, 2019a). Mitigation actions and policies in the NDC are primarily concentrated in energy, agriculture, forestry and other land uses. The government plans to preserve and increase the area of forests and expand perennial plantations have both adaptation and mitigation potentials (IMF, 2023).

Forest and ecosystem restoration financing

Financing for the forestry sector in Kyrgyzstan comes from a combination of state funding, SFE own revenues, and international partner support. Forests are 100% state-owned, and forest management is typically carried out by SFE, which are autonomous local enterprises that answer to the Ministry of Agriculture and are partly funded by it. In most cases, however, SFE depend on their own commercial activities for most of their revenue(UNECE, n.d.-a).

Government budget: From the public sector, there are persistent funding challenges for the forestry sector. The existing forestry finance system and the use of revenues generated from forestry-related economic activities are tightly governed by fiscal rules, leaving little room to incentivize more efficient forest management. Since the new Budget Code of the Kyrgyz Republic entered into force in 2017, revenues not classified as special-account funds, including income from leasing State Forest Fund lands and pastures, claims, and other sources, have been transferred to the Republican budget as non-tax revenue. This change has weakened incentives for forestry personnel and has contributed to shortfalls in carrying out planned reforestation activities(UNECE, n.d.-a).

International donors and partners: financing for the sector also comes from development banks and partners. These include: GEF, GCF, World Bank, Korea-WB Partnership.

2.4.3 Tajikistan forest sector profile

Forest cover

Tajikistan's land area consists of over 93% mountainous terrain and the forest cover is less than 3% of the land area, corresponding to 563,000 ha of forest and other wooded lands (UNECE, 2019b).

Table 23: Forest resources of Tajikistan, 2018

Indicator	Unit	1988	Recent data
Area of forest	1,000 ha	410.1	421
Area of other wooded land	1,000 ha	325.4	142
Forest and other wooded land	1,000 ha	735.5	563
Average annual % change in forest area	%	–	0.02
Growing stock	Million m³	5.6	5.1
Share of primary forest	%	–	70.5
Share of plantations for wood production	%	–	None

Indicator	Unit	1988	Recent data
Share of publicly owned forest	%	100	100
Share of public forest managed by state forest agency/enterprise	%	–	97.1
Proportion of forest area under a long-term forest management plan	%	100	100
Area of certified forest	%	0	0
Area of disturbed forest (all causes including fire insects disease) as percent of total forest	ha	0.01	0.01

Source: UNECE, 2019

Forest land per head is around 0.05 ha, considerably lower than in neighbouring countries. Most of the national forest cover is situated in Sughd region (Global Forest Watch, nd). The key risks to forests are overexploitation and uncontrolled grazing, which have caused rapid declines in forest cover, which has fallen from highs of 25% to now only 3% of land area (World Bank, 2022b). Between 1999 and 2018, forest and other wooded land dropped 735 thousand ha to 563 thousand ha. Notably, there has been no national forest inventory since 1990, which can limit the reliability of more recent data.

Forest ownership and forest management

All forest is formally owned by the state, but the management planning system which was continued after Tajikistan's independence from the Soviet Union has seen its enforcement capacities weakened and has not been replaced with a well-structured system to organize activities in Tajik forests. There is no specific system or instrument in place to monitor forest disturbances, also because the size of affected area is not deemed relevant (UNECE, 2019b). Currently, local forest management enterprises (leskhoz) are responsible for carrying out activities on the ground, yet problems arise because these enterprises are chronically underfunded and working conditions are not adequate to implement many of the goals declared by the central state entities in the National Forestry Program (UNECE, 2019d).

While the forest area is only 3% of land area, the area placed under the management responsibility of the Forest Agency (FA) is 13%. It mainly consists of rangeland. Constraints in the sector include unclear responsibilities and jurisdictions; weak administrative, managerial, and law enforcement capacities; and lack of sustainable forest management schemes. Evidence-based forest policy making and monitoring is impaired due to the lack of up-to-date data and mapping. This is a systematic problem, since there has been no national forest inventory (NFI) since 1990. Damage due to fire, pest, disease, and dieback are also not recorded in any systematic manner. A robust national forest monitoring system would help make international reporting more credible (World Bank, 2022b).

Since 2018, Tajikistan has adopted a participatory forest management approach – Joint Forest Management (JFM). JFM enables the local population, either individuals or groups, to become involved in forest management and support the rehabilitation of degraded natural forests over the long term. The required subsidiary regulations and by-laws are in place. Since 2018, State Forest Enterprises (SFEs) are also obliged to support JFM, based on learnings from existing donor-supported pilot projects. Due to contradictions between the forest and land codes, areas with no forest cover are not considered for JFM. Resolving this issue would facilitate inclusion of new areas for JFM (World Bank, 2022b).

Forests goods and products

The forests of Tajikistan provide important goods and services to the population. In rural areas, almost all wood removals are for fuelwood, due to a lack of alternative energy sources (UNECE, 2019b). For 70% of the rural population, fuelwood is the primary energy source due to an inconsistent energy supply (World Bank, 2022b). Table 24 below shows the total amount harvested is only 7-9,000m^3 per year. Furniture is a key product based on forest wood, yet most is imported from the Russian Federation since Tajikistan stopped its production. Therefore, the per capita consumption of forest products is also considerably low at 0.2 m^3 RE/cap. Furthermore, there are less than five full-time workers for each 1,000 ha of forest (UNECE, 2019b). Non-wood products are also very important to the national forest sector, especially to sustain the leskhozes. Important products include nuts, berries, game, seeds, mushrooms, and oils (UNECE, 2019). fruit tree cultivation generates considerable cash flow, especially considering the minimal budgets of forestry companies. The production and processing of non-timber products and the establishment of 150 thousand ha of industrial forest to meet the national timber demand is currently promoted by the National Forestry Programme (UNECE, 2019).

Table 24: Goods and services provided by the forests

Indicator	Unit	Data
Recorded total harvest	1,000 m³	7–9
Estimated total harvest (inc. non-recorded)	1,000 m³	70–90
Wood fuel production	1,000 m³	70–90
Share of wood fuel in wood production	%	100
Forest area for protective functions	%	73.3
Forest strictly conserved for biodiversity	**%**	**26.7**
Main non-wood products and services	–	Game, fur, seeds, nuts, berries, mushrooms, oils, foliage, medicine, peat, honey, seedlings
Employment in forestry	FTE/1,000 ha	4.9
Net GHG emissions/removals	tCO_2e/ha	-1.49

Source: UNECE, 2019b

Forests and climate change challenges

Tajikistan has one of the lowest GHG emissions levels - in absolute and per capita terms - in Central Asia. However, due to its low adaptive capacity, Tajikistan is the most vulnerable to climate change. Climate change has significant ramifications for agriculture, forests, and land restoration, in pasture and protected areas. Key impacts are erratic precipitation pattern, poor vegetation growth, and increased incidence of fire, disaster risks, loss of biodiversity, and pest and disease outbreak. (World Bank, 2022b).

The major challenges to the state of forests in Tajikistan are linked to the high demand of fuelwood and patterns of overgrazing which impact wooded and other wooded landscapes. Additionally, there are some illegal logging activities that cause forest degradation and destruction. Addressing these issues is severely hindered by the failure to establish an effective organizational structure and communication for managing forests, as well as the low levels of funding for regional and local organizations and firms to carry out management activities at the local level (UNECE, 2019).

Tajikistan is committed to reducing landscape degradation through reforestation and afforestation. In 2018, Tajikistan, along with five other Caucasus and Central Asian countries, signed the Bonn challenge-related Astana Resolution to restore about 2.7 million ha of degraded forest landscapes. Tajikistan specifically committed to restoring 66,000 ha of degraded forests by 2030, equivalent to more than 10% of current forest area. The National Development Strategy (NDS) 2030 addresses energy issues and aims to provide a reliable energy supply. Planting 1,000 ha, rehabilitating 2,000 ha, and supporting natural forest regeneration on 8,000 ha of forests annually is included in the strategy. The updated Nationally Determined Contribution (NDC) aims to have 1.8 million tons of CO2 sequestered by forests by 2030 (World Bank, 2022b).

Forest and ecosystem restoration financing

Financing for the forestry sector in Tajikistan comes mainly from three main sources:

Government budget: all forest lands in the country are state-owned with 41 SFE responsible for forest management and protection and reporting to the State Forest Agency. The SFE, or forestry enterprise, is responsible for responding to requests for annual fuelwood harvesting quotas from schools, hospitals, the military, and other public institutions, while also implementing reforestation plans. However, the financial resources allocated to the SFE by the Agency are highly inadequate (UNECE, 2025). Low levels of public funding for the forestry sector create significant shortfalls in infrastructure, human resources, and the effective implementation of programs (UNECE, 2019a).

Revenue from SFEs: Income is generated through sales of NTFPs, land leases, and penalties. However, most forest areas are primarily protective; commercial timber sales are largely restricted (UNECE, 2025).

International donors and partners: Major contributions for the sector come from development partners. Notable financiers and development partners have included: GEF, WB, GIZ, KfW, Caritas (UNECE, 2019a).
In general, SFEs operate with limited resources, constraining their capacity to restore forests and manage resources sustainably. There is also limited private sector engagement into forestry activities, beyond small-scale household activities formalized in joint forest management agreements. Limited access to credit constrains forest-based enterprises and smallholder producers, largely because of insufficient collateral, high borrowing costs, and the lack of tailored financial products for the forestry

sector. At the same time, the absence of risk-sharing arrangements and insurance mechanisms to cover climate-related shocks, market fluctuations, and production losses further discourages private investment (UNECE, 2025). New initiatives, for instance, related to carbon, are seeking to provide further incentives for private sector participation (AFoCO-KTH, 2025).

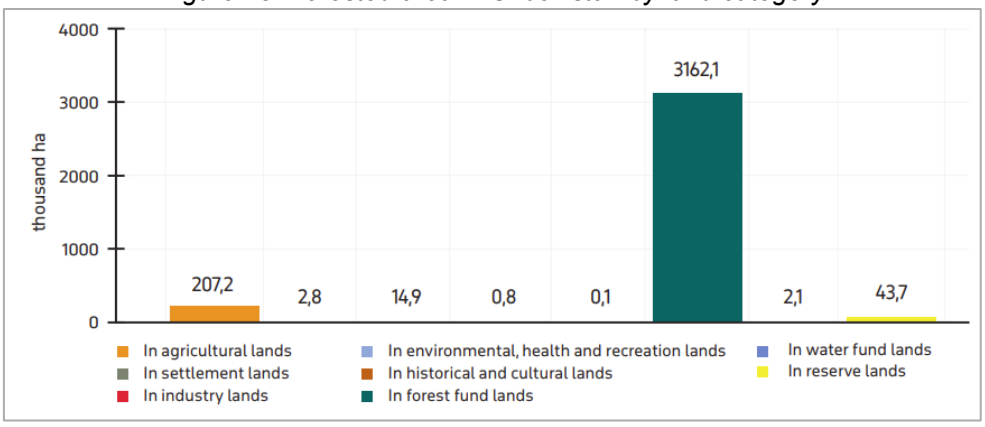
2.4.4 Uzbekistan forest sector profile

Forest cover

With an estimated 3.7 million ha of forest, corresponding to around 7.5% of total land area, Uzbekistan is considered a low forest cover country (LFCC) (World Bank, 2022c). These values amount to 0.1 ha of forest per capita (UNECE, 2019c). This is also due to its unique geography, divided into wide open lands in the northwest and central parts of the country, and a submontane and mountainous southeastern part. Uzbekistan has three main forest types: Drought and salt-resistant forests (mostly Saxaul) in the desert regions, mountain forests that are often situated in vulnerable ecosystems, and tugay or riverine forests (UNECE, 2019c). The largest forest areas (around 3 million hectares) are in cold desert areas and consist mainly of low saxaul forests, which have the characteristics of woodlands rather than forests. Submontane and mountain forests account for more than 300,000 hectares of the total forest area and include broadleaf forests (pistachio, walnut-fruit forests) and juniper forests. In addition, there are around 95,000 ha of tugay forests along the larger river belts of the country.

The following figure indicates the forested area by land category:

Figure 43: Forested area in Uzbekistan by land category



Source: Pulatov et al. 2016 cited in World Bank, 2022d

The total growing stock based on 2015 estimates was 55 million m^3, more than double the 26 million m^3 in 1988. However, no national forest inventory has been carried out since the 1990s, so data reliability is questionable.

There has been a programme to plant poplar and other fast-growing species, mostly in river valleys, but the success rates have been low, partly due to salinity (Dr. Gulusa Vildanova, 2006). Nevertheless, according to FRA 2015, a quarter of Uzbekistan's forests, 0.8 million ha, are considered "planted forest", while just over 2% of forests are considered "primary forest" (UNECE, 2019c).

Table 25: Forest resources of Uzbekistan, 1988 and most recent

Land Type	Area (ha)	% of Category	% of Total Lands
Agricultural Lands			
Arable lands	4,045,600	19.7	9.5
Perennial plantings (fruit, vineyards, etc.)	343	1.6	0.8
Household plots	616,2	3.0	1.5
Hayfields	104,9	0.5	0.2
Pastures	11,018,800	53.8	26.0
Forested (forest belts, poplars, etc.)	210,2	1.0	0.5
Shrubs	31,1	0.2	0.1
Lands under reclamation and amelioration	70,7	0.4	0.2
Fallow lands	78,4	0.4	0.2
Unused lands	3,954,600	19.3	9.3
Total Agricultural Lands	**20,473,500**	**100.0**	**48.3**
Forest Lands (SFF)			

Land Type	Area (ha)	% of Category	% of Total Lands
Forested (natural forests and plantations)	2,945,500	30.6	7.0
Pastures	3,109,100	32.3	7.3
Unused lands	3,471,900	36.0	8.2
Other	109,4	1.1	0.3
Total Forest Lands	**9,635,900**	**100.0**	**22.7**
Reserved Lands			
Pastures	6,319,600	51.5	13.1
Forested	43,6	0.4	0.1
Unused lands	5,896,200	48.1	15.8
Total Reserved Lands	**12,262,700**	**100.0**	**28.9**
GRAND TOTAL	**42,372,100**		**100.0**

Source: UNECE, 2019c

According to data from 2018, around one-third of forest cover is situated in the Republic of Karakalpakstan and another third in the province of Navoiy (World Bank, 2022c).

Table 26: Distribution of land types in agricultural, forest, and reserved lands in 2012

Indicator	Unit	1988	Recent Data
Area of forest	1,000 ha	1,908.9	3,254
Area of other wooded land	1,000 ha	1,869.5	115.4
Forest and other wooded land	1,000 ha	3,778.4	3,369.4
Avg. annual % change in forest area	%	—	2.54
Growing stock	Million m³	11.03	55.1
Share of primary forest	%	—	2.3
Share of plantations for wood production	%	—	24.9
Share of publicly owned forest	%	100	100
State-managed public forest	%	93.8	100
Forest under long-term mgmt plan	%	100	100
Area of certified forest	%	0	0
Area of disturbed forest (as % of total)	ha	—	0.8

Source: APFNet (Asia-Pacific Network for Sustainable Forest Management and Rehabilitation). 2017. Forest development and best practices of forest management in Uzbekistan, cited in World Bank, 2022d

Table 27 provides an overview of the historical overview of the historical forest area development since 1990. It shows that forest area increased between 1990 and 2020, with the largest increase occurring between 2015 and 2020. It should be noted that some of this increase can be attributed to changing classification of land as the State Forest Fund (SFF) has increased its landholding. Additionally, these national figures do not distinguish the state of the forest land, and hide the specific degradation and pressures faced by certain types of forest. The history of forest extent in Uzbekistan is also a cause for concern, given the limited extent of forest area in the 21st century. For example, more than 90% of the riparian tugay forests that existed in the first half of the twentieth century have been lost because of land clearance for agriculture, uncontrolled fuelwood removal and logging, and reduced river flows.

Since Uzbekistan's 1991 independence, the limited availability of energy sources in rural areas and their increased costs have led to unregulated harvesting of fuelwood from SFF land, negatively impacting these forest estates. The most prevalent degradation drivers have been uncontrolled animal husbandry, increasing demand for industrial and fuel wood, uncontrolled harvesting of non-forest resources, and expanding irrigated agriculture into forests (World Bank, 2022d).

Table 27: Area covered by forests and other woods, as reported by FAO-FRA

Category	1990	2000	2005	2010	2015	2020
Forest	3,045	3,212	3,295	3,275	3,22	3,689
Other wooded land	1,306	1,595	904	874	1,154	1,175
Total	4,351	4,807	4,199	4,149	4,374	4,864

Source: FAO/FRA 2020 cited in World Bank, 2022d

Forest ownership and forest management

All forests are state-owned and are under the the Agency for the Development of Forests and Green Zones, Combating Desertification (the Forest Agency) responsibility, which has several local branches that carry out forest operations. No arrangements exist for leasing or community/participatory forest management (UNECE, 2019c). About 89% of Uzbekistan's forests (3.28 million ha) are managed by more than 100 state business entities, including 66 state forest enterprises (leskhozes) (World Bank, 2022c). Most of this forest is counted as part of the State Forest Fund (SFF), which, following varying indications, can be estimated at 12.2 million ha in 2021 (World Bank, 2022c). The SFF is strategically managed by the Forest Agency of Uzbekistan. The SFF includes forest, agricultural and grazing land. Given the dry climate of Uzbekistan, the 'other wooded land' category is also relevant. More specifically, the landscapes considered other than forest include sand dunes, mountain rocks (non-forest lands) and open land and pasture (forest lands not covered with forest). The positive trend in forest cover noted in Table 27 might be traced back to changes in the categorization of forested lands within the SFF (World Bank, 2022c).

Uzbekistan is committed under the Bonn challenge to restoring 500,000 hectares of degraded and deforested land by 2030.

Forests goods and products

In 2015, 2.7 million ha, or 83% of Uzbekistan's forests, were managed for the protection of soil and water, with mountain forests particularly important for river flow rates and a more controlled runoff, while saxaul forests in dry areas are significant for reducing desertification, stabilizing landscapes, and improving water retention and soil structure (World Bank, 2022c). A further 460 thousand ha are set aside for spiritual and cultural purposes, 210 thousand ha are designated for biodiversity conservation, and 75 thousand ha for public recreation. Compared to these non-wood forest products (NWFPs), timber-producing forests are marginal with a land extension of 6,000 ha.

Despite the limited production areas for timber, it is evident that forest ecosystems deploy important functions and services that benefit the country. Direct economic contributions from the forest sector are low and accounted for only 1% of national GDP in 2019 (Agency of Statistics under the President of the Republic of Uzbekistan, 2025). Nevertheless, the unmeasured contributions of Uzbek forests are important for the country's wellbeing and the wellbeing of its citizens, especially since 75% of the poor population live in rural areas, and forests support their predominantly agricultural livelihoods. Overall, the agriculture, forest, and fishery sectors contribute between 19.2% of Uzbekistan's GDP. This has not changed much in 30 years. It is estimated that at least 17.1 million people (those living in rural areas in 2021) depend on forests for subsistence and a majority of those for income generation as well. Formal employment in forestry was estimated at 8,000 people in 2018, according to the Forest Agency, with up to 10,000 possible further jobs in wood processing (World Bank, 2022c). 2020 estimates of employment per ha of forest show that 2.4 people are full-time employed per 1,000 ha of forested land (European average is 1.6) (ibid.). It is also plausible that a large amount of informal employment has not been accounted for (UNECE, 2019c).

The main services of forests are soil and water protection, which support both anthropogenic land uses and ecosystem biodiversity to a large extent. Forest and similar ecosystems are also important carbon sinks. Protection and "conservation of flora and fauna is intrinsic in management objectives" (World Bank, 2022c).

Table 28: Goods and services provided by the forests in Uzbekistan

Indicator	Unit	Data
Recorded total harvest	1,000 m³	36
Estimated total harvest including non-recorded	1,000 m³	
Wood fuel production	1,000 m³	26
Share of wood fuel in wood production	%	72.2
Share of forest area with a designated management objective to maintain and enhance its protective functions	%	83.4
Share of forest strictly conserved for protection of biodiversity	%	12
Main non-wood forest products and services		Honey, nuts (pistachio, walnut), medicinal and aromatic plants, fruit, handicrafts[7]
Employment in forestry staff per hectare	FTE/1,000 ha	3.1

Indicator	Unit	Data
Net GHG emissions (source)/removals (sink) of forests per hectare of forest	tCO_2e/ha	-0.2

Source: UNECE, 2019c

Since the 1960s, only sanitary cuts have been allowed in Uzbekistan because of the priority given to the forests' protective function. Wood removals were reported to FAO as ess than 40,000 m^3, of which over 70% was fuelwood (Table 28). However, this figure does not appear to include an estimation of unrecorded or illegal harvesting, even though these are believed to be significant (UNECE, 2019c). Another source quotes the official annual harvested volumes at 36,000 m^3 per year over the past years, and the local production of sawn wood is about 26,000 m^3 annually (World Bank, 2022c). NWFPs are a commercial product managed in the leskhozes but also an important source of livelihood for poor households among rural communities, as they often own only a limited number of livestock and have few alternative income sources.

Forests and climate change challenges

One of the main tasks for the forestry sector in Uzbekistan is to find a way to protect forests and restore damaged landscapes. Overgrazing has led to land depletion and soil erosion, effects that will be exacerbated by the impacts of climate change. Other important disturbances to the forest ecosystems are the increasing demand for firewood and other forest products, impacts from unsustainable land use, forest and landscape fire effects, and climate hazards (World Bank, 2022c). Other degradation factors have been the changing climatic conditions, which can be associated with increased incidence of wildfires and pest and disease outbreaks. Researchers expect that future changes in temperature and precipitation will further negatively affect forest growth and survival. According to Global Forest Watch, between September 2020 and September 2021, 1,089 fire alerts were reported in Protected Areas alone, which is an unusually high number compared to previous years going back to 2012.

The degradation of forests also would impact their role as a global public good, including for biodiversity, climate regulation, and carbon mitigation. In Uzbekistan, forests play a critical role for sequestration, which makes Forest Landscape Restoration (FLR) an opportunity for Uzbekistan to meet climate commitments. For example, between 2001 and 2020, forests in Uzbekistan emitted 14.0ktCO_2e/year and removed 634ktCO_2e/year. This represents a net carbon flux of -620ktCO_2e/year ((World Bank, 2022d) and Global Forest Watch's Dashboard Climate Change for Uzbekistan). The total sink capacity of carbon dioxide in Uzbekistan is estimated in global statistics at 2.53 million tons CO2e a year (aboveground biomass only), of which 0.58 million tons CO2e result from forest and woodland plantations on lands of the SFF and an estimated 1.95 million tons CO2e are generated on agricultural lands (World Bank, 2022c).

The Regional Risk and Resilience Assessment (RRRA) of the Ferghana Valley and Central Asia-Afghanistan border areas highlights that land degradation, water scarcity, and frequent natural disasters along the northern Afghanistan-Tajikistan/Uzbekistan border are exacerbated by climate change and result in competition over scarce land, suppress livelihoods, fuel migration, and reinforce vulnerabilities in local communities. Land, forests, and water in the northern Afghanistan-Tajikistan/Uzbekistan border area could come under further stress if there is an influx of refugees from Afghanistan to Tajikistan, and if trans-national governance arrangements are unable to function effectively due to the change in government in Afghanistan (World Bank, 2022d).

Forests and woodlands will be affected by the changing climatic conditions and increased vulnerability, particularly in physiological health (pest and diseases), fire, and other conditions (winds, dust) that reduce photosynthesis, salinity, and other changing conditions. Climate change intensifies land degradation and desertification processes and thus affects these landscapes' productivity, biodiversity, and other environmental services. These processes are the most intense in the Aral Sea region, the Ustyurt Plateau, the Kyzylkum Desert, and in mountain woodlands and submontane areas (World Bank, 2022c). Notably, most forests in Uzbekistan are already managed as a way of mitigating against these degradation and desertification processes, so the intensified threats may counter-intuitively increase demand for forests' ecosystem services.

Forest and ecosystem restoration financing

Financing for the forestry sector mainly originates from earmarked allocations from the central and local government budgets (World Bank, 2022c). Additional funding support has been provided by other relevant ministries, state agencies, as well as other organisations that use forest resources. In 2015,

the World Bank estimated the public expenditures in forest to be about USD 7 million (World Bank, 2022c).

Forestry institutions are also able to generate their own income through the sale of NTFPs as well as through various fees and paid services offered to businesses and individuals. Another very important supplementary source of finance comes from international projects that support project implementation (World Bank, 2022c).

To strengthen the sector's financial base, leskhozes have been encouraged to explore new financing and management approaches, including partnerships with local communities and other stakeholders. These management approaches include collaborative arrangements, such as co-management of forest resources with rural households, which can contribute to generating mutual benefits for both forestry enterprises and local populations. These opportunities may exist across different forest types, including fuelwood management in saxaul forests, NTFP management in walnut-fruit forests, and the joint restoration of forests (World Bank, 2022c).

In 2015, Uzbekistan also adopted provisions regulating the use of forest resources and related payment procedures under government Resolution No. 278 of 30 September 2015. This framework was intended to improve the use of flora resources, support the domestic pharmaceutical industry, expand the production of nationally manufactured medicines, and encourage the cultivation, harvesting, processing, and commercialization of wild plants. It also helped create more favorable conditions for entrepreneurs, particularly those interested in exporting NTFPs, while contributing to the broader liberalization of external economic activity (World Bank, 2022c).

The leasing of State Forest Fund land to long-term or temporary users is conducted on a fee-paying basis. Permitted uses include grazing, haymaking, beekeeping, collection of twigs and brushwood without cutting trees or shrubs, cultural and educational activities, ecotourism and related infrastructure, recreation, and other aesthetic, scientific, or public purposes. Revenues earned by SFEs from these services and production activities represent an important potential source of forestry finance (World Bank, 2022c).

Despite this, financing for restoration remains a challenge even if it has scaled since 2024–2025.

Key Ongoing Programmes and Funding Flows

- Yashil Makon ("Green Space") – the flagship national programme (launched 2021) Over 1.5 billion trees and shrubs planted by end-2025. A new Agency for Afforestation and Combating Desertification was created in June 2025 to centralise implementation. Primary funding comes from the state budget, supplemented by UNDP/UNECE/EU/KOICA/GIZ support and innovative mechanisms (crowdfunding, PPPs, green bond allocations).
- RESILAND CA+ Uzbekistan (World Bank, launched April 2025) USD 153 million to restore degraded forests, protected areas, pastures, and agroforestry systems nationwide. Part of the broader >USD 1 billion Central Asia Resilient Landscapes regional programme.
- EcoLand Project (UNDP, launched November 2025) USD 6.1 million (GEF + bilateral) for integrated restoration of tugai forests, mountain ecosystems (Chatkal, Hissar), and desert transition zones.
- Aral Sea Region Restoration – the highest-priority zone Ongoing saxaul planting on >1.5 million hectares of the dried seabed, supported by the UN Multi-Donor Trust Fund, KOICA's Green Recovery Investment Platform (which mobilised USD 1 billion in green/sustainable bonds by 2024), and the forthcoming EU-AFD-EIB package (€60+ million, 2025–2026).

2.5 Biodiversity conservation sector

2.5.1 Protected areas

2.5.1.1 Kyrgyz Republic

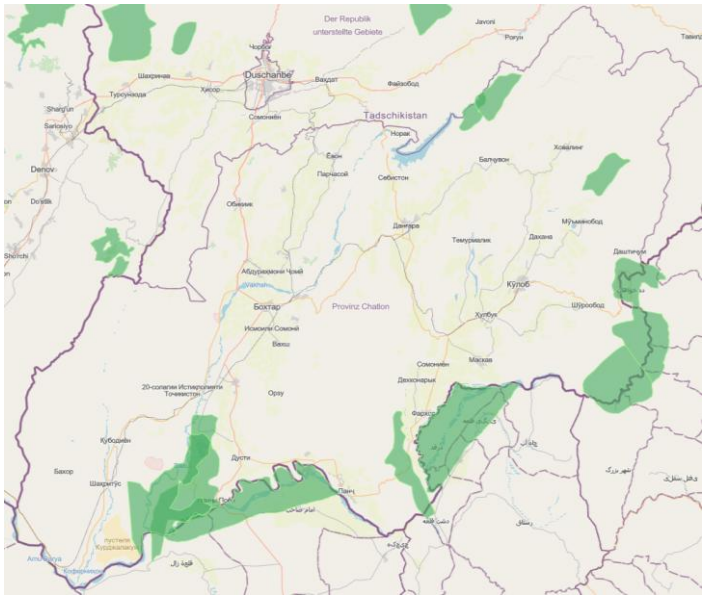
Kyrgyz Republic holds 35 protected areas which covers 13,423 km^2 of land area (6.77% area coverage). This area includes one Complex National Zakaznik Wildlife Refuge, one National Park, four Nature Parks, one Nature Sanctuary or Partial Reserve, seven State Nature Reserves and 15 Wildlife Refuges (UNEP-WCMC, 2025). 83% of the protected areas are designated as national sites, while the remaining 17 per cent are international sites, including two UNESCO Man and the Biosphere (MAB) reserves,

three wetlands of international importance (Ramsar sites), and one World Heritage Site. (UNEP-WCMC, 2025). The Kyrgyz Republic covers parts of the Western Tien-Shan, in the north of the Fergana valley, where several protected areas border Uzbekistan and Kazakhstan, Sary-Chelek State Biosphere Nature Reserve and Besh-Aral State Nature Reserve (UNESCO World Heritage Centre, n.d.).
Information on other effective area-based conservation measures is provided in Appendix C.

2.5.1.2 Tajikistan

Tajikistan holds 27 protected areas which covers 31,914 km^2 of land area (22.58% area coverage). This area includes two national parks, one natural park, and 17 reserves (UNEP-WCMC, 2025). 74% of the protected areas are designated as national protected areas whereas the other 26% are international designations including five wetlands of international importance (Ramsar Site) as well as two World Heritage Sites (UNEP-WCMC, 2025).
The region of Khatlon covers several protected areas, including Nurek Nature Reserve, Sarikhosor Nature Park, Childukhtaron Nature Reserve, Dashtijum Nature Reserve (at the border to Afghanistan), Karatau Nature Reserve and Tigrovaya Balka Nature Reserve (UNEP-WCMC, n.d.). The tugay forests of the Tigrovaya Balka Nature Reserve lies between the Vakhsh and Panj rivers in southwestern Tajikistan and covers an area of 49,786 ha.
Information on other effective area-based conservation measures is provided in Appendix C.

Figure 44: Protected areas (green) in Khatlon region



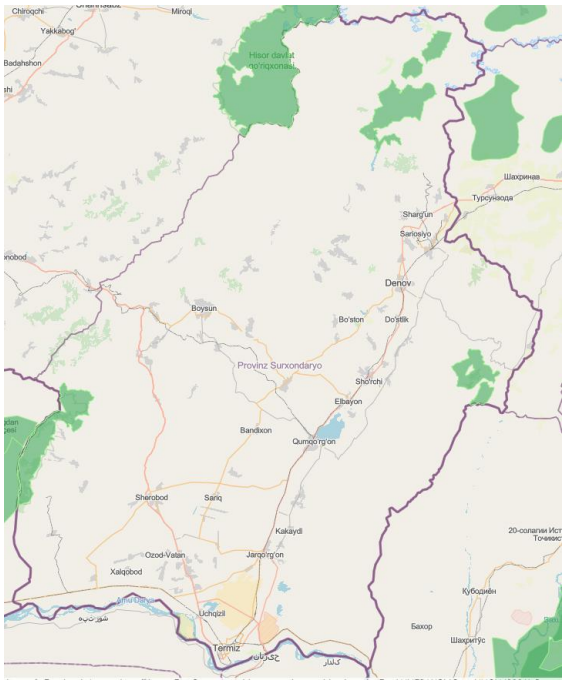
Source: UNEP-WCMC, n.d.

2.5.1.3 Uzbekistan

Uzbekistan holds 53 protected areas which cover 63,356 km^2 of land area and includes several nature parks, monuments and sanctuaries (UNEP-WCMC, 2025). Almost 14% of the country's territory is covered by protected areas including one wildlife sanctuary, 13 national natural parks, ten natural monuments, one nature nursery, two state biosphere reserves, seven state reserves and two state wildlife sanctuaries as national designations (UNDP et al., 2024). The international designations include one UNESCO-MAB biosphere reserve, four wetlands of international importance (Ramsar) and two world heritage sites. Uzbekistan is undertaking substantial efforts to conserve and restore its biodiversity resulting in significant increase of protected territories since 2016. The country has also identified 48 Important Bird Areas covering 24,558 square kilometres, as well as 51 Key Biodiversity Areas totalling 27,614 square kilometres (UNDP et al., 2024). The country has also identified 48 Important Bird Areas covering 24,558 square kilometres, as well as 51 Key Biodiversity Areas totalling 27,614 square kilometres (UNDP et al., 2024).
The Fergana Valley does not have any protected areas that fall within the high IUCN categories. The region mainly contains natural monuments, such as the Akkum Sands territory, which includes two natural monuments: These are the Yazyavan Sands (1,820 hectares) and Mingbulak (1,000 hectares). Plans are also in place to establish a new national park in the Fergana Valley, which would span 100,000 hectares (Succow Stiftung, n.d.).

To the north of the Fergana Valley lies the Western Tien-Shan. Uzbekistan holds several protected areas at the intersection of its borders with the Kyrgyz Republic and Kazakhstan, including the Chatkal State Biosphere Nature Reserve and the Ugam-Chatkal State National Park (IUCN category II), which covers an area of 574,600 hectares and borders two protected natural areas in the Kyrgyz Republic (GIZ, 2025b).
In Surkhandarya region, the Surkhan protected mountain-forest covers an area of 24,554 ha (UNDP et al., 2015). The Bobotog National Nature Park and Topalang National Nature Park are also located in this region (UNEP-WCMC, n.d.). Information on other effective area-based conservation measures is provided in Appendix C.

Figure 45: Protected areas (green) in the region of Surkhandarya



Source: UNEP-WCMC, n.d.

3. Climate context

3.1 GHG emissions profile and future projections

Although energy remains the main source of GHG emissions across the three countries, there is an increasing importance of the AFOLU sectors, driven by rising agricultural emissions and weakening land-based sequestration.

In the Kyrgyz Republic, the energy sector remained the dominant source of GHG emissions in 2023, accounting for 10.65 MtCO2e, or 55% of total emissions, although this was still 48.8% below 1990 levels. Agriculture was the second-largest source at 5.75 MtCO2e, or 29.7% of total emissions, and remained broadly stable in absolute terms compared to 1990, at 0.1% above the 1990 level. This indicates that agriculture has become more prominent in the national emissions profile over time, as emissions from energy declined sharply after 1990 while agricultural emissions remained comparatively persistent. Total gross GHG emissions amounted to 19.38 MtCO2e in 2023, while removals by sinks reached 10.31 MtCO2, resulting in net emissions of 9.07 MtCO2e (Kyrgyz Republic, 2025b).

Agricultural emissions were driven primarily by livestock and managed soils. Enteric fermentation was by far the largest source, accounting for 3.78 MtCO2e, or 65.8% of agricultural emissions in 2023. This was followed by direct N2O emissions from managed soils at 0.88 MtCO2e and manure management at 0.51 MtCO2e, with smaller contributions from indirect soil and manure emissions, rice cultivation, and urea application. The NDC also highlights the increasing significance of methane in the national emissions profile. In 2023, CH4 represented about 29% of total GHG emissions (Kyrgyz Republic, 2025b).

The LULUCF sector remained a net sink in 2023, with sectoral removals of 10.21 MtCO2, representing an increase of 6.9% compared to 1990. Most removals came from forest land at 8.21 MtCO2, followed by cropland at 1.77 MtCO2 and grassland at 0.33 MtCO2. However, the increase in removals has not kept pace with the recent rise in emissions. Between 2017 and 2023, total GHG emissions increased by 17.7%, while removals in the land use and forestry sector grew by only 0.9%. As a result, net emissions increased by 45.2%, from 6.24 MtCO2e in 2017 to 9.07 MtCO2e in 2023. Although the land sector continues to play an important role in carbon sequestration, its contribution has not been sufficient to offset the growth in emissions, including from agriculture (Kyrgyz Republic, 2025b).

Looking ahead, the Kyrgyz Republic's NDC (Kyrgyz Republic, 2025b) indicates that emissions are projected to continue increasing in the absence of stronger mitigation action. The projection presented under NDC2.0 showed total GHG emissions rising from 15.87 MtCO2e in 2017 to 20.18 MtCO2e in 2025 and 26.11 MtCO2e in 2030, while net emissions were projected to increase from 5.50 MtCO2e in 2017 to 9.08 MtCO2e in 2025 and 14.88 MtCO2e in 2030. Although the LULUCF sector is expected to remain an important carbon sink, the projected increase in gross emissions would continue to outpace removals, resulting in a rising net emissions trajectory. In this context, the AFOLU sectors remain relevant to the mitigation outlook, both because agriculture continues to be a major source of emissions and because land use and forestry are expected to play a critical role in reducing net emissions growth.

The NDC also outlines that progress under NDC2.0 has been partial and uneven across sectors. By the 2025 assessment, 64% of mitigation measures had been fully or partially implemented, and total estimated GHG emission reductions from implemented measures reached 1,481.661 ktCO2e, equivalent to 16.3% of 2023 net emissions. In sectoral terms, the largest estimated reductions were recorded in LULUCF at 1,109.696 ktCO2e, followed by energy at 105.999 ktCO2e and agriculture at 94.853 ktCO2e. The land sector is already making the largest quantified contribution to mitigation; however, progress in reducing emissions from agriculture and energy has remained more limited relative to the scale of projected emissions growth.

In Uzbekistan, the energy sector remained the dominant source of GHG emissions in 2022, while agriculture continued to be a significant contributor and LULUCF remained a net sink of relatively limited scale compared to gross emissions. According to the inventory presented in the NDC and Biennial Transparency Report (BTR) (Government of the Republic of Uzbekistan, 2024, 2025), total GHG emissions amounted to 209.61 MtCO2e in 2022 excluding LULUCF, and 201.15 MtCO2e including LULUCF absorptions. Compared to 1990, gross emissions increased by 32.1% and net emissions by 41.1% by 2022. Over the period 2010–2022, which the NDC identifies as the Paris Agreement implementation period, net emissions increased by 16.7%, indicating an acceleration of emissions growth in recent years. The BTR further notes that total emissions reached their highest level in 2021, at 212.18 MtCO2e, before declining slightly in 2022.

The emissions profile remains strongly concentrated in the energy sector, although its share has declined over time as other sectors have grown more rapidly. In 2022, energy accounted for 133.51 MtCO2e, or 64% of total gross emissions, compared to 82% in 1990. Agriculture accounted for 35.35 MtCO2e, or 17% of total emissions, up from 8% in 1990, while IPPU accounted for 29.25 MtCO2e, or 14%, and waste 10.50 MtCO2e, or 5%. Over the period 1990–2022, emissions increased across all emitting sectors, with the fastest growth recorded in agriculture.

The LULUCF sector remained a net sink, but its contribution was not sufficient to offset the increase in emissions from other sectors. According to the BTR, net removals in LULUCF declined by 47.3% between 1990 and 2022, from -16.06 MtCO2e to -8.46 MtCO2e. At the same time, the increase in agricultural emissions and continued growth in energy-related emissions contributed to a sustained rise in overall emissions. Looking ahead, the NDC projects that total GHG emissions will continue to increase under both the business-as-usual and realistic scenarios. Under the business-as-usual scenario, emissions are projected to increase by 34% by 2030 and 55% by 2035 compared to 2022 levels, while under the realistic scenario they are projected to increase by 4% by 2030 and 6.5% by 2035. Only the ambitious scenario projects an overall decline in emissions, at 6–11% below 2022 levels.

In Tajikistan, the energy sector remained the largest source of GHG emissions in 2022, although its share in total emissions declined significantly over time, while agriculture became a more important contributor. According to the BTR (Republic of Tajikistan, 2024), gross greenhouse gas emissions excluding LULUCF amounted to 19.5 MtCO2e in 2022, representing an increase of 24.5% compared to 1990. When emissions and removals from land use, land-use change and forestry are included, net emissions amounted to 17.7 MtCO2e, remaining close to the 1990 level. This reflects the continued

role of LULUCF as a net sink in the national emissions profile, partially offsetting emissions growth in other sectors.

The structure of emissions changed substantially between 1990 and 2022. The share of the energy sector in total emissions declined from 64.0% in 1990 to 40.8% in 2022, while the share of agriculture increased from 19.0% to 34.8%. Over the same period, the share of waste increased from 4.7% to 10.9%, while the contribution of IPPU increased from 12.3% to 13.6%. The BTR indicates that total emissions fell sharply in the 1990s due to economic contraction but began to rise again from around 1999 onward as economic growth resumed. Overall, these trends indicate that Tajikistan's emissions profile is still dominated by energy, but that the growing contribution of agriculture, together with the limited scale of LULUCF removals, is increasing the relevance of AFOLU mitigation in the country. Tajikistan's BTR does not provide quantitative projections of future GHG emissions and removals.

3.2 Climate change risks – Key considerations of the climate rationale

This section provides a concise summary of the Climate Rationale (Annex 2b), which provides the analytical basis for the programme's climate-risk assessment and adaptation logic. Using the IPCC framing of climate risk as the interaction of hazard, exposure, and vulnerability, Annex 2b assesses the selected transboundary programme landscapes across the key land-use systems and value chains, identifies current and projected climate hazards, traces the resulting impact pathways through climate impact chains, and analyses the vulnerability factors that aggravate risk for rural livelihoods and ecosystem functions. The assessment combines quantitative climate and geospatial analysis with literature review, programme documentation, and stakeholder consultations in the target landscapes. Crucially, it also links the proposed programme outputs and activities to the identified vulnerability factors and barriers, thereby showing how the programme is expected to reduce climate risk and support adaptation in the programme areas. The present section summarises these findings for the Feasibility Study, while the full methodology, evidence base, and detailed assessment are presented in Annex 2b.

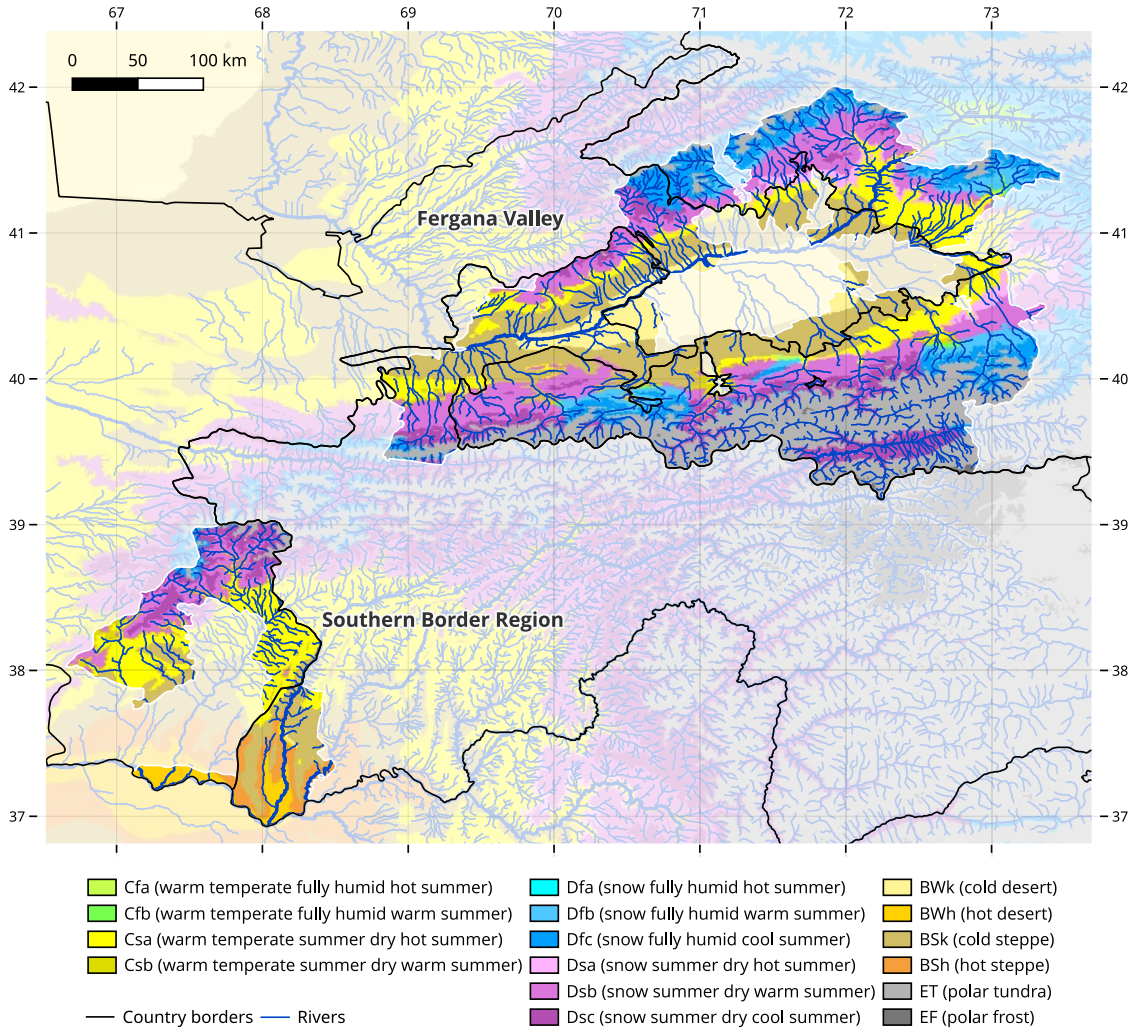
3.2.1 Climate relevance and risk context

The programme areas in the Fergana Valley and the Southern Border Region (Section 6.5) are situated in transboundary mountain–foothill–valley landscapes characterised by predominantly arid to semi-arid conditions and strong climatic variation across elevation zones. As shown in Figure 46, the programme spans hotter and drier lowland and foothill areas as well as cooler mountain climates, creating pronounced vertical gradients in production conditions, vegetation, and water dependence across the target landscapes.

A defining feature of both programme areas is the strong seasonal asymmetry in water availability: much of the precipitation falls during the cooler part of the year, while summers are hot and dry and coincide with peak water demand in irrigated agriculture and broader moisture stress across rainfed systems, pastures, and forests. Lower-lying production zones therefore depend heavily on water generated and regulated in upstream catchments, making the programme landscapes inherently sensitive to shifts in seasonal runoff, drought conditions, and degradation in higher-elevation areas.

This combination of high dependence on climate-sensitive AFOLU systems, strong uphill–downhill interdependence, and transboundary resource linkages makes the selected landscapes particularly relevant for climate-risk analysis and adaptation planning. Against this background, climate change does not introduce entirely new risks, but intensifies an already fragile hydro-climatic setting on which production, ecosystem functions, and rural livelihoods depend. The climate-risk relevance of these landscapes is summarised in this section, while the rationale for their selection as programme implementation areas is set out in Section 6.5.

Figure 46: Climate classification of the programme areas, illustrating the distribution of major climate zones across the Fergana Valley and Southern Border Region and their variation along elevation gradients.



Source: Own illustration based on GADM, 2022 and Brun et al., 2022

3.2.2 Exposure of key land-use systems

Within the programme areas defined and justified in Section 6.5, the climate-risk logic of the programme is organised around five interconnected land-use systems. The programme's focus value chains are embedded in these systems as follows:

- **Irrigated annual cropland**: annual horticulture and seed potatoes
- **Irrigated perennial cropland**: orchard-based fruit production
- **Rainfed cropland**: wheat
- **Pastures**: addressed as a critical production and ecosystem system in its own right
- **Forests**: walnuts and pistachios as non-timber forest products

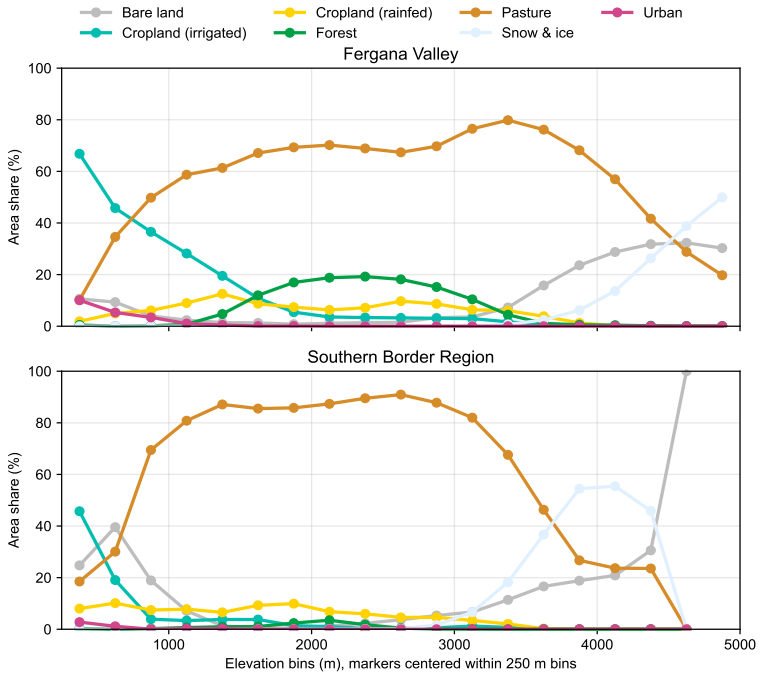
Together, these systems underpin rural livelihoods, agricultural production, and key ecosystem functions across the vertically connected programme landscapes. These land-use systems are used as the primary unit of analysis because climate hazards and their effects manifest across connected production and ecosystem systems rather than only within individual crops or products.

These systems are arranged along a vertically connected mountain–foothill–valley landscape, as illustrated schematically in Figure 53: Scheme of the vertical geography scheme typical for the programme area (exemplarily for the area around Nookat, Kyrgyzstan) in Section 6.5. Building on that logic, Figure 47 shows their distribution across elevation gradients in the two programme areas: irrigated

cropland is concentrated mainly in lower valley and lowland areas, rainfed cropland is more prominent in foothill and upland zones, pastures dominate broad middle- and higher-elevation belts, and forests are concentrated mainly in upper elevations. This distribution is important for climate risk because it places the main value chains and livelihood systems in different but closely connected uphill and downhill positions within the wider landscape, where degradation and reduced vegetation cover in upper and middle slopes can intensify erosion, runoff, and water stress below, while pressure in lower production zones can in turn reinforce unsustainable use of resources further upslope.

Exposure in the programme area is not limited to the land-use systems themselves but also concerns the populations whose livelihoods depend on them. The most exposed groups are smallholder farmers, livestock-dependent households, forest users, women-led farming households, and youth, whose incomes and food security are closely tied to climate-sensitive cropland, pasture, and forest systems. Their exposure is heightened by strong dependence on natural resources and by constraints in access to land, finance, extension, climate information, and local decision-making, which reduce their ability to absorb and respond to climate-related stress. Because many households depend simultaneously on several of these systems, shocks affecting water availability, crop production, pasture condition, or forest resources can quickly translate into broader livelihood stress across the programme landscapes.

Figure 47: Distribution of major land-use systems across elevation gradients in the Fergana Valley and Southern Border Region (share of area for each 250m elevation bin)



Source: Own illustration based on GADM, 2022 and Copernicus Climate Change Service, 2019

3.2.3 Climate hazards

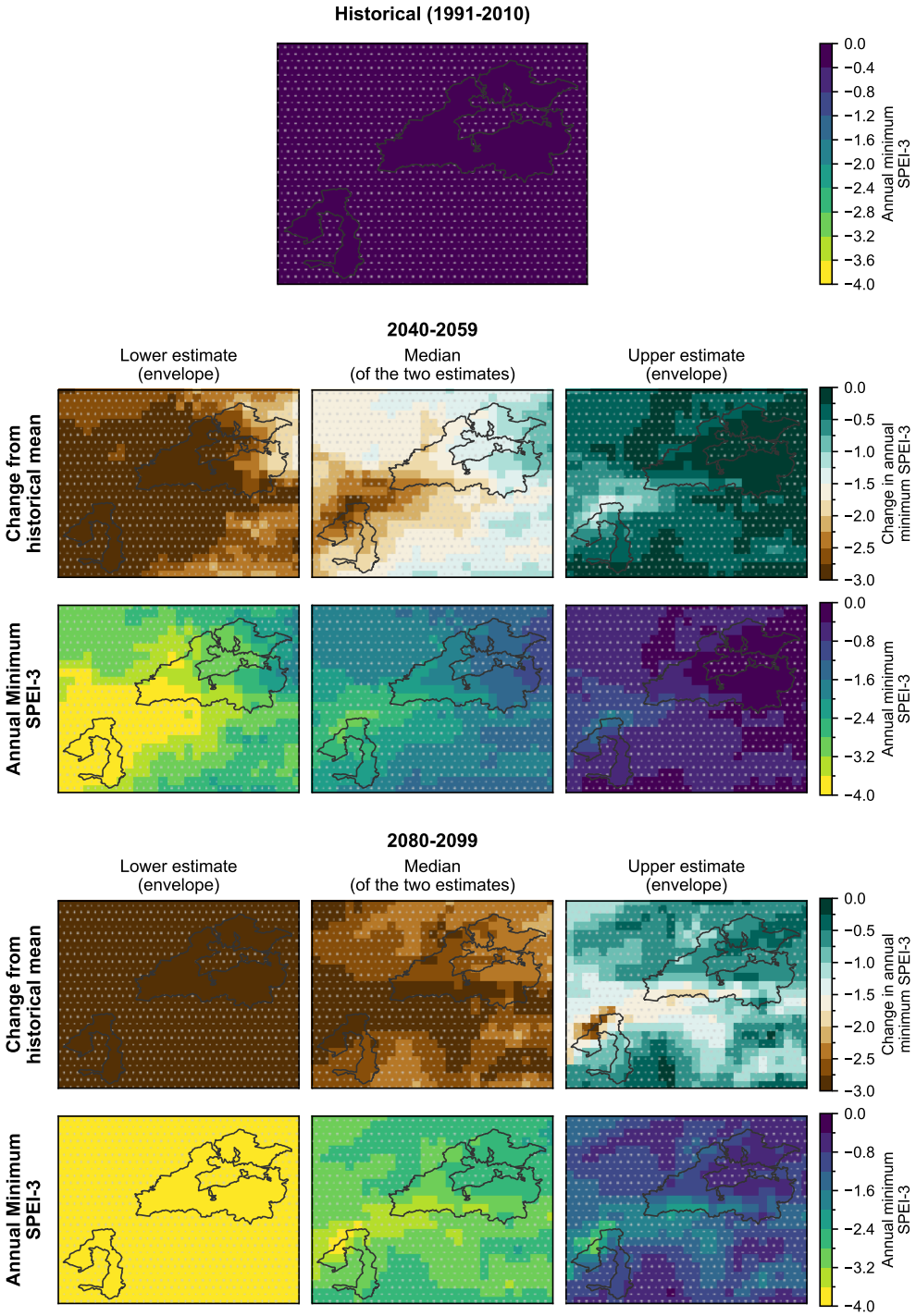
An assessment of historical climate trends and projected future conditions has been conducted for the two programme areas – the Fergana Valley and the Southern Border Region between Uzbekistan and Tajikistan – with results differentiated by two elevation zones (below and above 1,500 m) to reflect the strong altitudinal gradients shaping climate dynamics. Based on an ensemble of 20 climate models from the NEX-GDDP-CMIP6 dataset (NASA, 2025; Thrasher et al., 2022) and focussed on the selected programme districts, the analysis shows that changing climatic conditions are already changing and are expected to intensify further over the coming decades. Across both programme areas, the main hazard signals are rising temperatures, a stronger seasonal imbalance in water availability, intensifying drought conditions, and increasing pressure from climate extremes. Their expression differs across the landscape: extreme heat is strongest in the lower-elevation irrigated production zones of the Fergana Valley and the Southern Border Region, heavy-rain risks are more pronounced in foothill and upland areas, and hot dry wind remains concentrated in parts of the western Fergana Valley and the

southern part of the Southern Border Region. The main hazard signals across the programme areas can be summarised as follows:

- Mean temperature increases across both programme areas and all elevation levels, with the highest absolute temperatures in the lower-elevation zones and particularly strong heat burdens in the Southern Border Region.
- Precipitation patterns become more uneven over the year, with more intense wet periods and persistently dry or potentially drier summer conditions, especially relevant for irrigated lowlands where water demand peaks in the dry season.
- Drought conditions intensify, especially in summer and autumn, with the signal most pronounced during the warm season in both programme areas.
- Climate extremes increase in differentiated ways: extreme heat rises strongly in lower elevations, hot dry wind remains concentrated in the southern part of the Southern Border Region and the western Fergana Valley, and heavy rain increases mainly in foothill and upland areas.

Among the identified hazards, intensifying drought conditions are highlighted here as one illustrative cross-cutting hazard because they affect all focus land-use systems and become most critical in summer and autumn, when production systems are already under greatest stress. Figure 48 shows projected changes in annual minimum SPEI-3, which Annex 2b uses as an indicator of short-term climatic and agricultural drought stress. This indicator does not directly represent hydrological drought in rivers, reservoirs, or groundwater, but it captures the increasing imbalance between precipitation and atmospheric evaporative demand that is especially relevant for cropping systems, pasture condition, and forest vegetation.

Figure 48: Historical and projected annual minimum SPEI-3 in the programme areas



Source: Own illustration based on analyses of NASA, 2025

Figure 48 shows that short-term drought conditions are already part of the present climate in both programme areas and are likely to intensify further over time. While the projection range remains broad, a clearly drier trajectory becomes pronounced in the more adverse part of that range, with the Southern Border Region generally showing the broader and more consistent deterioration, especially in summer and autumn. In the Fergana Valley, the signal is also clear, though somewhat more differentiated by season and elevation. Considering together with the projected seasonal redistribution of precipitation and the upstream runoff shift assessed in Annex 2b, this points to increasing pressure on irrigation reliability in lower-elevation cropland systems and to declining soil moisture, weaker regeneration, and greater vegetation stress across rainfed, pasture, and forest systems.

3.2.4 Climate change impacts and risks

Climate change affects the programme areas through multiple, interconnected pathways across irrigated annual and perennial cropland, rainfed cropland, pastures, and forests. In the programme context, the resulting climate risk can be summarised as: declining agricultural productivity, reduced pasture carrying capacity, and degradation of forest and ecosystem functions, with associated consequences for rural livelihoods. These risks are driven by rising temperatures, changing precipitation patterns, and increasing frequency and intensity of droughts and extreme weather events, and are aggravated by land degradation, weakened ecosystem integrity, constrained water availability, and limited adaptive capacity, access to information and finance, and institutional support. Table 29 summarises how these hazards translate into differentiated impacts across the key land-use systems in the programme areas and the rural livelihoods associated with them.

Table 29: Summary of main hazard-to-impact pathways across focus land-use systems, including geographic differentiation and examples of key crops, pasture, and forest systems

Land-use System	Aspect of Land-use System	Summary of aspect
Irrigated Annual Cropland **(Horticulture & Seed Potatoes Value Chains)**	Typical crops	Vegetables, melons, berries
	Programme focus	Onions, Tomatoes (on-field & greenhouse), Garlic, Strawberries (greenhouse); Seed potatoes
	Main geographic expression in the programme areas	• Primarily **lowland and lower-foothill irrigated areas**, especially downstream parts of canal systems • Heat and irrigation stress are strongest in lower elevations • **Hot dry wind exposure** especially relevant in the **western Fergana Valley** and parts of the **Southern Border Region** • Localized heavy-rain impacts are more relevant in **foothill irrigated systems** and exposed canal / drainage locations
	Main climate hazard pattern	• Mean temperature increase • Stronger seasonal water imbalance • Intensifying summer–autumn drought • Extreme heat • Localized hot dry wind • Localized heavy rainfall and flooding (foothill and middle elevations)
	Main cascading impacts	• Reduced upstream water availability and downstream irrigation shortfalls (Sorg et al., 2012) • Higher evapotranspiration and irrigation demand (Hatfield & Prueger, 2015) • Increasing salinity, soil hardening, and declining soil conditions (Corwin, 2021; Munns & Tester, 2008) • Washout, waterlogging, sedimentation, and canal damage in exposed locations (Assouline & Ben-Hur, 2006) • Crop scorching, early ripening, and rising pest and disease pressure (FAO & Uni Bonn, 2021; Ma et al., 2025); potatoes especially heat-sensitive (Bustan et al., 2004) and prone to disease (Van Der Waals et al., 2013)
	Main resulting impacts	• Lower yields and lower market quality of annual crops • Higher irrigation and input costs • Greater production instability • More unequal water access under scarcity
Irrigated Perennial Cropland **(Orchard-based Fruit Value Chain)**	Typical crops	Orchards and vineyards, especially apricot, apple, plum, pear, cherry, almond, pomegranate, and grapes
	Programme focus	Fruit trees
	Main geographic expression in the programme areas	• Mainly **lower-elevation and valley / lower-foothill irrigated systems** • Especially exposed where orchards depend on canal and pump irrigation from upstream sources (lower elevation) • Some spring-instability effects (e.g. early blooming) also extend into cooler foothill zones • Heat burden especially high in Southern Border Region (lower elevation)

Land-use System	Aspect of Land-use System	Summary of aspect
	Main climate hazard pattern	• Mean temperature increase • Stronger summer–autumn drought • Extreme heat • Earlier spring onset • Continued frost risk after warm spells • Heavy rainfall during flowering and fruit setting • Localized hot dry wind
	Main cascading impacts	• Reduced upstream water availability and downstream irrigation shortfalls (Sorg et al., 2012) • Higher evapotranspiration and irrigation demand (Hatfield & Prueger, 2015) • Increasing salinity, soil hardening, and declining soil conditions (Corwin, 2021; Munns & Tester, 2008) • Washout, waterlogging, sedimentation, and canal damage in exposed locations (Assouline & Ben-Hur, 2006) • Reduced fruit size and quality (e.g. for apples: Reid & Kalcsits, 2020) • Altered flowering and earlier (Cleland et al., 2007); pollination mismatch (Hegland et al., 2009; Scaven & Rafferty, 2013; Trunschke et al., 2024; Vanbergen, 2013) • Blossom and young-fruit losses from late frost (Pfleiderer et al., 2019) • Decreased presence of natural enemies (FAO & WFP, 2023) • Fruit rot and disease under wet conditions (e.g. for grapes: (Molitor et al., 2014) • Crop scorching, shrivelling, branch damage, and rising pest pressure (FAO & Uni Bonn, 2021; FAO & WFP, 2023; Ma et al., 2025)
	Main resulting impacts	• Lower and less reliable orchard productivity • Smaller, damaged, or lower-quality fruits • Declining marketability and prices • Higher management costs • Greater long-term risk to orchard assets
Cropland Rainfed **(Wheat Value Chain)**	Typical crops	Mainly wheat, and in some locations barley and fodder crops
	Programme focus	Wheat
	Main geographic expression in the programme areas	• Mainly **foothill and upland rainfed systems** • Drought impacts are widespread across elevations and programme areas • Heavy-rain washout is more localized in **sloping and foothill areas**
	Main climate hazard pattern	• Mean temperature increase • Intensifying drought conditions, especially in summer and autumn • Extreme heat • More erratic rainfall • Heavy rainfall in foothill areas
	Main cascading impacts	• Declining soil moisture and crop water stress (Leal Filho et al., 2023; Qaseem et al., 2019) • Weaker germination and crop establishment • Disrupted sowing windows and cropping calendars (Minoli et al., 2022) • Soil hardening, erosion, and nutrient loss (Leal Filho et al., 2023) • Localized washout from intense rainfall and mudflows • Crop scorching, and rising pest and disease pressure (Ma et al., 2025) • Reduced animal health (e.g. sheep: (Van Der Waals et al., 2013)
	Main resulting impacts	• Lower and more variable cereal yields (Qaseem et al., 2019)

Land-use System	Aspect of Land-use System	Summary of aspect
		• Greater risk of establishment failure and crop (Khah et al., 1989) • Declining soil fertility and moisture retention (Leal Filho et al., 2023) • Reduced reliability of rainfed production (e.g. wheat: Nazari et al., 2021)
Pasture Land	Typical species	• Pasture used for cattle, sheep, goats, and mixed grazing • Grassland
	Main geographic expression in the programme areas	• Across all **elevation levels**, especially at the **interface to other land-use systems (rainfed cropland and forests)** • Heavy-rain, runoff, and slope-instability impacts are strongest in **foothill and upland belts** rather than in valley lowlands
	Main climate hazard pattern	• Mean temperature increase • Stronger summer–autumn drought • Extreme heat • Declining and less reliable water availability • Heavy rainfall
	Main cascading impacts	• Drying vegetation and weaker regeneration (Jiang et al., 2022) • Rising pest and disease risks (FAO & Uni Bonn, 2021) • Lower pasture biomass and fodder quality (L. Liu et al., 2023) • Shorter grazing periods pushing pressure onto forests and cropland (Azarov et al., 2024) • Reduced slope stabilization and water regulation (Straffelini et al., 2024)
	Main resulting impacts	• Declining pasture carrying capacity • Higher erosion, mudflow, and landslide risks • Reduced livestock productivity • Declining protective ecosystem functions (water regulation and soil stabilisation)
Forests **(Non-Timber Forest Products Walnuts & Pistachios)**	Typical species	Juniper, pistachio, and walnut trees
	Programme focus	Walnut and pistachio forests and their non-timber forest products
	Main geographic expression in the programme areas	• Mainly **upper elevations**; mostly around Fergana Valley
	Main climate hazard pattern	• Mean temperature increase • Stronger summer–autumn drought • Declining and less reliable water availability • Heavy rainfall
	Main cascading impacts	• Reduced slope stabilization and water regulation (Moos et al., 2023) • Increasing pest and disease pressure (e.g. pistachio very sensitive: (Kaiypovich Kenzhebaev et al., 2023) • Forest fire pressure (Zong et al., 2020) • Decreased forest health and decline in biomass (e.g. for juniper: Seim et al., 2016) • Decreased product quality (e.g. for walnuts: (Mahmoudian et al., 2021) • Seedling failure (Pozner et al., 2022)
	Main resulting impacts	• Weaker regeneration and reduced produce yield • Higher erosion, mudflow, and landslide risks (Assouline & Ben-Hur, 2006) • Declining protective ecosystem functions (water regulation and soil stabilisation)
Cross-cutting	Typical system context in the programme area	Connected mountain–foothill–valley landscape linking upper catchments, forests, pasture, rainfed cropland, and irrigated cropland

Land-use System	Aspect of Land-use System	Summary of aspect
	Main geographic expression in the programme areas	• **Upper catchments and steep slopes:** reduced snow and glacier buffering and weaker runoff regulation • **Foothill and middle elevation:** stronger erosion, mudflow, and slope-instability risks under heavier rainfall • **Lower valleys and lowlands:** transmitted dry-season water stress and irrigation shortfalls • **Localized hot dry wind exposure** is concentrated mainly in the **southern / southwestern Southern Border Region** and the **western Fergana Valley**
	Main climate hazard pattern	• Mean temperature increase • Stronger seasonal imbalance in water availability • Intensifying summer–autumn drought • Heavy rain in foothill and upland areas • Localized hot dry wind
	Main cascading impacts	• Reduced upper-catchment water regulation (Sorg et al., 2012) • Less reliable downstream water supply (Sorg et al., 2012) • Reinforcing land degradation (Leal Filho et al., 2023) • Loss of vegetation cover and protective ecosystem functions (Straffelini et al., 2024) • Pressure shifts between pasture, forest, rainfed, and irrigated systems (Azarov et al., 2024)
	Main resulting impacts	• More unstable water availability • Higher erosion, mudflow, and landslide risks (in higher areas) • Stronger pressure on cropland, forests, and pasture • Reduced livelihood stability, food security, and resilience

Across the key land-use systems, the main impacts differ in their immediate expression but show a common direction. In the lower-elevation irrigated valley and lower-foothill systems of the programme areas, including the Fergana Valley and the lowland parts of Khatlon and Surkhandarya, hotter conditions, less reliable irrigation supply, and worsening soil degradation increasingly translate into crop and orchard stress, lower yields and product quality, and higher production costs, with particularly strong implications for annual horticulture, seed potatoes, and orchard-based fruit systems. In rainfed wheat systems in foothill and upland areas, drought, more erratic rainfall, and heat stress reduce soil-moisture availability, weaken crop establishment, disrupt sowing windows, and increase yield variability and crop-failure risk. In pasture and forest systems in middle and upper elevations, drying conditions, weaker regeneration, and degradation pressure reduce biomass productivity, carrying capacity, and protective ecosystem functions, while heavier rainfall in foothill and upland areas increases erosion, runoff, and slope-instability risks. Key cross-cutting findings from the impact assessment:

- **Upper catchments and steep slopes:** Degradation in upper parts of the landscape is reducing water regulation and slope stability and increasing downstream water stress, erosion, mudflow, and landslide risks.
- **Pasture–forest interface in middle and upper elevations:** Drought, shrinking fodder availability, and weak management are reinforcing pasture overuse and pushing grazing into forest areas, further weakening regeneration and protective ecosystem functions.
- **Social system and planning conditions:** Increasingly unstable weather patterns are reducing predictability across land-use systems and translating climate impacts into livelihood instability, debt, migration, food-security risks, and greater burdens on vulnerable households.
- **Reinforcing feedback:** Several of the identified impacts intensify one another over time: water stress accelerates land degradation, degraded land retains less water and vegetation, reduced vegetation cover increases erosion and mudflow risks, and shrinking pasture productivity increases grazing pressure on forests and other already stressed land.

Taken together, these impacts are not confined to separate sectors but reinforce one another across the wider mountain-foothill-valley landscape of the programme areas. Reduced upper-catchment water

buffering and less reliable downstream water supply affect the lower irrigated production zones most directly, while land degradation and vegetation loss in middle and upper elevations increase erosion, mudflow, and slope-instability risks for adjacent pasture, forest, and cropland systems. At the same time, declining pasture productivity and weaker forest regeneration increase pressure at the pasture-forest interface and can shift land-use pressure into other already stressed systems. The resulting climate risk is therefore not only one of lower production in individual crops or sites, but of progressively weaker resilience across interconnected land-use systems and the rural populations that depend on them for income, food security, and ecosystem services.

3.2.5 Vulnerability to climate change

Vulnerability to climate change is a key determinant of how severely the identified hazards affect the focus land-use systems and the rural populations that depend on them. In the programme areas, vulnerability arises from the interaction of biophysical constraints – including land degradation, water scarcity, and fragile ecosystems – with structural socio-economic and institutional limitations such as weak support services, restricted access to finance, and limited technical knowledge. Building on this analysis, the identified vulnerability factors can be grouped into six cross-cutting barriers, which define the key entry points of the programme response and Theory of Change. These barriers, which are discussed in more detail in Section 5.2 of this Feasibility Study, are:

- B1 Insufficient public finance to implement mitigation and adaptation measures
- B2 Limited coherence of public policies and incentives to enable adaptation and mitigation in the agriculture, livestock, and forestry sectors
- B3 Limited integration of climate information into local land-use plans, national sector plans and other planning instruments
- B4 Low technical knowledge amongst land users and limited technical advisory for planning and implementing site-specific adaptation options
- B5 Limited access to finance for the implementation of climate-resilient production models
- B6 Insufficient regional cooperation for addressing environmental transboundary issues

These barriers are not abstract; they produce concrete vulnerabilities in each land-use system. In lower valley and lower-foothill production zones, ageing irrigation infrastructure, weak water-saving capacity, and limited crop and pest management turn seasonal water stress directly into yield and quality losses in annual horticulture and seed-potato systems. In perennial orchards, similar irrigation constraints are compounded by weak drainage, erosion control, and plant protection, so repeated climate stress damages the orchard asset itself rather than only one harvest. In rainfed wheat systems, shallow soils, weak soil- and fertility-management, and almost no access to supplemental water make production highly sensitive to delayed rains, dry spells, and failed establishment. In pastures, overgrazing, high stocking densities, weak rotation, and limited restoration capacity accelerate degradation and reduce carrying capacity. In forests, low seedling survival, weak protection and enforcement, and insufficient restoration and management capacity constrain regeneration and weaken slope-stabilisation and water-regulation functions under hotter, drier, and more erosion-prone conditions. Because these systems are interconnected, pressure is also transmitted across the wider landscape: declining pasture productivity can increase pressure on adjacent forest areas, while weakened upstream vegetation and water-regulation functions intensify stress in downstream irrigated systems. The targeted vulnerability factors are reflected in Table 30 below which summarises the main measures, their adaptation functions, and the vulnerability factors and barriers they are intended to address, while Section 5.2 and 6.2 set out the broader barrier-response logic at programme level.

3.2.6 Adaptation measures

In response to the identified climate risks and vulnerabilities, the programme promotes a targeted adaptation package across the focus land-use systems and value chains. The response combines system-specific on-land measures with enabling actions in planning, advisory support, and finance, to reduce immediate climate stress while also addressing the structural constraints that currently limit adaptation at scale.

Table 30: List of individual adaptation measures for the key land-use systems promoted by the programme (for full barrier titles see Section 3.2.5 above)

Output/ Activity	Adaptation Measure	Adaptation Function	Targeted Vulnerability Factor(s)	Targeted Barrier
Irrigated Annual Cropland (Seed Potato Value Chain)				
2.3.1.6	Upgrading local seed multiplication	Improves access to climate-suitable planting material	• Crop variety selection (crop suitability)	B4
	Use of sprinkler irrigation	Reduces drought sensitivity and irrigation demand	• Irrigation schemes outdated for current climate • Insufficient water-saving capacities	
	Improving plant nutrition and pest management	Reduces climate-related crop stress and yield losses	• Insufficient fertilizer management • Insufficient pesticide management	
Irrigated Annual Cropland (Horticulture Value Chain)				
2.3.1.6	Use of climate-resilient seeds and seedlings	Improves crop suitability and resilience to climate stress	• Crop variety selection (crop suitability) • Use of water-intensive crops	B4
	Use of drip irrigation	Reduces drought sensitivity and irrigation demand	• Irrigation schemes outdated for current climate • Insufficient water-saving capacities	
	Improving plant nutrition and pest management	Reduces climate-related crop stress and yield losses	• Insufficient fertilizer management • Insufficient pesticide management	
	Use of insect-proof nets/shade nets	Reduces heat stress, pest damage, and weather exposure	• Insufficient plant protection	
	Greenhouse-based production	Reduces vulnerability to temperature extremes, weather exposure	• Insufficient water-saving capacities	
Irrigated Perennial Cropland (Orchard-based Fruit Value Chain)				
2.3.1.6	Use of drought/heat/flood/frost resilient root stocks and fruit cultivars	Improves orchard suitability and tolerance to climate stress	• Use of water-intensive crops • Crop variety selection (crop suitability)	B4
	Improving orchard management technologies	Improves orchard resilience to water, soil, and weather stress	• Irrigation schemes outdated for current climate • Insufficient water-saving capacities • Insufficient excess-water management • Crop variety selection (crop suitability) • Limited erosion protection practices • Insufficient drainage practices • Insufficient protection practices (e.g. tree/shrub planting)	
	Use of drip irrigation	Reduces drought sensitivity and irrigation demand	• Irrigation schemes outdated for current climate • Insufficient water-saving capacities	
	Use of insect-proof nets/shade nets	Reduces heat stress, pest damage, and weather exposure	• Insufficient plant protection	
Rainfed Cropland (Wheat Value Chain)				
2.3.1.6	No-till seeding	Improves soil moisture retention and crop establishment	• Insufficient soil protection	B4

Output/ Activity	Adaptation Measure	Adaptation Function	Targeted Vulnerability Factor(s)	Targeted Barrier
	Cover Crops	Protects soil and improves moisture retention		
	Crop rotation using drought-resistant oilseed crops and legumes	Diversifies production and improves drought resilience and soil fertility	• Insufficient soil fertility management • Crop selection	
	Improving plant nutrition and pest management	Reduces climate-related crop stress and yield losses	• Insufficient soil fertility management • Insufficient fertilizer management • Insufficient pesticide management	
Across all Cropland Systems				
1.3.2	Establishing climate-smart agriculture financing facilities and supporting issuance of green bonds	Mobilizes finance for climate-resilient on-farm investment	• Limited access to finance • Limited investment for climate-resilient land use	B5
2.3.1.3 **2.3.1.5**	Capacity building for CRLE practices and technologies	Improves uptake of climate-resilient land-use practices	• Limited erosion protection practices • Knowledge gaps (management / practices) • Insufficient excess-water management • Insufficient water-saving capacities • Irrigation schemes outdated for current climate	B4
2.3.2.2	Establishing matching grant mechanisms for CRLE technology adoption and value chain development	Lowers investment barriers to climate-resilient technology adoption	• Limited access to finance	B5
2.3.3.3	Improving post-harvest handling and storage technologies	Reduces climate-related post-harvest losses	• Insufficient protective storage capacities (e.g. harvest vulnerable to high moisture conditions) • Limited access to finance • Low value-added value chains	
Pastures				
2.2.1.6	Water point construction	Secures livestock water access under increasing drought stress	• Overgrazing and pasture mismanagement • Limited water point access	B4
2.2.2.1 **2.2.2.2** **2.2.2.3**	Rotational grazing	Reduces overgrazing and supports pasture recovery	• Limited pasture rotation • Overgrazing and pasture mismanagement • High livestock density	
2.2.2.1 **2.2.2.2**	Capacity building on pasture management	Improves adaptive grazing and stocking decisions	• Under-resourced and overloaded pasture management • Overgrazing and pasture mismanagement • Insufficient pasture management • Limited pasture rotation • High livestock density	
2.2.2.3	Pasture management plans	Supports climate-informed grazing and restoration planning		

Output/ Activity	Adaptation Measure	Adaptation Function	Targeted Vulnerability Factor(s)	Targeted Barrier
2.2.2.4	Capacity building in pasture restoration	Strengthens restoration of degraded and drought-stressed pastures	• Limited pasture rotation • Overgrazing and pasture mismanagement • High livestock density • Insufficient pasture restoration and management	
2.2.2.5	Pasture rehabilitation (seed-broadcasting, temporary fencing)	Restores vegetation cover and pasture carrying capacity		
	Fencing	Protects recovering pasture and enables controlled grazing		
	Improving access roads	Improves access to underused pastures and reduces localized overgrazing		
	Improving access to water points	Redistributes grazing pressure and improves herd access to water		
	Pasture monitoring	Enables climate-responsive pasture management and early action		
	Climate-resilient forage seeds	Improves forage establishment and drought resilience	• Vegetation species composition	
Forests (Non-timber Forest Products Value Chain, Walnut & Pistachio)				
2.2.1.1 **2.2.1.2**	Capacity building in forest management	Improves climate-resilient forest protection and management	• Land degradation and soil erosion • Insufficient protection of seedlings • Limited enforcement of land-use regulations • Tree species composition (selection of tree species and forest composition) • Insufficient forest restoration and management	B4
2.2.1.3	Forest resources management plans	Guides climate-informed forest use and regeneration		
2.2.1.5	Capacity building in forest restoration	Strengthens restoration of degraded and climate-stressed forests		
2.2.1.6	Reforestation	Restores forest cover and protective ecosystem functions		
	Fencing	Protects seedlings and regenerating forest areas from disturbance	• Insufficient protection of seedlings • Limited enforcement of land-use regulations • Unsustainable forest use	
	Local climate-resilient seedlings	Improves regeneration success under changing climate conditions	• Tree species composition (selection of tree species and forest composition)	
	Increasing tree nursery capacities	Expands supply of climate-suitable planting material for regeneration and afforestation	• Insufficient protection of seedlings (low survival rate of tree plantations) • Land degradation and soil erosion • Insufficient forest restoration and management • Tree species composition (selection of tree species and forest composition)	
	Improving water retention and distribution infrastructure	Improves seedling survival and moisture retention	• Insufficient protection of seedlings (low survival rate of tree plantations) • Insufficient forest restoration and management • Land degradation and soil erosion	

Output/ Activity	Adaptation Measure	Adaptation Function	Targeted Vulnerability Factor(s)	Targeted Barrier
	Monitoring and reporting of forest conditions	Supports early detection and adaptive forest management	• Insufficient protection of seedlings (low survival rate of tree plantations) • Limited enforcement of land-use regulations • Insufficient forest restoration and management	
2.3.1.6	Sustainable produce collection practices	Reduces resource pressure and supports sustainable regeneration	• Unsustainable forest use • Insufficient forest restoration and management	
	Improving drying, processing, and storage technologies for produce	Reduces climate-related product losses and preserves value	• Insufficient protective storage capacities (e.g. harvest vulnerable to high moisture conditions) • Limited access to finance • Low value-added value chains	B5
Cross-cutting Adaptation and Auxiliary Measures				
1.1.1.2	Targeted climate information products	Supports climate-informed land-use and farm decisions	• Lack of climate information services • Limited use of climate information in decision-making • Insufficient land-use planning capacities and information base (e.g. limited geophysical soil analysis, use of GIS)	B3
1.1.1.5	Capacity building on climate-informed institutional planning	Strengthens integration of climate risk into planning		
1.1.2.1	Multisectoral and multiscale coordination	Improves coordinated adaptation across sectors and scales	• Lack of cross-sectoral coordination • Low adoption of climate-resilient practices (limited data sharing and knowledge on green practices)	
1.2.1.2	Enhancing access to innovative climate finance	Expands finance for climate-resilient land-use investment	• Limited investment for climate-resilient land use • Limited and unattractive loans • Limited access to finance	B1 B2
1.2.1.3	Re-purposing of harmful subsidies	Improves resilience and lowers emissions	• Limited public spending in CRLE measures	B1
2.1.2	Local adaptation plans	Translates climate risk into local adaptation action	• Land degradation and soil erosion • Low adoption of climate-resilient practices • Limited technical support services • Insufficient protection of soil, infrastructure, and vegetation • Limited enforcement of land-use regulations • Inflexible local water allocation disadvantaging downstream users	B3
3.1.1	Capacity building on regional foresight and planning	Strengthens anticipatory planning for transboundary climate risks	• Lack of transboundary landscape planning mechanisms • Lack of climate information services • Limited use of climate information in decision-making	B6
3.1.2	Regional climate-informed development pathways	Guides long-term climate-resilient regional development		

Output/ Activity	Adaptation Measure	Adaptation Function	Targeted Vulnerability Factor(s)	Targeted Barrier
			• Insufficient land-use planning capacities and information base (e.g. limited geophysical soil analysis, use of GIS)	
3.2.1	Regional knowledge exchange and information sharing	Accelerates uptake of adaptation knowledge and practice	• Limited awareness of adaptation options • Limited use of climate information in decision-making • Low adoption of climate-resilient practices • Lack of climate information services	B3 B6
3.2.2	Improving the Central Asia Climate Information Portal (CACIP)	Expands access to usable climate information		
3.3.1	Regional climate investment platform	Mobilizes regional finance for landscape-scale adaptation	• Low adoption of climate-resilient practices • Limited awareness of adaptation options • Limited investment for climate-resilient land use • Limited and unattractive loans • Limited access to finance	B1 B6
3.3.2.2 **3.3.2.3** **3.3.2.4**	Climate adaptation action plans in transboundary landscapes (including protected area management plans)	Operationalizes coordinated adaptation in shared landscapes	• Lack of transboundary landscape planning mechanisms • Low adoption of climate-resilient practices • Limited use of climate information in decision-making • Insufficient land-use planning capacities and information base	

4. Institutional, policy and regulatory framework related to the AFOLU sector

4.1 National and regional institutional framework

Various institutions are responsible for strategic development and policymaking in the AFOLU sector, at the national and regional levels. At the national level, the institutions and their respective mandates are comparable from one country to another, as they all inherited the same institutional structure from the Soviet period. Regional institutions emerged in the 1990s to compensate for the lack of regional platforms following the collapse of the Soviet Union. Table 31 below provides an overview of the main institutions at the national and regional levels, and their relevance to the proposed programme.

Table 31: Overview of relevant national and regional institutions

Institution	Duties/functions/responsibilities	Relevance to this programme
National institutions		
Kyrgyz Republic		
Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic	State executive body for the development and implementation of state policies in the field of environmental protection, ecology and climate, geology and subsoil use, use and protection of natural resources. Responsible for state control and supervision over compliance with environmental, industrial and ecological, industrial and environmental protection requirements. **National Designated Authority (NDA)** for the Green Climate Fund.	Leading partner to facilitate the process of FP endorsement and approval. Responsible for interministerial coordination.
Climate Finance Centre (CFC) under the Cabinet of Ministers	Central body coordinating the Kyrgyz Republic's efforts to access climate finance and channel them into transformative investments that support national development priorities. The Centre coordinates the activities of all stakeholders involved in climate change adaptation and mitigation activities.	Technical arm of the NDA. Coordination and provision of institutional support during programme implementation.
Ministry of Agriculture, Water Resources, and Processing Industry of the Kyrgyz Republic	Defines national policies and strategies for agricultural development (including plant and animal production), water management and the processing industry. This mandate is in line with the Kyrgyz Republic's focus on water and food security adaptation measures in the country's updated NDC for 2021.	Programme partner for land-based activities in the agricultural sector (plant and animal production). Key role in defining programme interventions. Executing entity through its Agricultural Project Implementation Unit
State Agency for Land Resources, Cadastre, Geodesy and Cartography under the Cabinet of Ministers of the Kyrgyz Republic	Responsible body for land surveying, mapping, issuing land titles, and land use allocation.	Provision of inputs during programme design. Coordination on land policies. Programme partner on issues of land management platform, local land planning, land surveying etc.
Ministry of Economy and Trade of the Kyrgyz Republic	Formulation and implementation of economic and investment policies, design of public and private investments, including climate change investments. Coordination of the development and implementation of medium- and long-term National Sustainable Development Strategies. Responsible for the implementation of the country's Green Economy Program. Lead in strategic planning, management and promotion of cross-cutting development issues such as low-carbon and climate-resilient development.	Guidance on private sector engagement and on value chain activities.
Ministry of Finance of the Kyrgyz Republic	Responsible body for public finance and treasury management. It develops and implements the financial policy of Kyrgyzstan, including budget preparation and execution. Approves and oversees the implementation of credits and concessionary financing provided to the country.	Responsible for approving, monitoring and reporting on co-financing from the European Investment Bank (EIB).
Ministry of Emergency Situations of the Kyrgyz Republic (MES)	Responsible body for managing consequences of natural disasters. The Ministry includes the Hydrometeorological Service and the Forest Service (which see below)	Overall coordination with subsidiary institutions.
Forest Service (under MES)	Responsible body for defining and implementing forest policy. The Forest Service manages all the country's public forests, which make up the majority of the country's forests.	Key role in defining programme interventions related to forestry.

Institution	Duties/functions/responsibilities	Relevance to this programme
		Programme partner for forest management and restoration activities, and for activities pertaining to pasture management in the land managed by the forest service.
National Hydrometeorological Agency (Kyrgyzhydromet) (under MES)	National Climate Data, Research and Modelling Centre. Hydromet provides climate change related data and analysis to all relevant government entities. It has a training centre and staff dedicated to building the capacity of governmental and non-governmental organizations and staff in data collection, instrument maintenance and other issues directly related to the science of meteorology and climatology.	Provision of climate services, climate information and products for local land use planning.
Tajikistan		
Committee for Environmental Protection (CEP) under the Government of the Republic of Tajikistan (GoRT)	Coordination of policies and investments on sustainable natural resource management, climate change mitigation and adaptation, environmental monitoring & awareness. Issues environmental permits and conducts environmental expertise for any civil works subprojects. Participates in the implementation of a unified state policy in the field of environmental protection, hydrometeorology, rational use of natural resources and exercises state control over environmental protection and nature management. Acts as the National Designated Authority (NDA) for the GCF, while the Centre for Implementation of Investment Projects (CIIP) serves as the GCF NDA Secretariat and national coordination body. Coordinates and communicate with internal governmental and external non-governmental stakeholders to access and deploy GCF resources efficiently.	Leading partner to facilitate the process of FP endorsement and approval. Responsible for interministerial coordination.
Centre for Implementation of Investment Projects (CIIP) (under CEP)	Responsible body for the overall coordination and implementation of all climate and environmental projects managed by the CEP. CIIP Deputy Director also takes the role of the Head of the NDA Secretariat and is responsible for advising GCF Focal Point on the current portfolio and status of project implementation.	Support in FP review and endorsement process Programme EE in Tajikistan.
Agency for Hydrometeorology (under CEP)	Provision of hydrometeorological services for the needs of state and public organizations, enterprises, the population, and national defence, especially with information on emergency situations. Development and preparation of short-term and long-term hydrometeorological forecasts. Provision of information on the state of the natural environment and climate.	Provision of climate services, climate information and products for local land use planning.
Ministry of Foreign Affairs of the Republic of Tajikistan	Central executive body charged to lead the foreign policy of the country. The MFA coordinates activities of foreign projects and programs of technical, financial, humanitarian assistance and grants.	High-level overseeing and coordination of programme implementation.
Ministry of Agriculture of the Republic of Tajikistan	Responsible body for the development and implementation of a unified state policy in the field of agriculture, including plant and animal production. The Ministry develops comprehensive sectoral and regional programs aimed at development of agriculture sector, food security, increase employment and rural incomes, maintain a stable level of prices for food products in the domestic market. The Pasture Reclamation Trust of the Ministry is responsible for state control of pasture use and protection. Like all agricultural land in Tajikistan, pastures are under state ownership and mainly held by state agricultural enterprises, dehkan farms and household farms.	Participation in defining programme interventions during programme design. Programme partner for land-based activities in the agricultural sector (plant and animal production).
Ministry of the Economic	Development of state policy of all socio-economic sectors of the country. Development and implementation of state policy and legal regulation in the analysis and development of concepts, short-term, medium-term and long-term strategies, programs and forecasts of socio-economic	Guidance on private sector engagement and on value chain activities.

Institution	Duties/functions/responsibilities	Relevance to this programme
Development and Trade (MEDT)	development, foreign economic activity, trade, economic development of regions, patents and the formation of information resources, and coordination of monitoring and evaluation of the implementation of national development strategies, poverty reduction and public investment programs. Oversees the implementation of green economy programs.	
Ministry of Finance of Republic of Tajikistan	Implementation of a unified state policy and legal regulation of financial, budgetary, tax activities, accounting and financial reporting. Approves and oversees the implementation of credits and concessionary financing provided to the country.	Responsible body for approving, monitoring and reporting on co-financing from the European Investment Bank (EIB).
Forestry Agency under the GoRT	Responsible body for the development and implementation of a unified state policy, normative, legal regulation and state management in the field of forestry, forest resources, hunting and hunting economy, flora and fauna, especially protected natural areas, and also carries out the economic functions of organizing the system and provides state control.	Key role in defining programme interventions related to forestry. Programme partner for forest management and restoration activities, and for activities pertaining to pasture management in the land managed by the forest service.
State Committee for Land Management and Geodesy of the Republic of Tajikistan	Development and implementation of a unified state policy in the field of relations between state land management works, land cadastre, topographic and geodetic, aerospace, cartographic works, state registration of real estate and rights on it, state control over the use and protection of land, state control of topographic and geodetic, cartographic works, state registration of immovable property and its rights, and state control over land use and conservation.	Provision of inputs during programme design. Coordination on land policies. Programme partner on issues of local land planning, land surveying etc.
Agency for Land Reclamation and Irrigation under the GoRT	Development of a unified state policy and legal regulation in the field of land reclamation and irrigation lands, the use and conservation of water facilities, provision and protection of water.	Programme partner for activities related to the use of irrigation water. Support in defining programme interventions.
Uzbekistan		
National Committee on Ecology and Climate Change (NCECC)	Development, coordination and implementation of state policies in the field of environmental protection, ecology and climate, use and protection of natural resources. Acts as **NDA** for the GCF.	Leading partner to facilitate the process of FP endorsement and approval. GCF Country programme. Responsible for interministerial coordination. Executing entity through its Project Implementation office
National Centre for Climate Change (NCCC)	The NCCC is responsible for the overall coordination and implementation of all the climate change relevant projects managed by the NCECC. The NCCC Director is Head of the NDA Secretariat and is responsible for advising the GCF Focal Point on the current portfolio and status of project implementation.	Support in FP review and endorsement process. Reporting on programme activities and results.
Ministry of Agriculture	Responsible body for the development and implementation of agricultural strategies and policies, including plant and animal production. Dissemination of technologies for increasing agricultural productivity and sustainability. Provision of expertise in sustainable farming.	Participation in defining programme interventions during programme design. Programme partner for land-based activities in the agricultural sector (plant and animal production).
Ministry of Economy and Finance Uzbekistan	Development of economic and financial policies and strategies. Implementation of the national Green Economy Taxonomy. Coordination of green economy initiatives and management of international GHG trade. Facilitates access to national and international funding. Approves and oversees the implementation of credits and concessionary financing provided to the country.	Guidance on private sector engagement and on value chain activities.

Institution	Duties/functions/responsibilities	Relevance to this programme
		Responsible body for approving, monitoring and reporting on co-financing from the European Investment Bank (EIB).
Forestry Agency under National Committee on Ecology and Climate Change (under NCECC)	Definition and implementation of the country's forest policy. The Forest Agency manages all the country's public forests. It plays a leading role in the restoration of the Aral sea region through tree planting.	Key role in defining programme interventions related to forestry. Programme partner for forest management and restoration activities.
Uzhydromet	Provision of hydrometeorological services for the needs of state and public organizations, enterprises, and the population. Development and preparation of short-term and long-term hydrometeorological forecasts, and risk assessments.	Provision of climate services, climate information and products for local land use planning.
Cadastre Agency under Ministry of Economy and Finance	The Agency manages land cadastre, which includes detailed data on land ownership, use patterns, and classifications. This information is critical for planning and monitoring land-related activities in agriculture and forestry.	Provision of inputs during programme design. Coordination on land policies. Programme partner on issues of local land planning, monitoring of land use change, coordination with local authorities.
Agricultural Knowledge and Innovation Systems under the Ministry of Agriculture (AKIS)	AKIS plays a crucial role in improving the agricultural sector by promoting the adoption of new technologies and practices. AKIS' mission is to ensure that innovations and climate-smart practices reach the people who need them the most - farmers.	Innovation in agriculture, research and data, farmers engagement sustainability and climate resilience. Disseminating knowledge and best practices, facilitating farmer training, providing extension services, linking with national agricultural policies.
Regional institutions		
Interstate Commission for Sustainable Development (ICSD)	The purpose of the Interstate Commission on Sustainable Development under IFAS is to organize and coordinate the development of regional programmes and action plans on environmental protection and sustainable development. The main goal of the commission is to develop proposals for the improvement and socio-economic development of the Aral region, the social protection of the population living there, organization of scientific research, and the environmental cooperation among Central Asian states. The chairmanship of the ICSD is carried out by the ministers of environmental protection on a rotational basis for 2 years.	ICSD acts as a basis for regional cooperation on issues relating to the environment and sustainable development in Central Asia. ICSD is responsible for the implementation of the Regional Environmental Plan for Sustainable Development in Central Asia (REP4SD-CA). ICSD has very limited implementing capacity, with only a few staff in its secretariat and very limited financial capacities. The secretariat does not have experience managing medium-size and large projects.
The Regional Environmental Centre for Central Asia (CAREC)	CAREC has a mandate by the five Central Asian states. CAREC's mission is to assist Central Asian states in addressing their national and regional environmental issues. CAREC provides a platform for interstate and multisectoral dialogue, and promotes the introduction of cutting-edge know-how, knowledge and technologies in the region. It supports the development and application of innovative environmental policies, approaches and techniques, the involvement of	CAREC holds strong technical and administrative capacities. Its large team has more than 25 years of experience managing regional projects, including on-the-ground

Institution	Duties/functions/responsibilities	Relevance to this programme
	the public in environmental decision-making, and improves information exchange on the regional level. Objective: • Promote intersectoral dialogue among national- and local-level authorities, NGO's, local communities, the private sector and donors on issues of environmental sustainability in Central Asia • Build capacity of partners in the region based on international expertise, knowledge, best practices and advanced technologies in the sphere of environmental management and sustainable development, and promote their application in Central Asian states • Enhance the role of the civil society in sustainable development activities in Central Asia Other relevant information: • CAREC hosts a knowledge hub that compiles information and data on environmental and climate issues in the region. https://carececo.org/en/main/ckh/ • CAREC plays a pivotal role in supporting a regional dialogue on climate change. It is the PIU for the WB financed Climate Adaptation and Mitigation Program in the Aral Sea Basin AF	implementation and high-level political dialogues. It is a possible implementing partner on aspects related to: • Strengthening regional dialogue • Knowledge management on climate change adaptation issues • Managing funds for cross-border adaptation projects

4.2 National and regional policies and strategies

Since the independence of the Central Asian republics, national policies and strategies have been developed and diversified to reflect national priorities and align with international processes, including multilateral agreements on climate change, environmental protection and sustainable land management.

Despite shared challenges, the Kyrgyz Republic, Tajikistan, and Uzbekistan adopt distinct approaches to climate resilience, shaped by their unique vulnerabilities and policy landscapes. While each country has enacted numerous climate-related laws, ranging from 10 to over 20, implementation remains inconsistent, exacerbated by weakly coordinated cross-border policies. Still several regional strategies have been endorsed and are the tangible outcomes of the regional discussion platforms described in section 4.1 above. They focus on coordinating and managing transboundary natural resources and addressing issues of regional and global relevance, such as climate change.

The Kyrgyz Republic prioritizes adaptation strategies, acknowledging its susceptibility to natural disasters and glacial retreat. With around 15 environmental laws, the country lacks comprehensive climate law, leading to fragmented implementation across sectors. Its efforts are guided by the National Strategy for Sustainable Development. A National Adaptation Plan is under development.

Tajikistan, heavily reliant on water resources, faces significant climate risks and climate induced hazards. It has enacted approximately 12 environmental and climate laws, but its regulatory framework is still developing, with no legally binding climate action laws. The 2019 National Strategy for Adaptation to Climate Change (NSACC) provides a foundation, but weak enforcement and coordination hinder effective implementation.

Uzbekistan takes a broader, policy-driven approach, advancing sustainability through initiatives like the Strategy for Transition to a Green Economy. However, its legal framework is fragmented, with around 59 laws, 50 presidential decrees, and 200 government resolutions governing climate action. Efforts are underway to consolidate these into a cohesive national strategy on adaptation and mitigation until 2030 and sectoral adaptation plans.

Table 32 below provides an overview of the main relevant policies and plans for climate change adaptation and mitigation.

Table 32: Main relevant policies and plans for climate change adaptation

Document	Description/key topics addressed
National policies and strategies	
Kyrgyz Republic	
Updated Nationally Determined Contribution of the Kyrgyz Republic 2021	Climate change impacts; GHG emissions; adaptation; mitigation.
National Development Strategy of the Kyrgyz Republic until 2040.	National development; sustainable use of natural resources; labour; public health; agricultural development; food security; processing/handling; climate change; agricultural land; public land; cooperative/producer organization; financial agricultural measures; emissions; potable water; cadastre/land registration; water supply.
Program for the Development of Agricultural Cooperatives in the Kyrgyz Republic for the period from 2023 to 2027.	Agricultural and rural development; employment, policy/planning; food security; agricultural development; cooperative/producer organization; farming; rural development; processing/handling; agricultural commodities; agricultural land; public land; rural employment; equipment; business/industry/corporations; poverty; labour; transport/storage; international trade; lease.
National Action Plan for the Development of Family Farming in the Kyrgyz Republic for 2023-2027.	Agricultural and rural development; food and nutrition; family farming; food security; climate change; youth.
Concept of Development of the Forest Sector in the Kyrgyz Republic until 2040.	Environment; forestry; environmental security; ecosystem conservation; sustainable use; poverty; forest management/forest conservation; public forest; recreational forest; inventory.
Green Economy Development Program (2019-2023)	Green economy transition; sustainable development; green investments; energy efficiency; low-carbon development; environmental protection; sustainable agriculture; resource efficiency; ecosystem services.
National Development Program of the Kyrgyz Republic until 2030 (approved on 5 June 2025)	National development; sustainable development; SDG alignment; ecology; infrastructure; innovation; social policy; framework for integrating climate and green development priorities into national planning.
Concept for Achieving Carbon Neutrality in the Kyrgyz Republic (approved by Cabinet Resolution No. 397 of 3 July 2025)	Carbon neutrality; GHG emissions reduction; decarbonization; renewable energy; energy efficiency; transport electrification; forestry and land use; adaptation and mitigation synergies; climate governance; agriculture, water and infrastructure resilience.
Jashyl Muras (Green Heritage national Campaign)	Afforestation/reforestation; forest conservation; increase of green areas; environmental improvement; ecological safety; prevention of negative climate impacts; landscape restoration.
Tajikistan	
Updated Nationally Determined Contribution of Tajikistan 2021	Climate change impacts; GHG emissions; adaptation; mitigation.
National Development Strategy of The Republic of Tajikistan for the period up to 2030	National development; agricultural commodities; ecological production/organic production; sustainable development; agricultural development; apiculture/sericulture; climate change; food security; good practices; agricultural land; risk assessment/management; labour; migration; gender; mountain area; transport/storage; credit; energy conservation/energy production; renewable energy; hydropower generation; fishery management and conservation; aquaculture; fish products; nutrition; food safety and quality; processing/handling; beverages; fruits/edible nuts; meat; milk/dairy products; oils/oilseeds.
National Strategy for Adaptation to Climate Change of the Republic of Tajikistan for the period up to 2030.	Climate change; food security; poverty; hazards; risk assessment/management; water shortage/drought; flood; irrigation; crop production; erosion; soil conservation/soil improvement; drainage/land reclamation; traditional knowledge/indigenous knowledge; agricultural extension; credit; climate change; research; nutrition; right to water; transport/storage; human rights; land tenure; water resources management.

Document	Description/key topics addressed
Program for the development of the agri-food system and sustainable agriculture for the period until 2030.	Agricultural and rural development; Food and nutrition policy/planning; agricultural development; food security; sustainable development; agricultural extension; climate change; innovation; protection of environment; youth.
Forest sector development program 2022-2026	Forestry; basic legislation; forest management/forest conservation; institution; forestry protection measures; classification/declassification; registration; afforestation/reforestation; timber extraction/logging; agroforestry; grazing; offences/penalties.
Green Economy Development Strategy (GEDS) 2023–2037	Institutional reform; green investment attraction; efficient use of natural capital; innovation and technology transfer; international cooperation; sustainable economic growth; environmental balance; improved living standards.
National Strategy on Disaster Risk Reduction (2019–2030)	Disaster risk information access; integration of disaster risk management into development planning; preparedness and response mechanisms; resilience building.
Strategy for the Development of Industry in the Republic of Tajikistan up to 2030	In the framework of mitigation and adaptation measures, it promotes the introduction of new technologies aimed at reducing emissions of harmful substances into the atmosphere and improving efficient use and conservation of raw materials and energy resources.
Uzbekistan	
	Climate change impacts; GHG emissions; adaptation; mitigation; climate finance; just transition.
Development Strategy of the New Uzbekistan for the period of 2022-2026.	National development; agricultural development; agricultural land; cereals/grains/rice; innovation; erosion; subsidy/incentive; nutrition; school feeding; forest management/forest conservation; public forest; afforestation/reforestation; protection forest; lease; animal production; animal feed/feedstuffs; water supply; waterworks; public private partnership (PPP); sustainable development.
Strategy for the transition of the Republic of Uzbekistan to a Green economy in the period of 2019-2030.	Economic development; agricultural development; agricultural land; soil conservation/soil improvement; rural employment; pastoralism; investment; climate change; energy conservation/energy production; ecofriendly products/ecofriendly processes; renewable energy; hazards; good practices; public private partnership (PPP); enforcement/compliance; ecosystem conservation; emissions; animal production; organic waste.
Agriculture Development Strategy of Uzbekistan for 2020-2030.	Agricultural and rural development; food and nutrition; agricultural development; food security; agricultural commodities; crops; agricultural land; fertilizers/nutrients; soil conservation/soil improvement; agricultural extension; business/industry/corporations; monitoring; good practices; irrigation; labour; investment; nutrition; fish products; poultry products; milk/dairy products.
Strategy for biodiversity conservation in the Republic of Uzbekistan for the period of 2019-2028.	Agricultural and rural development; wild species and ecosystems; agricultural development; pastoralism; sustainable use; desertification; protected area; ecosystem conservation; forest management/forest conservation; afforestation/reforestation; biodiversity; protection forest; monitoring; wild fauna; wild flora; endangered species; management/conservation; tourism; protection of species.
Concept of development of the forestry system of the Republic of Uzbekistan until 2030.	Food and nutrition; forestry; food security; fish products; apiculture/sericulture; public private partnership (PPP); innovation; forest management/forest conservation; public forest; protected area; forestry protection measures; forest fires; protection forest; afforestation/reforestation; monitoring; desertification; management/conservation; wild fauna; wild flora; tourism.
Concept of environmental protection in the Republic of Uzbekistan until 2030.	Environment; land and soil; sustainable development; environmental security; public health; protected area; soil conservation/soil improvement; soil pollution/quality; air quality/air pollution; freshwater pollution; ecofriendly products/ecofriendly processes; surface water; radiation; hazardous substances; education; public participation; waste management; waste domestic sources; waste disposal; solid waste; protection forest; monitoring; pollution control; land-use planning; water resources management; river basin institution;
Regional policies and strategies	

Document	Description/key topics addressed
Regional climate change adaptation strategy for Central Asia	**Duration**: 2023-2030 **Goal**: develop a mechanism for cooperation between the Central Asian countries to overcome the negative effects of climate change and implement adaptation measures. **Strategic objectives:** • Strengthen regional coordination for climate change • Creation of mechanisms for the development and implementation of adaptation projects/programs and attraction of financing • Improve adaptive capacity through accumulation and sharing of knowledge and scientific cooperation • Development of climate monitoring, information exchange and forecasting systems **Sources of funding:** The strategy envisages the development of self-sustained regional funding mechanisms from national budgets and the private sector **Key information:** Among the priority areas for adaptation actions are Agriculture and land management and Natural ecosystems and biodiversity The strategy gives priority to regional projects, and identify GCF as one of sources of finance
REP4SD-CA	**Duration**: 2021–2030 **Goal**: This document is the basis for regional cooperation and the achievement of regional sustainable development through the implementation of national tasks within the framework of environmental SDGs. **Strategic objectives:** REP4SD-CA combines the main environmental conventions and treaties from a regional perspective to achieve synergy and form proactive and coordinated actions. **Sources of funding:** REP4SD CA implementation is possible with sustainable financing from multiple sources. The main sources of funding include national budgets, international financial institutions, funds and donors. Timely preparation of project proposals and coordination with donor interests on the part of ICSD institutions and their potential partners will make it possible to reach an agreed decision on project financing. **Key information:** In order to ensure interaction between stakeholders, synergy of efforts of the Central Asian countries and its partners, a coordinating role in the formation and selection of priority projects is assigned to the ICSD Consultative Council (hereinafter referred to as the Council). The Council holds meetings of partners on the management and implementation of the REP4SD CA at least twice a year. **Entry points for GCF:** REP4SD CA is a strategic framework document that defines the following priority areas: • Development of a Regional Strategy for Climate Change Adaptation considering the context of Central Asian ecosystems and climate risk reduction, development of a unified regional vision, information exchange between national focal points of the UN Framework Convention on Climate Change (UNFCCC) and other stakeholders. • Preparation and implementation of regional programs and projects financed by the Global Environment Facility, Green Climate Fund and other donor agencies. • Assessment of climate risks and vulnerability through the application of corresponding models of a climate change impact on water resources, terrestrial ecosystems and natural disasters, tackling the development of state policies and strategies in this area.

Document	Description/key topics addressed
	• Monitoring of the glaciers' condition in Central Asia. Development of a Regional Atlas of Hazardous Transboundary Exogenous Geodynamic Processes, including data on potential threat of glacial lake outburst floods.
Regional Drought Risk Management and Mitigation Strategy in Central Asia for 2021–2030	**Duration**: 2021–2030 **Goal**: In coordination with the Executive Committee of the International Fund for Saving the Aral Sea, Regional Strategy for Drought Risk Management and Mitigation in Central Asia for 2021–2030 (hereafter the Regional Strategy) proposes measures to enhance ecosystem and social resilience to droughts and periods of water scarcity by moving from reactive to proactive approaches and regional integration. It also aims to help the countries achieve their long-term socioeconomic technical and institutional development goals for the effective and sustainable management of drought and other adverse natural phenomena, especially with regard to the anthropogenic factors that contribute to desertification, land degradation and drought (DLDD). **Strategic objectives:** The following priority areas identified for the Regional Strategy are also recommended for inclusion in REP4SD-CA: • Area 1 Building monitoring, risk assessment and drought prevention capacities. • Area 2 Strengthening drought mitigation, the development of plans to address water scarcity and data dissemination. • Area 3 Building capacity and raising awareness. • Area 4 Ensuring regional cooperation. **Key information:** It is important that ICSD and other international partners working within the framework of the priority areas identified in the Regional Strategy collaborate with the UNCCD, UNFCCC and UNDRR to ensure proper climate-, DLDD- and disaster risk reduction-related synergistic activities. **Entry points for GCF:** Taking into account the natural, climatic and political features of Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan), the Regional Strategy aims to boost joint actions to mitigate problems induced by climate change and the five countries' current economic activity in the area of land and water use.
Regional Strategy for Sand and Dust Storms Management in Central Asia 2021-2030	**Duration**: 2021–2030 **Goal**: A long-term vision of the Regional Strategy for Sand and Dust Storms Management in Central Asia for 2021–2030 is to reduce the vulnerability of Central Asian countries and communities to the effects of SDS by mitigating active sources and planning for proactive measures in destination areas. The Regional Strategy addresses challenges that countries in the region face (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan), which are associated with climate change and human activities that aggravate the negative impacts of SDS. Experts in these Central Asian countries also note with concern the impact of the Aral Sea disaster and the formation of the Aralkum Desert on the increased frequency of SDS and droughts in the region. **Vision:** A long-term vision of the Regional Strategy is the reduction of social vulnerabilities of Central Asian countries and communities to SDS using mitigation in source and destination areas. Socioeconomic aspects of land degradation and SDS occurrence require special attention, with focus given to DLDD and in particular the residents of territories at high risk of SDS and land degradation and whose well-being depends on their area's natural resources. **Strategic goals:** The midterm goal of the Regional Strategy is to increase system and institutional capacities for the effective and sustainable management of SDS and natural resources in the Central Asian countries. This will help improve interactions and cooperation between organizations and communities in mitigating the negative impacts of SDS and DLDD processes, and will also serve as a basis for joint work at the subregional level

4.3 National land use planning framework

4.3.1 Kyrgyz Republic

Land governance

In the Kyrgyz Republic, responsibilities linked to land use and the AFOLU sectors are spread across several ministries and agencies covering agriculture, forestry, environment, cadastre, emergency management, and economic planning. Key institutions include the Ministry of Water Resources, Agriculture and Processing Industry, the Ministry of Natural Resources, the Forest Service under the Ministry of Emergency Situations, Ecology and Technical Supervision, the Ministry of Economy and Commerce, the State Agency on Land Resources, Cadastre, Geodesy and Cartography and other relevant bodies. In practice, this set-up often means that mandates overlap and responsibilities in terms of land governance are not always clearly separated. Sectoral institutions can develop strategies in parallel, and there are limited formal mechanisms to consistently reconcile governance issues across agriculture, forests, protected areas, water management, and regional development (GIZ, 2025c).

Land use planning

While procedures for developing and approving plans exist, implementation tends to move step-by-step within individual institutions rather than in a synchronized way across agencies. The legal framework is strong, but it is spread across multiple laws and regulations (land, forest, water, environmental protection, protected areas, cadastre), which can make consistent interpretation and application difficult. As a result, land use planning at national level remains largely sectoral and document-based rather than territorially integrated. In practical terms, planning is driven mainly by departmental programs in agriculture, forestry, protected areas, regional development, and emergency situations, including disaster risk reduction, and there is still no unified nationwide integrated land-use plan that spatially aligns major land uses and protection regimes.

Recent reforms nevertheless point to gradual movement toward a more integrated approach. The State Program for the Integrated Socio-Economic Development of the Regions of the Kyrgyz Republic for 2025–2030, approved on March 18, 2025, introduces spatial planning as a core component of regional policy and promotes the use of spatial schemes, digital maps, and the AIS *Sanarip Aimak* for territorial planning and monitoring. It also requires local authorities to prepare territorial development programs and action plans aligned with national sectoral strategies. In parallel, an interministerial working group has reportedly been established to support approval of regulations for an interdepartmental coordination council on spatial planning, while a National Commission on land resources has prepared an action plan that is still awaiting approval (Unified Portal of Government Agencies of the Kyrgyz Republic, 2025).

Tools and guidance that would further support comprehensive land suitability analysis, land degradation assessment, and climate risk screening are limited and not standardized nationwide. As a result, sector plans are often developed using different assumptions, data sources, and planning scales, which can lead to inconsistencies between proposed land uses and management objectives (GIZ, 2025c).

Budget planning occurs at two levels: national and local. Local budgets are generated by local self-governments and aggregated at higher administrative levels. Nevertheless, the consistency between land use planning and public finance remains an actual issue, with plans not fully aligned with medium-term budget cycles. Standardized national reporting formats to verify the sustainability and social outcomes of land-related decisions are not consistently applied.

A major bottleneck is data. There is no unified Land Resource Information System that serves as the official shared spatial foundation for national planning. Monitoring, reporting, and verification systems are also incomplete, and the feedback needed to update plans based on implementation experience and changing conditions is limited (GIZ, 2025c).

Intersectoral coordination

In practice, coordination between sectors is often strongest when a specific project or task requires it. Intersectoral coordination therefore tends to rely on temporary working groups rather than a stable mechanism that supports the full planning cycle. Without an empowered, standing coordination mechanism, duplication can persist. For example, through separate plans and datasets, unclear division of competence across institutions, and slow or inconsistent harmonization of decisions across sectors. This makes coordination more ad hoc and project-driven than systematic, and it limits sustained joint prioritization and follow-through (GIZ, 2025c, 2025d).

Climate information mainstreaming

Climate risks are recognized, but they are not yet applied in a consistent, routine way across national land planning. Climate considerations are more regularly addressed in donor-financed initiatives than embedded as a mandatory step in national procedures. There is no unified requirement for standardized climate screening, vulnerability assessment, or dedicated MRV of climate outcomes across AFOLU sectors. Climate and hazard information from hydrometeorological and emergency services is partially available, but it is not consistently integrated into land allocation, zoning, and program design. Sectoral plans also rarely apply scenario modelling, spatial option appraisal, or cumulative impact assessment (including climate change) as routine steps. Gender-disaggregated data relevant to land-use decisions remain limited, which constrains the ability to assess differentiated climate impacts (GIZ, 2025c, 2025d).

4.3.2 Tajikistan

Land governance

In Tajikistan, land remains state-owned, and use rights are allocated to dehkan farms, cooperatives, and households under long-term leases. State Reserve Land and State Forest Land are managed by their respective agencies. Land-use rights are registered through the State Unitary Enterprise for the Registration of Immovable Property, but cadastral coverage remains uneven, particularly in rural and mountainous areas. In many locations, customary arrangements continue to influence access to arable land, pastures, and forest margins, shaping local dispute resolution and incentives to invest in land improvements (GIZ/Risha Solutions, 2025).

Despite reforms, there remains a gap between legislation and practice that continues to undermine tenure security, particularly for smallholders and women. This reduces incentives for long-term investments in soil, water, and forests. Land-related disputes are frequent, especially where agriculture, pasture, and forest margins overlap and where official records differ from actual use. Without harmonized demarcation and community-based mechanisms, conflicts over access and seasonal resource use continue (GIZ/Risha Solutions, 2025).

Land use planning

Land use planning remains fragmented across sectors, with limited coordination between agriculture, forestry, water, and biodiversity. As a result, key trade-offs are often not managed in a coordinated way, for example, irrigation expansion can undermine water security, afforestation can compete for land, and pasture rehabilitation is not systematically linked with forest conservation. Without an Integrated Land Use approach, potential synergies between adaptation, mitigation, and development objectives are often missed (GIZ/Risha Solutions, 2025).

Intersectoral coordination

Governance remains highly centralized and top-down. Intersectoral coordination is constrained by competing mandates and objectives among key institutions, including the State Committee on Land Management and district Land Committees play a strong role in allocation and administration. At the same time, mandates across the Ministry of Agriculture, the Agency for Land Resources (ALR), the Committee for Environmental Protection and the Forest Agency overlap, and routine information exchange remains limited. Local participation is also weak. Coordination is often reactive and depends on ad hoc working groups, while donor projects frequently operate in parallel, reinforcing fragmentation (GIZ/Risha Solutions, 2025).

Climate information mainstreaming

Climate information is not yet institutionalized within land and water planning processes, contributing to mismatches between land use decisions water availability that is affected by glacier retreat and altered rainfall. Tajikistan has national land-use legislation, a functioning land cadastre, and sectoral planning mandates at national and sub-national levels, as well as an institutional set-up for land and climate governance involving key institutions in the AFOLU sectors. This centralized system provides a clear entry point for scaling climate-informed AFOLU planning, but only if mandates, workflows, and data requirements are aligned. In practice, the main constraint is not a lack of policy direction, but the absence of institutionalized procedures, mandatory data-use requirements, and coordination mechanisms that would translate climate commitments into routine land allocation, pasture management, and sector investment decisions. Weak feedback loops between national planning documents and sub-national implementation further limit the translation of planning outputs into operational guidance, budget prioritization, and monitoring at district and jamoat levels.

Tajik Hydromet lacks full capacity to develop comprehensive digital climate products in-house. At the same time, the State Committee for Land Management and Geodesy holds core land-use planning responsibilities and key map resources, yet it does not cooperate with Tajik Hydromet. This disconnect limits the integration of climate information into land-use planning and reduces opportunities to align adaptation, mitigation, and development objectives across sectors and planning levels (GIZ/Risha Solutions, 2025).

4.3.3 Uzbekistan

Land governance

In Uzbekistan, land governance in the AFOLU sector is shared across several ministries and agencies, with overlap in functions such as land allocation, monitoring, and irrigation. Key actors include the Ministry of Agriculture, the State Committee of Ecology, Environmental Protection and Climate Change, the Forestry Agency, and the Ministry of Water Resources. This structure maintains sector expertise, but it can also lead to fragmented governance responsibilities and makes accountability more difficult (GIZ & Ministry of Ecology, Environmental Protection and Climate Change Uzbekistan, 2025).

Land use planning

Until recently, land use planning remained largely sector-based, with non-integrated data sources and indicators that are not consistently applied across systems and territories. In practice, planning did not consistently function as a single process that links baseline assessment, scenario analysis, and cross-sector plan development. Sector strategies converged at the level of stated objectives, but implementation was less integrated, and monitoring approaches such as pasture monitoring and soil fertility assessment, and subsequent decisions in terms of managing these resources were not uniformly standardized and applied nationwide (GIZ & Ministry of Ecology, Environmental Protection and Climate Change Uzbekistan, 2025).

Recent reforms are reshaping the way planning priorities are set, implemented, and monitored at subnational level. Presidential Decree No. UP-201 (30 October 2025). Presidential Decree No. UP-201 (30 October 2025) introduced a single, regulated strategic planning and development system with clearer responsibilities and powers, an implementation roadmap, training requirements, and stronger monitoring and evaluation based on a “purpose–action–result” chain. It clarifies how long-term direction, medium-term priorities, and short-term delivery at the subnational level should connect through a hierarchy of planning documents (President of the Republic of Uzbekistan, 2025b).

Intersectoral coordination

Until recently, intersectoral coordination challenges were persistent due to overlapping mandates across agriculture, water management, forestry, and ecology. Performance indicators were often defined within sectoral silos, which could leave closely related land objectives, such as afforestation and land reclamation, insufficiently aligned in practice. Coordination between forecasting institutions (including Uzhydromet), research bodies, and policy planning were not sufficiently integrated into a continuous “data, analysis, policy, evaluation” cycle (GIZ & Ministry of Ecology, Environmental Protection and Climate Change Uzbekistan, 2025).

Presidential Decree No. UP-201 set for the creation of a Coordination Council on strategic planning and development under the President an interdepartmental body tasked with coordinating ministries, departments, local executive bodies, and analytical/research institutions; reviewing strategic initiatives for compliance with the Strategy Uzbekistan–2030, ensuring harmonization across concepts, strategies, and programs, and supporting monitoring and efficiency evaluation. The Agency for Strategic Development and Reforms (ASDR) should serve as secretariat to the Council and plays a quality-control role. Supporting institutions include the Institute for Legislation and Legal Policy (ILLP), which should provide analytical and methodological foundations for strategic planning, and the Academy of Administration, which should deliver annual mandatory training for staff working in strategic planning departments (President of the Republic of Uzbekistan, 2025b). The results of this recent reform will become apparent in the years ahead.

Climate information mainstreaming

Uzbekistan has a strong legal base covering land, cadastre, water, forestry, and environmental protection, but provisions that would operationalize climate adaptation and unified accounting of soil and land degradation remain insufficiently detailed, and some norms are outdated. Although climate risks such as drought, salinization, desertification, floods, and frost are widely recognized, their integration into land-use decision-making remains partial. GIS, remote sensing, and risk maps are

increasingly used, but they are not consistently embedded into a harmonized planning workflow. As a result, land allocation, reclamation, afforestation, and sectoral investments do not systematically apply ex-ante climate risk assessments. Local climate information services exist but remain unevenly resourced, and gender and vulnerability considerations are acknowledged but not systematically embedded in climate-risk screening and land planning processes (GIZ & Ministry of Ecology, Environmental Protection and Climate Change Uzbekistan, 2025). The enforcement of Presidential Decree No. UP-201 should have a positive impact on the situation by strengthening the links between the planning process and relevant data and information, including climate information.

4.4 Subnational land use planning framework

4.4.1 Kyrgyz Republic

In the Kyrgyz Republic, subnational land use planning takes place at district and local self-government levels through dedicated socio-economic development plans. These plans are the local equivalent of the national socio-economic development plan, which is implemented by the Ministry of Economy. Furthermore, the Government Programme for 2025–2030 includes the development of national and regional spatial schemes at the regional, district and local self-government levels, as well as typified zoning rules for settlements. The programme establishes the framework for future local planning instruments, including regional schemes, settlement zoning rules and digital agricultural maps integrated with GIS. Methodological guidance for municipal zoning rules and graphics is planned for approval in 2026, signalling a shift towards standardised local zoning practices.

Although this framework defines goals, timelines and participants, it lacks a clear prioritisation procedure. Local Stakeholder Groups (LSGs) are often engaged late, with limited access to data and tools. This results in decisions that are poorly adapted to local contexts and plans that are difficult to enforce. Local users often lack unified access and standards, as well as the necessary capacity to make consistent use of existing data and geospatial systems. Community engagement is weak in the early stages. Local actors draw on cadastral data, Earth observation, statistics, forest and pasture inventories, and field data. However, the formats are fragmented, the updates are irregular and access is limited. There is also no centralised spatial analysis and data exchange platform yet. Consequently, sectoral fragmentation persists at the local level between the agriculture, forestry, biodiversity, and protected area management sectors, reflecting a similar situation at the national level.

Climate considerations in local plans are largely declarative. Mandatory, operational step like risk screening and vulnerability assessment are not embedded in local procedures, and adaptation and mitigation measures rarely translate into measurable outcomes on the ground. Local plans generally lack climate scenarios and risk maps. Where they appear, it is typically within donor-funded projects rather than as standard practice. Gender-disaggregated data are also largely absent from local planning baselines and indicators. Key climate-exposed local systems (pasture use and irrigation) are planned by different actors without systematic integration of drought and flood scenarios, resulting in local conflicts and suboptimal decisions, undermining implementability on the ground (GIZ, 2025c).

4.4.2 Tajikistan

Key sub-national administrative levels that are relevant for land use planning are the regional (Viloyat), district (Nohiya), and Municipal (jamoat) levels. Regional administrations prepare long-term territorial development strategies (10–15 years), based on an analysis of soils, water availability, topography, existing land use, demographic trends, economic scenarios, infrastructure needs, and environmental conditions. Draft regional plans undergo technical committee reviews, public hearings at regional assemblies, and final national alignment and endorsement. District administrations translate regional strategies into detailed land allocations and development programs. District land management departments lead baseline assessments, field surveys, spatial analysis, inter-sectoral coordination, and consultation with jamoats. Standardized formats established by the State Land Committee are used, but practical implementation varies with local capacity and resources and depends on external support and available funding. Consultation is mandatory and conducted via public meetings, focus groups, and individual consultations with farmers, business owners, and community leaders. Coordination with sectoral programs (agriculture, infrastructure, environment, social services) is formalized through inter-sectoral planning committees (GIZ, 2025a).

Jamoat administrations focus on community-level land allocation, particularly agricultural land, residential development, and basic infrastructure planning, working with village councils and community

organizations. Participatory approaches are used, including community meetings, mapping, and participatory rural appraisal, to capture local knowledge on resource locations, seasonal patterns, and constraints. However, jamoats often have limited technical capacity, minimal specialized staff, and equipment shortages. Plans may be outdated relative to changing conditions, and implementation is constrained by budgets and irregular district support due to transportation and fiscal limitations (GIZ, 2025a).

Across the three sub-national levels, systemic constraints include limited technical capacity (shortages of trained planners, limited GIS and modern tools), inadequate financial resources for planning and enforcement, weak vertical and horizontal coordination, and limited information systems interoperability. Stakeholder engagement is formally required but frequently emphasizes information dissemination rather than meaningful participation. Traditional governance systems (village and elder councils) remain influential but are not formally integrated into state procedures, producing tensions when conflicts arise with formal plans. Private sector engagement is limited, and enforcement of approved land use plans is weak, resulting in non-compliance and ad hoc development.

Climate information is not systematically embedded in routine land use planning. Risk management is reactive, with limited integration of hazard mapping, risk assessment, or land use restrictions into plans. Landslide, flood, and avalanche-prone areas being partly identified, yet formal translation into zoning or land use plan updates is limited. Jamoat plans are often not updated to reflect evolving climate conditions or new priorities. Weak inter-jamoat coordination across watershed boundaries hampers integrated water resource management, while inconsistently defined and enforced protected area boundaries lead to encroachment and resource degradation that interact with climate risks.

Information systems that could support climate mainstreaming such as GIS, land cadastre, remote sensing, planning databases are recognized but underutilized due to equipment, training, and resource constraints (GIZ, 2025a).

4.4.3 Uzbekistan

Recent reforms in Uzbekistan are reshaping the way planning priorities are set, implemented, and monitored at subnational level. Presidential Decree No. UP-201 (30 October 2025) introduced a single, regulated strategic planning and development system with clearer responsibilities and powers, an implementation roadmap, training requirements, and stronger monitoring and evaluation based on a “purpose–action–result” chain. It clarifies how long-term direction, medium-term priorities, and short-term delivery at the subnational level should connect through a hierarchy of planning documents (President of the Republic of Uzbekistan, 2025b).

A **Coordination Council on strategic planning and development under the President** is established as an interdepartmental body tasked with coordinating ministries, departments, local executive bodies, and analytical/research institutions; reviewing strategic initiatives for compliance with Uzbekistan–2030; ensuring harmonization across concepts, strategies, and programs; and supporting monitoring and efficiency evaluation. Decisions of the Council are recorded in protocols that are binding for state bodies and organizations (President of the Republic of Uzbekistan, 2025b). The **Agency for Strategic Development and Reforms (ASDR)** serves as secretariat to the Council and plays a quality-control role: acts providing for strategic reforms can only be submitted to the Presidential Administration after consultation with ASDR, which examines consistency with Uzbekistan–2030 and other strategies, the appropriateness of objectives, indicators, and deadlines, the availability of resources, and the robustness of monitoring and evaluation arrangements (President of the Republic of Uzbekistan, 2025b). Supporting institutions include the **Institute for Legislation and Legal Policy (ILLP)**, which provides analytical and methodological foundations for strategic planning, and the **Academy of Administration**, which delivers annual mandatory training for staff working in strategic planning departments (President of the Republic of Uzbekistan, 2025b).

A linked reform under Presidential Decree No. UP-186 (21 October 2025) further affects how planning is organized and delivered at district level. UP-186 establishes an experimental decentralization arrangement that, from 1 January 2026, transfers district/city divisions of republican executive bodies in selected areas (including districts in Surkhandarya) into the structure of district administrations, while republican bodies retain policy coordination and provide methodological support (President of the Republic of Uzbekistan, 2025a). For subnational land use planning processes, this increases the practical role of district administrations as coordinating hubs for implementation across sectors, and it places greater emphasis on clear procedures and measurable results so that territorial priorities can be delivered and tracked consistently.

The strategic planning reforms under Presidential Decree No. UP-201 strengthen the formal expectation that planning documents are built around clear objectives and indicators and are supported by stronger monitoring and evaluation of implementation (President of the Republic of Uzbekistan, 2025b). In a subnational context, these elements are relevant for climate information mainstreaming because they create a more structured setting in which climate-related priorities, indicators, and implementation measures can be embedded in strategic documents and assessed for coherence with broader national priorities such as Uzbekistan–2030. At the same time, the decentralization experiment under UP-186 raises the practical importance of district-level implementation and reporting. For climate information mainstreaming, this heightens the need for interoperable data systems and transparent reporting, so that territorial planning priorities and results can be monitored and evaluated in a comparable way across sectors and levels of government.

5. Programme baseline and barriers

5.1 Problem statement

Central Asia is experiencing rapid climate change, with rising temperatures, changing precipitation patterns, intensifying drought conditions, and more frequent extreme weather events affecting climate-sensitive landscapes, ecosystems, and livelihoods (see section 3.2 for details). These pressures are especially pronounced in the highly vulnerable and ecologically important Fergana Valley, spanning Jalal-Abad, Osh, and Batken regions in the Kyrgyz Republic, Sughd region in Tajikistan, and Namangan, Andijon, and Fergana regions in Uzbekistan, as well as in the neighbouring southern regions of Surkhandarya in Uzbekistan and Khatlon in Tajikistan. Across these shared landscapes, climate change is placing increasing pressure on forest, pasture, and agricultural landscapes, and on the people and communities that depend on them.

The above-mentioned pressures create a growing climate risk of declining agricultural productivity, reduced pasture carrying capacity, and degradation of forest and ecosystem functions. This directly threatens livelihoods, income security, and resilience among vulnerable people and communities, while also weakening ecosystems and the services they provide, including water regulation, soil protection, biodiversity support, and landscape productivity. At the same time, continued land degradation, unsustainable land-use practices, and weak management of forest, pasture, and agricultural landscapes reduce the capacity of these landscapes to sequester carbon and avoid greenhouse gas emissions. Thus, the programme areas face a combined adaptation and mitigation challenge affecting people, ecosystems, and the landscapes that underpin both resilience and emissions reduction.

These pressures manifest differently across the different AFOLU sectors. In agriculture, climate change reduces productivity, alters the suitability of crops and production systems, increases water requirements, and heightens exposure to pests, diseases, and weather-related losses. In pastures, it reduces fodder availability, intensifies degradation, and lowers carrying capacity and livestock resilience. In forests and related ecosystems, it increases degradation risks, weakens ecological functions, threatens biodiversity, and reduces carbon storage and watershed services.

The problem is especially acute in interconnected transboundary landscapes, where climatic pressures and land-use changes can propagate across elevation zones and along upstream-downstream gradients. Water availability, land productivity, pasture condition, forest functions, and ecosystem services are closely linked across these landscapes, meaning that climate impacts, degradation, or maladaptive land-use decisions in one jurisdiction can generate consequences elsewhere. These interdependencies make regional coordination critical for effective adaptation, ecosystem management, and lower-emission land-use pathways. The severity of the problem is aggravated by underlying vulnerabilities that reduce the capacity of people, institutions, and ecosystems to adapt and to transition towards a CRLE development pathway in the AFOLU sectors. These include limited access to climate information and finance, weak institutional support, and insufficient adoption of sustainable and climate-resilient land management practices.

The persistence of this problem is also reinforced by structural barriers in planning, finance, and coordination. Climate information is not yet consistently integrated into land-use and sector planning; public incentives and finance are not fully aligned with CRLE development; producers and land users often lack practical advisory support and climate-informed business models; and access to affordable finance remains constrained by high interest rates, collateral requirements, limited green financial products, and weak pipeline preparation. Regional cooperation mechanisms are also insufficient to

support shared long-term planning, knowledge exchange, and financing for transboundary adaptation and mitigation priorities.

Forest, pasture, and agricultural landscapes in the programme areas are not on a pathway consistent with a CRLE development pathway. Addressing this problem requires an urgent shift towards CRLE development pathways, supported by climate-informed planning, ecosystem restoration, stronger advisory and financial systems, and more effective regional cooperation across shared landscapes.

5.2 Barrier analysis

The adoption of urgent adaptation action to address the climate risks described in section 3.2 and enable the transition to a low-emissions and climate resilient development pathway is currently being hampered by the following barriers:

Barrier 1. Insufficient public finance to implement mitigation and adaptation measures: Across the countries in the region there is limited public funding for the implementation of countries' mitigation and adaptation measures and a significant funding gap to finance climate action. The Kyrgyz Republic estimates the funding needed to implement its third NDC at USD 23 billion, of which there is a gap of USD 9.3 billion (Kyrgyz Republic, 2025a). Tajikistan's NDC outlines that at least 7% of GDP is required for financing climate change activities from 2020- 2030, highlighting that this would translate into at least USD 1 billion per year by 2030 in climate finance (with circa 50% related to land use: agriculture, irrigation, and biodiversity-related) (Republic of Tajikistan, 2021). In its recent NDC 3.0, Uzbekistan estimates the investment gap at USD 9.5 billion until 2030 (USD17.4 billion until 2035) for climate change mitigation while the climate adaptation funding deficit reaches USD 7.2 billion until 2030 (Republic of Uzbekistan, 2025).

Barrier 2. Limited coherence of public policies and incentives to enable adaptation and mitigation in the agriculture, livestock, and forestry sectors: the existing national incentive schemes, especially in the agricultural, forest and rangeland sectors, are productivity-focused, promote blueprint solutions and may even be hindering climate action or promoting solutions that will lead to maladaptation. National policy makers lack knowledge of and incentive to change current finance flows towards climate finance.

Barrier 3. Limited integration of climate information into local land use plans, national sector plans and other planning instruments: Weak processes for integration of climate information into land use planning and management, including a lack of remote sensing / GIS-based data and tools for monitoring land use change and weak data management and sharing systems across sectors and ministries as well as across countries. Limited capacities of regional and national experts from government, civil society and private sector to integrate climate information into decision-making, especially when it comes to land use planning and management.

Barrier 4. Low technical knowledge amongst land users and limited technical advisory for planning and implementing site-specific adaptation options: Land users lack the expertise, the local advisory services, and access to information (availability and cost) on current and future climate change impacts on specific landscapes and ecosystems, their impacts on their productive practices and context-specific adaptation options for enhancing resilience. Nature-based and climate-resilient business models are not well known or incentivized, especially a true cost-benefit perspective is missing.

Barrier 5. Limited access to finance for the implementation of climate-resilient production models: From the demand side, smallholder farmers and rural enterprises often have limited access to credit due to lack of collateral, limited credit history, and low levels of financial literacy. From the supply side, despite some government-led efforts to green the financial sector in the region through the development of green taxonomies, with the Kyrgyz Republic's taxonomy approved in May 2025, that of Uzbekistan approved in October 2023 but not fully operationalized yet, and that of Tajikistan still under development, including through GCF readiness, and despite a small number of pioneer financial institutions, most local financial institutions (LFIs) and microfinance institutions (MFIs) do not offer green, or climate-informed, products at scale. Many LFIs still lack the capacities required to implement what would be expected under the taxonomies. LFIs in the region al-so tend to have limited knowledge and capacity to access green and climate finance for the private sector, including limited understanding of requirements and processes such as documentation, monitoring, and reporting, making it challenging to engage with green and climate funding sources, and to guide clients effectively. This is compounded by limited capacity, as highlighted by LFIs during the consultation missions, to identify and manage

climate-related risks, which reduces appetite and ability to invest in climate-resilient and low-emission agriculture, livestock, and forestry models. LFIs also face difficulties in developing strong, bankable, green, and climate project proposals, and they often lack relevant personnel, such as agronomists who can support the tailoring of financial services to land users.

Barrier 6. Insufficient regional cooperation for addressing environmental transboundary issues: Regional cooperation systems around climate adaptation in land use are weak, especially when it comes to dialogue across different stakeholder groups. Long-term strategic planning and foresight capacities in AFOLU are weak, especially at regional level where there are increased risks of conflicts over natural resources. Weak processes of regional knowledge exchange and learning as well as of cooperation across transboundary landscapes.

5.3 Related ongoing and forthcoming projects in the sector

Table 33 below provides an overview of key donor-funded ongoing or forthcoming projects in the AFOLU sector in Central Asia. Additional donor-funded projects are described in Appendix A. These projects and programs complement government-funded programs, typically through credits (livestock productivity improvements, strengthening veterinary services) and grants (pasture restoration).

Table 33: Ongoing and forthcoming projects in the sector

Title, budget & duration	Summary	Synergies currently under exploration with the proposed programme
Regional Resilient Pastoral Communities Project (RRPCP) in Kyrgyzstan **IFAD Adaptation Fund** **USD 10 million** **2024-2028**	• Improve the climate resilience of pastures and forests in vulnerable rural areas of Kyrgyzstan. • Support participatory, sustainable management of rangelands and forest resources. • Reduce forest and rangeland degradation and improve ecosystem conditions. • Help increase rural incomes, reduce poverty, and support gender-sensitive growth.	Coordination of selected pasture committees to avoid overlap Exchange on pasture management and restoration interventions
Community-based Agriculture Support Programme 'plus' (CASP+) – FP233 **Tajikistan** **GCF IFAD** **USD 79.6 million** **2024-2031**	The project aims to support community-based climate-smart agriculture, climate-resilient pasture management and livestock development in Tajikistan. It works on strengthening the institutional framework for climate-responsive planning and development and invest in community capacity for adaptation and resilience to climate change.	CIIP will act as an EE in both projects. This GCF programme will build on the lessons learnt of CASP+ regarding the development and implementation of national climate-informed planning, community level climate responsive plans, successful models in the agriculture, forestry, and livestock sector, and on monitoring and evaluating impacts, including mitigation impacts.
Enhancing Multi-Hazard Early Warning System to increase resilience of Uzbekistan communities to climate change induced hazards – SAP 22 **GCF UNDP** **USD 40.6 million** **2021-2027**	The GCF project is helping Uzbekistan's Ministry of Emergency Situations improve their natural disaster early warning system by providing needed technical and financial support, along with access to new technologies and expertise. This effort aims to change climate hazard forecasting from a reactive approach to a proactive, user-friendly, and impact-focused system.	The programme will use the climate data generated by the GCF SAP project. The experience generated through the SAP project in Uzbekistan will be shared in the Kyrgyz Republic and Tajikistan as part of the programme's regional component.
Development of a Climate Information and Early Warning System in the Kyrgyz Republic (unofficial name as the	This project will support the Ministry of Emergency Situations of the Kyrgyz Republic to develop a comprehensive Climate Information and Early Warning System. As the concept note will be	Inputs from the CIEWS developed with support from this programme will be considered for integrating climate information in national and sector planning, and

Title, budget & duration	Summary	Synergies currently under exploration with the proposed programme
project is under development) - SAP **GCF ARIS (DAE)** **Period: TBD**	submitted shortly, the details of this project are not available yet.	when preparing local land use plans.
Uzbekistan: Resilient Livestock Development Project **ADB** **USD 60 million** **Period: TBD**	The project supports the Government of Uzbekistan (i) reducing GHG emission intensity by 35% below the 2010 level in 2030; (ii) improving water management system; (ii) expanding forest areas; (iii) restoring degraded pastures and introduce sustainable pasture management mechanisms.	Clarification of main partners and focus Coordination of approach for pasture restoration
RESILAND CA+ Program: Kyrgyz Republic Resilient Landscape Restoration Project (with related interventions in Tajikistan and Uzbekistan under separate national projects). **World Bank** **USD 45 million – credit** **2024-2029**	The project is comprised of 3 components: Component 1: Strengthening Institutions and Regional Collaboration Component 2: Enhancing Resilient Landscapes and Livelihoods (including investments in pasture and forest restoration) Component 3: Project Management and Coordination	Clarification of main partners and focus Coordination of approach for climate informed planning at the local level Complementarities and upscaling of land restoration measures
Carbon Sequestration through Climate Investment in Forests and Rangelands - CS-FOR **CGF FAO** **USD 50 million** **2023-2030**	Component 1: Evidence-based Strengthening of Natural Resources Management Governance Component 2: Green Investments for Forests and Rangeland Rehabilitation Component 3: Climate-sensitive Value Chains Development	Coordination of investments in sustainable land use practices and value chain development Alignment of financial tools and mechanisms used for programme investments Clarification of main focus and main partners
Glaciers to Farms (G2F) Regional Program: Advancing Climate Resilience & Sustainable Development in Central and West Asia (under design) **CGF ADB** **USD 3.5 billion** **2025-2035**	The programme is comprised of 3 outputs: Component 1: Climate resilience through integrated planning and policy reforms for financial acceleration. Component 2: Regional Investment & Technical Facility to support the interconnected aspects of agriculture, land, water, and social infrastructure. Component 3: Establishment of green business financing lines for Small and Medium Agriculture Enterprises	Differentiation/ coordination of intervention areas, partners, focus Coordination of approach for climate informed planning at national level Coordination of approach for business sector support Coordination of approach on awareness raising of national stakeholders Complementarities and upscaling of land-based measures
Resilient Food Systems through Climate Services for Agriculture in Uzbekistan **GEF – IFAD implementing agency** **USD 10 million** **2024-2029**	The project is developed in 4 components: Component 1: Development of near real-time farm advisory informational system Component 2: Improvement of the decision making and planning system for agricultural sector through climate change modelling Component 3: Reaching the last mile and getting climate services to farmers Component 4: Learning and knowledge management	Coordination of approach for climate informed land use planning at national level Complementarities on improving the knowledge base for climate-informed land use planning and monitoring

Title, budget & duration	Summary	Synergies currently under exploration with the proposed programme
Central Asia Water and Land Nexus (CAWLN) for Ecosystem Restoration, Improved Natural Resource Management and Increased Resilience (under design) **GEF – FAO implementing agency** **USD 29.8 million (TBD GEF contribution)** **Period: TBD**	GEF programme with five child projects to address the degradation trends in the Amy Darya and Syr Darya river basins through integrated water management and by addressing land degradation. Project components: Strengthen transboundary and cross-sectoral coordination Enhance national and regional governance frameworks for integrated watershed management Enhance data-driven decision-making Enhancing sustainable land use management Restore key terrestrial and aquatic habitats	Coordination, complementarities and upscaling of sustainable land management in agriculture and ecosystem restoration measures Coordination of the approach on multistakeholder mobilization and incentives for land-based measures.

5.4 Other sources of finance

Given the limited public funding for the implementation of mitigation and adaptation measures described above. In addition to international climate finance, the three countries are starting to consider the mobilisation of additional sources of finance for implementation, an important one being carbon finance.

The Kyrgyz Republic has initiated work to access additional sources of finance through market-based mechanisms. Its carbon market is still at an early stage, but there is growing institutional momentum around climate finance and Article 6 readiness and the country has signed MoUs with private entities to develop the market (Stankova, 2026) issued a resolution from the Cabinet of the Ministers On the National System for Greenhouse Gas Inventory, Monitoring, Reporting, Verification and Circulation of Carbon Units of the Kyrgyz Republic" which aims to establish and develop a carbon market in the Kyrgyz Republic, as well as to create a unified state system for accounting and circulation of carbon units (Climate Finance Centre, 2026). However, technical expertise for carbon project development, validation and verification, and transaction structuring, together with weak national systems for data collection and management, including GHG inventories, land-use data and baselines, are additional constraints that need to be addressed before a full roll-out of carbon-related legislation. Financial barriers, including high upfront and transaction costs and limited private investment appetite, are compounded by an enabling environment that still lacks mature carbon market infrastructure and clear rules on carbon rights and benefit-sharing. These priorities are reflected in the country's Climate Investment Plan.

Tajikistan also is assessing the extent to which carbon finance can be a potential instrument for the green transition. However, the barriers to operationalizing carbon finance remain substantial. These include the need for a comprehensive regulatory framework covering authorization, accounting and MRV, stronger institutional capacity and coordination, and more reliable systems for emissions, land use, baselines and monitoring. Technical capacity remains a major constraint, including limited expertise in project development, methodology selection, and validation and verification processes. Financing barriers include limited public resources, high upfront and transaction costs, limited private investment, and constrained access to affordable finance. Additional constraints relate to stakeholder engagement, including community inclusion and benefit-sharing, as well as transparency and accountability systems and possible difficulties in accessing international carbon markets. At the same time, Tajikistan's concentrated AFOLU emissions profile, extensive pasture systems and dominance of smallholder agriculture create strong potential for bundled mitigation-adaptation investments, provided that sector-specific finance readiness and aggregation mechanisms are strengthened, with some organisation already promoting some approaches to potentially access carbon finance (AFoCO-KTH, 2025).

Uzbekistan is moving further toward operational carbon market mechanisms. A presidential decree sets out organizational measures for carbon credit trading, including the establishment of a register of carbon units and oversight by the Center for Green Economy Projects under the Ministry of Economy and

Finance. A national emissions trading system is planned in pilot mode from 2026 onwards. Uzbekistan has also already accessed results-based carbon finance, including through a World Bank-supported policy loan transaction for verified emission reductions (World Bank, 2024g). At the same time, important barriers remain to using carbon markets to drive AFOLU transformation. These include incomplete or evolving regulatory frameworks for Article 6 participation, including robust MRV, authorisation and accounting rules, limited institutional coordination across agriculture, forestry, energy and climate authorities, and data management constraints related to reliable activity and emissions data in AFOLU sectors. In addition, the fast growth in livestock emissions and the dominance of smallholder dehkan farms make monitoring and aggregation difficult and increase transaction costs.

6. Programme design

6.1 Overall programme approach

Programme objective

The overall aim of the programme is to strengthen the resilience to climate change of the most vulnerable populations and the transboundary ecosystems they depend upon and transform the AFOLU sectors in Central Asia towards climate-resilient development. Regional transboundary cooperation, strengthened national enabling environments and regulatory frameworks, and improved capacities of decision makers and key stakeholders in Central Asia foster integrated climate-informed planning processes at all levels towards climate-resilient development pathways, and land users are further capacitated and have access to sustainable finance to proactively implement climate-smart agricultural, forest and grassland restoration and management practices. As a result, long-term sustainable livelihoods are ensured, provided by ecosystems that have been effectively restored and are sustainably managed across borders.

Programme's geography

The programme will be implemented mainly in the Kyrgyz Republic, Tajikistan and Uzbekistan. Within these countries, the Fergana Valley (including three provinces of the Kyrgyz Republic, one province of Tajikistan and three provinces of Uzbekistan) and the two neighbouring regions of Khatlon (Tajikistan) and Surkhandarya (Uzbekistan) have been selected.

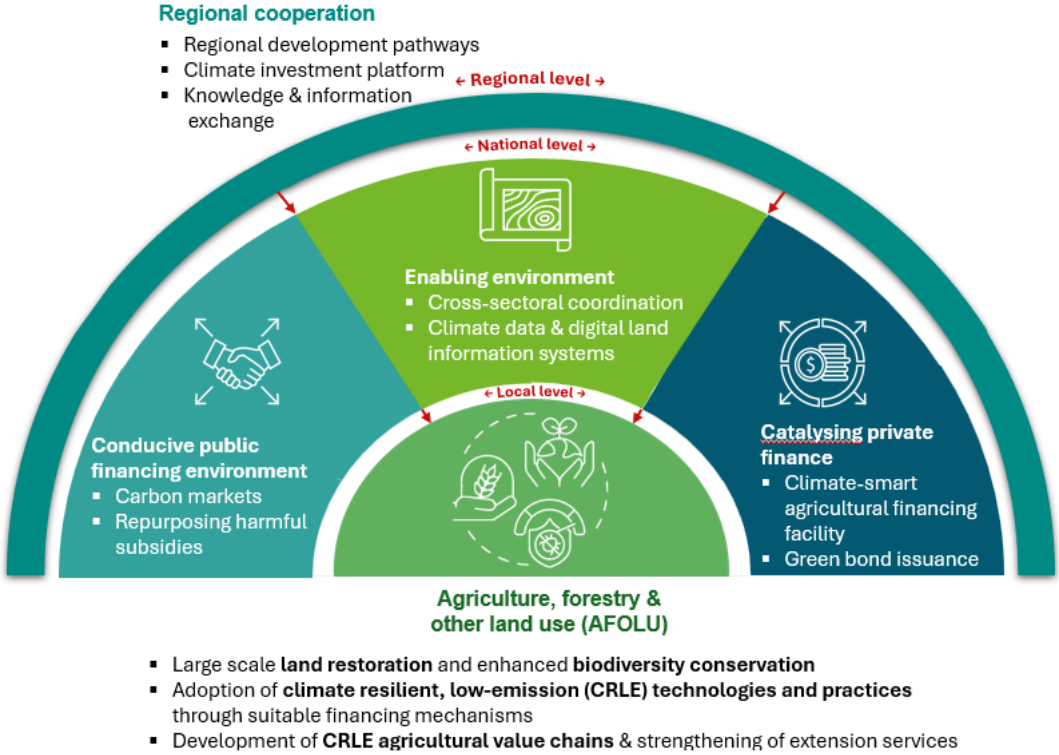
Component 2 will be implemented in these areas, while Component 1 will operate at the national level and Component 3 focus on furthering regional cooperation on climate change mitigation and adaptation and will work with the five Central Asian countries.

Additional information on the programme area is provided in section 6.5 below.

Programme's approach to address barriers

The programme will be developed through three interrelated components and outcomes that will address the climate hazards and barriers described in section 5.2. highlights how the different programme outputs and activities are contributing to address the identified barriers.

Figure 49: The programme's approach to deliver a paradigm shift in the AFOLU sector



Source: Own illustration, 2025

6.2 Programme's Approach to Adress Barriers

The programme aims to address the barriers described above. It builds on GIZ's experience and lessons learned from implementing the regional program 'Integrative and Climate-Sensitive Land Use in Central Asia', and bilateral green economy, agricultural development projects and community-based natural resources management. Table 34 provides a summary of the links between the programme outputs and the identified barriers.

Table 34: Programme's approach to address the identified barriers

Output	Barriers addressed
Output 1.1 Climate informed integrated sectoral and land use planning & programming processes and plans at national level are institutionalized	• Barrier 3 limited integration of climate information into planning instruments (institutional)
Output 1.2 Public financing environment promoting climate-resilient and low-emission land uses strengthened	• Barrier 1 insufficient public finance • Barrier 2 limited policy coherence and misaligned incentives (institutional)
Output 1.3 Private sector finance for CRLE measures and value chains catalysed	• Barrier 5 limited access to finance, LFI capacity gaps, lack of products/systems for climate-informed lending, high cost of capital for CRLE (financial)
Output 2.1 Climate-informed AFOLU planning processes and plans at subnational level are institutionalized	• Barrier 3 limited integration of climate information into planning instruments (institutional)
Output 2.2 Forests and pastures restored and under sustainable and climate-resilient use	• Barrier 4 limited technical capacity and extension support for site-specific adaptation (technical) • Barrier 5 limited access to finance for climate-resilient production models to implement restoration and resilient management investments.
Output 2.3 Farmers capacitated and incentivized to adopt climate-resilient and low-emission practices	• Barrier 4 limited extension support, limited understanding of CRLE business models • Barrier 5 limited access to finance for adoption at scale

Output	Barriers addressed
Output 3.1 Regional climate-informed development pathways for AFOLU and foresight capacities established	• Barrier 6 insufficient regional cooperation and limited capacity for long-term planning, need for conflict-sensitive approaches in shared landscapes
Output 3.2 Enhanced regional knowledge exchange and information sharing through sustainable mechanisms	• Barrier 6 limited multi-stakeholder dialogue and knowledge exchange on transboundary risks • Barrier 3 by sharing climate information/tools regionally.
Output 3.3 Regional climate investment platform established	• Barrier 6 weak coordination across transboundary landscapes; limited regional mechanisms • Barrier 1 by improving coordination/channelling of climate finance regionally

6.3 Theory of change

The three components form an integrated package to catalyse and sustain a transformational shift toward a CRLE development pathway in the AFOLU sectors. Component 1 lays the foundation by fostering an enabling environment for systemic transformation, promoting supportive public finance, and establishing green finance mechanisms that leverage public and private resources to sustain and scale CRLE interventions beyond the programme period. Component 2 builds on this through large-scale investments and field-level implementation, directly advancing climate adaptation and mitigation goals. Component 3 addresses the transboundary nature of ecosystems and climate challenges by aligning efforts across jurisdictions, sharing knowledge and innovations, and mobilising finance for collaborative management of ecosystem interdependencies.

Component 1 (Outputs 1.1–1.3) institutionalizes climate-informed AFOLU planning and strengthens the enabling and financing environment for CRLE investments. Key barriers include fragmented climate/land/soil data, limited institutional capacity and procedures for routine climate-informed planning, and limited financial sector readiness to assess and finance CRLE AFOLU investments. Output 1.1 strengthens Hydromet data management and co-develops AFOLU-relevant climate information products and integrates these into national digital land information systems (incl. satellite monitoring and AI-enabled scenario tools) supported by data-sharing protocols and capacity development. Output 1.2 strengthens public finance readiness for AFOLU by building capacities on climate/carbon finance and by reviewing and informing the repurposing of harmful subsidies toward climate-aligned incentives. Output 1.3 catalyses private finance by training domestic financial institutions on climate and E&S risk management and supporting CSA financing facility design and thematic/green bond readiness.

Component 2 (Outputs 2.1–2.3) scales adoption of climate-resilient and low-emission (CRLE) practices and technologies in priority transboundary landscapes through a sequenced package of planning, capacity building and investments, linked to finance. Key barriers addressed include limited capacity at subnational level to translate climate risks into implementable adaptation plans in the AFOLU sectors, weak technical support systems for producers, and limited access to affordable finance and investible business models for CRLE adoption and value-chain upgrading. Under Output 2.1, the programme institutionalizes climate-informed AFOLU planning at subnational level by prioritizing municipalities through transparent screening/scoring and validation based on district-level climate diagnostics, and by supporting municipalities to develop and approve participatory climate-informed AFOLU adaptation plans. Under Output 2.2, the programme restores and brings forests and rangelands under sustainable, climate-resilient use by developing climate-informed participatory forest and pasture management plans (including investment packages) and providing sustained technical assistance alongside targeted investment grants for restoration. Under Output 2.3 farmers and value chain actors are enabled to adopt CRLE measures by adapting and operationalizing PICSA and e PICSA, strengthening climate-informed extension services through training-of-trainers and rollout, and providing technical assistance and investment support for priority agricultural practices and technologies. Access to finance is strengthened through revolving funds and matching grants, and by building an investible pipeline and enabling value-chain and credit investments, including operationalization of the EIB credit programme and targeted value-chain infrastructure investments.

Component 3 (Outputs 3.1–3.3) deepens regional cooperation to sustain and scale climate-resilient AFOLU transformation across Central Asia. Key barriers include limited anticipatory planning/foresight capacity, fragmented regional knowledge exchange mechanisms, and insufficient coordination and structuring of finance for cross-border adaptation priorities in interdependent landscapes. Output 3.1 strengthens strategic foresight and scenario-planning capacities and supports the participatory

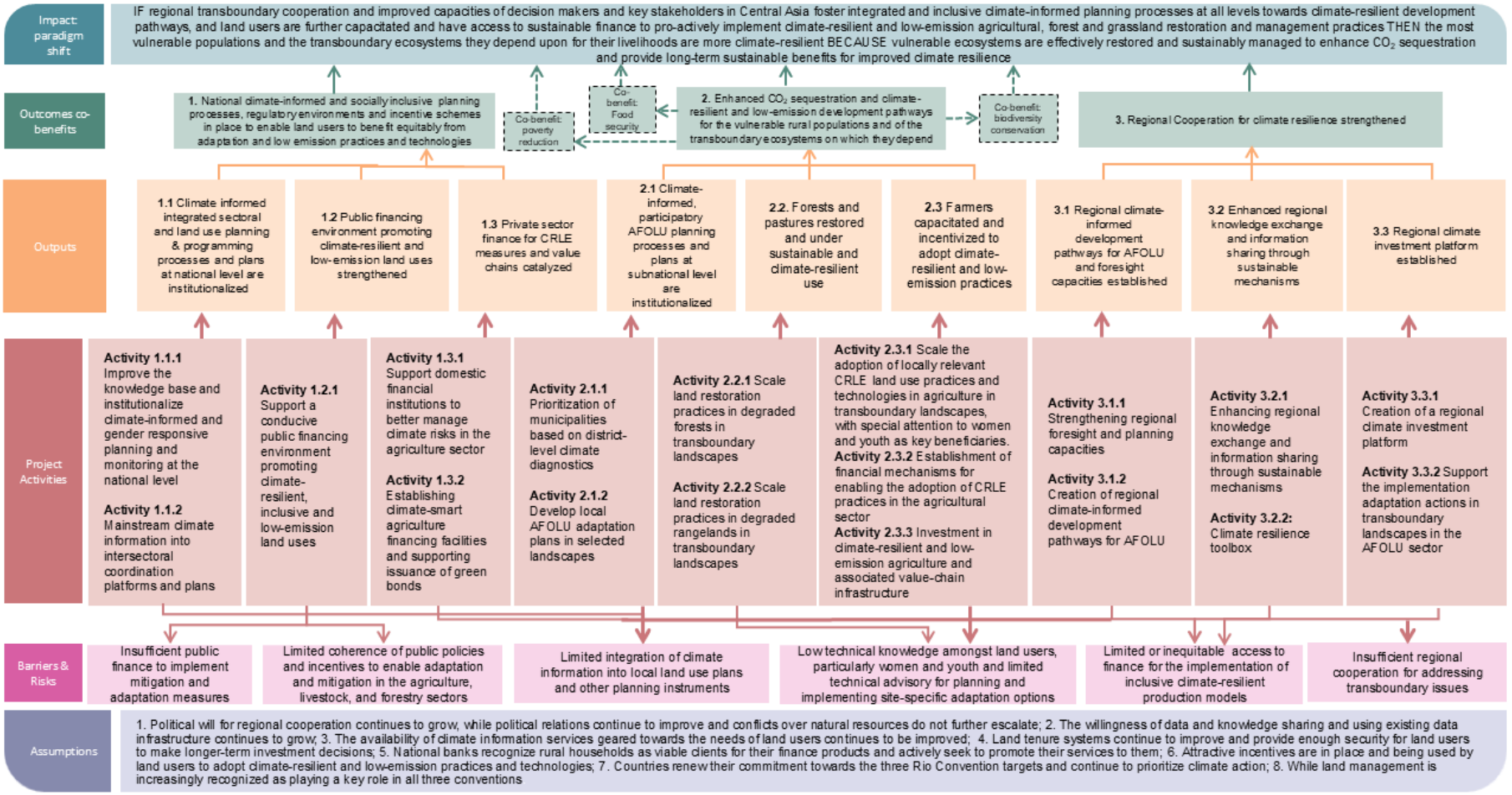
development of shared regional climate-informed AFOLU development pathways, co-developed with partner training institutions and institutionalized through training-of-trainers and curricula integration. Output 3.2 strengthens sustainable regional knowledge exchange and information sharing through a strengthened Central Asia Climate Information Portal, including an AFOLU-focused climate resilience toolbox and regional expert pools to promote practical uptake. Output 3.3 establishes a regional climate investment platform with defined governance and an investment roadmap and operationalizes a funding mechanism for joint adaptation actions in transboundary landscapes through standardized rules, technical assistance for cross-border planning, investment grants, and regional monitoring and learning.

Countries are at different stages of readiness and will therefore experience the ToC pathway with varying intensity depending on the topic considered. Although this does not alter the overall logic of the programme pathway which remains relevant to all three countries, it does have implications in the design of specific activities, as described in the activity sheets in Section 7 below.

Programme measures across the three components, and the synergies between them, support poverty alleviation and contribute to a broader paradigm shift toward climate-resilient development. Achieving this theory of change depends on overcoming several key barriers, including insufficient public finance for adaptation and mitigation measures, limited availability and dissemination of climate data for planning, and technical capacity gaps among land users and advisory services. Limited access to finance may also constrain rural communities' ability to adopt climate-resilient production models, while weak regional coordination could hinder effective responses to transboundary climate risks.

The successful realization of this change also rests on a series of underlying assumptions. It is assumed that there will be a sustained and growing political commitment to regional cooperation and the necessary policy reforms, ensuring that tensions over natural resources do not escalate. There is also an expectation that stakeholders will consistently share and utilize existing data infrastructures, thereby providing decision-makers with timely climate information. Improvements in climate information services tailored to the needs of land users are presumed to continue, along with a favourable evolution of land tenure systems that secure long-term investments. Additionally, it is expected that national financial institutions will recognize rural households as viable clients and promote appropriate financial products. It is also assumed that land users are adopting climate-resilient and low-emission practices and technologies in response to the incentives put in place. Finally, commitment to international climate targets, such as those stipulated by the Rio Conventions, as well as an increasing acknowledgment of the critical role of land management, are assumed to remain central priorities.

Figure 50: Programme's theory of change



Source: Own elaboration, 2026

6.4 Envisaged paradigm shift in the sector

The proposed programme is designed to catalyse impact beyond a one-off investment, by institutionalising climate-informed planning, strengthening public policies, public incentives and finance across the Kyrgyz Republic, Tajikistan, and Uzbekistan, and embedding sustained regional cooperation between the five Central Asian countries. The programme establishes the enabling conditions that will allow climate risks to be systematically considered in AFOLU planning, prioritisation, and implementation, and promotes scalable action through climate-informed local planning and advisory tools, including LAPA and PICSA, linked to value chain strengthening, and national and regional financing mechanisms. This will contribute to shifting from programme-based planning toward standardised systems that can be increased without proportional increases in cost.

Potential for scaling up and replication: Scaling is built into the programme's theory of change through a sequenced approach that can be replicated across landscapes and institutions. At the national level, the programme strengthens the use of climate information, vulnerability indicators, land use and cadastral data, and soil and pasture assessments within standardised planning procedures to guide prioritisation, investment programming, and monitoring (Output 1.1). It also supports legal and procedural foundations for the systematic use of digital planning tools, including AI enabled modules and climate layers in land use platforms (Output 1.1).

Scaling is further enabled through the operationalisation of financing approaches. These include an EIB lending programme, No-Till Adoption Accelerators in the Kyrgyz Republic, matching grant mechanisms across the three countries, which provide an implementation mechanism to finance the adoption of CRLE technologies and practices, also considering soil conservation, and for forest and pasture restoration actions prioritised in local plans in transboundary landscapes (Output 2.2 and 2.3). Additionally, establishing climate-smart agriculture facilities and supporting LFIs with the issuance of green bonds creates long-term financing vehicles for CRLE adoption in the agricultural sector, leveraging private financing (Output 1.3). Finally, value chain strengthening can contribute to reduce risk and improve returns for producers and MSMEs, which is critical for sustaining CRLE practices beyond the life of programme, and for crowding in additional finance (Output 2.3.). At the subnational level, the programme institutionalises climate-informed AFOLU adaptation planning through structured diagnostics and participatory planning, helping to ensure that planning process can be replicated within the three countries (Output 2.1 and 2.2). The local planning process is designed to be replicable by developing standard steps and tools.

The programme introduces **innovative tools and measures that can increase the scalability and replicability of the programme's approach.** A key measure is e-PICSA as a digital extension and decision-support system to farmers, which allows for the operationalisation of PICSA at scale by combining historical climate data; linkages to forecasts and projections; and dashboards that can be operated and sustained by trained national organisations. By digitising extension, e-PICSA will enable replication across additional municipalities and value chains without proportional increases in human resource costs. In addition, AI-enabled scenario tools within land information systems represent an innovation in public administration in the region and will enable more explicit consideration of scenarios and trade-offs, which can contribute to improving planning and programming (Output 1.1).

The programme will also support the establishment of a regional climate investment platform, that will be able to translate shared priorities in transboundary landscapes (Output 3.3) into concrete investments which has so far not been done in the region.

Potential for knowledge sharing and learning: The programme enables continuous learning across countries and institutions and targets those actors that have an influence on planning and investment decisions. It strengthens alignment across Hydromets, in the region with a focus on climate products that enable decision making in the AFOLU sectors (Output 1.1 and 3.2). The programme scales structured local approaches, notably LAPA for participatory adaptation planning, and e-PICSA for climate informed advisory services and decision support for producers, ensuring that knowledge generated through diagnostics and planning is translated into practical choices at farm and landscape levels (Output 2.1, 2.2 and 2.3). It also strengthens regional knowledge exchange mechanisms through the conveying capacities of CAREC, backed by the policy mandate of ICSD, and promotes the use of foresight and scenario-based development pathways for the AFOLU sectors to generate practical insights that can be utilised for national decision-making through formal coordination structures in the countries. Foresight capacities are anchored in regional and national educational institutions and promoted among younger leaders to ensure continuous learning for future cohorts of decision-makers.

It leverages the large and growing CACIP audience to promote essential climate resilience tools in the AFOLU sectors (Output 3.1 and 3.2). This learning is linked to implementation by connecting LAPA and PICSA processes to the programme's financial mechanisms for CRLE adoption, and to the value chain strengthening support that improves market incentives and bankability (Output 2.3)

Contribution to the creation of an enabling environment: The programme aims to institutionalise multisectoral, and multiscale integrated planning and programming. The programme strengthens interministerial and vertical coordination mechanisms, so that climate-informed AFOLU planning becomes the norm throughout administrative levels (Output 1.1). It further strengthens the enabling environment for investment by improving climate finance capacity across key organisations in the three countries, and by using CPEIR and related analyses to identify harmful AFOLU subsidies and support their repurposing into incentives for CRLE practices (Output 1.2). The programme also supports establishing a regional climate investment platform that coordinates and facilitates investments in climate change adaptation and mitigation in transboundary contexts (Output 3.3).

Contribution to the regulatory framework and policies: The programme supports establishing a regulatory framework that enables climate-informed decision-making beyond the programme's lifetime. This includes establishing legal bases for the responsible use of digital tools, including satellite data and AI, and make their use mandatory in planning and policy processes (Output 1.1). On the public finance side, it supports the process for repurposing harmful public spending, strengthening the link between climate objectives and budget allocations in the AFOLU sectors (Output 1.2).

Overall contribution to climate-resilient development pathways consistent with relevant national climate change adaptation strategies and plans: The programme supports the development of long-term foresight capacities and the collaborative creation of AFOLU sectors development pathways in the region. It facilitates downscaling of these pathways in national contexts by strengthening multisectoral, multiscale platforms for evidence-based, climate-informed, cross-sectoral decision-making in the AFOLU sectors (Output 3.1).

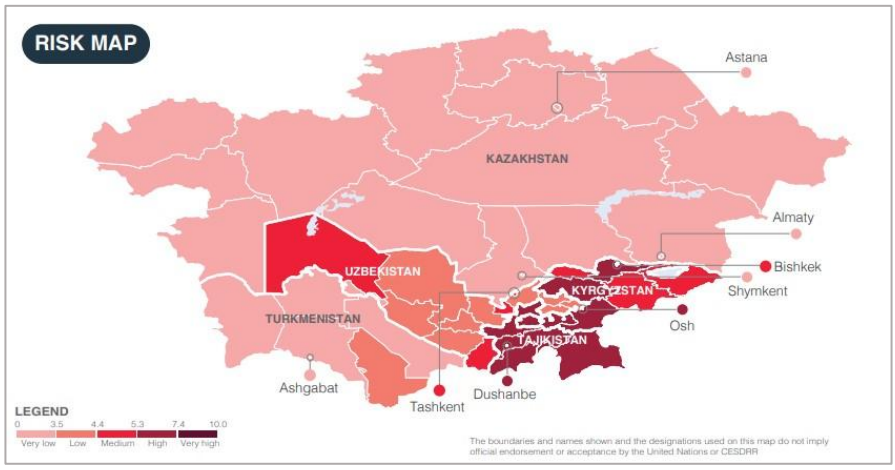
Overall, the programme's paradigm shift is reflected in **six core implementation principles**, i.e., moving from reactive to proactive adaptation; from sectoral to integrated approaches across agriculture, water, and ecosystems; from individual land uses to landscape-based management; from isolated efforts to collaborative, multi-stakeholder action; from short-term responses to long-term planning; and from business-as-usual to transformative change through innovation, including digital extension, e-PICSA, and AI-enabled scenario tools to support climate-informed decision-making.

6.5 Programme Implementation Area and Justification

6.5.1 Programme implementation area

Within Central Asia, the **Kyrgyz Republic, Tajikistan and Uzbekistan** are among the most vulnerable to climate change and its impacts with rankings of 65th, 102nd and 72nd respectively in the ND-GAIN country index reflecting their high vulnerability and low adaptive capacity (Notre Dame Global Adaptation Initiative, 2021).

Figure 51: Risk map for Central Asia based on the INFORM index



Source: Inter-Agency Standing Committee and the European Commission, 2022

These results are also confirmed by the INFORM risk index, which is based on a set of indicators across hazard and exposure, vulnerability and lack of coping capacity. Kazakhstan and Turkmenistan display, comparatively, a much lower risk rate Figure 51. The INFORM index also shows that the combination of hazards, vulnerabilities and exposures is predicted to be highest in the regions where these three countries converge, particularly in and around the Fergana Valley and in the south where Uzbekistan borders Tajikistan. This makes these landscapes especially relevant for targeted projects.

These regions are characterized by a great diversity of land uses, including irrigated valley bottoms, hills used for rainfed crop production, nut production and grazing, and mountain areas where pastures and forests dominate the landscape. These different land uses and natural ecosystems are interlinked and inseparable elements of continuous and transboundary landscapes. These areas play a key role in the agricultural production, employment and economy of their respective countries. Population density is also particularly high, as compared to many other areas in the region (GRID Arendal, 2006; Statistics Agency under the President of the Republic of Uzbekistan, 2024b; TAJSTAT, 2024a). The programme therefore focuses on transboundary agro-ecological systems where settlement patterns and rural incomes are closely linked to climate-sensitive agriculture, pasture use, and forest ecosystem services.

The two programme areas selected were identified through a multi-criteria assessment and stakeholder consultations. This evaluation considered vulnerability to climate risks, potential climate impacts, landscape interconnectivity across borders and alignment with existing initiatives, to ensure complementarity and coherence. The two areas selected following this process are as follows (see Figure 52):

- The Fergana Valley, especially the hilly and mountainous areas surrounding the valley, including parts of the Alay Valley, and the
- Southern Border Region between Uzbekistan and Tajikistan, covering parts of the Khatlon and Surkhandarya regions, where national consultations highlighted critical ecosystems and sectors at risk.

The further selection of target districts within these broad regions has been guided by criteria that combined climate-risk relevance with feasibility of implementation. The size of the rural population was also used as an indicator of the potential number of beneficiaries, prioritizing areas where interventions could address the needs of large groups whose livelihoods are climate sensitive. In parallel, the potential area of land that could be positively impacted by the programme was considered to focus on districts where interventions could be implemented at a meaningful scale. Beyond these core metrics, the selection process emphasized alignment with government priorities for climate change adaptation, so that the programme supports nationally recognized directions and can be implemented within enabling policy and institutional frameworks. Transboundary landscape interconnectivity, such as shared watersheds, ecosystem corridors or other ecological continuums, is another central criterion, reflecting the evidence that risks and exposures are predicted to be highest in convergence zones and that climate impacts and responses often extend across administrative and national borders.

Table 35: Selected programme target regions and districts

Country	Region	District	Total Population (thousand people)	Rural Population (thousand people)	Municipal entities (total)	Tentative number of selected municipal entities
Kyrgyz Republic	Total		2,109	1,922	116	60
	Batken	Batken	102	102	9	5
		Kadamjai	210	188	14	8
		Leilek	154	130	10	6
	Jalal-Abad	Aksy	143	125	12	3
		Ala-Buka	118	118	8	4
		Bazar-Korgon	197	137	9	5
		Nooken	155	137	7	4
		Chatkal	31	31	4	2
	Osh	Aravan	147	147	8	4
		Kara-Suu	488	460	16	9
		Nookat	326	309	16	9
		Chon Alai	37	37	3	1
Tajikistan	Total		2,314	2,003	83	60
	Sughd	Asht	182	165	9	6

Country	Region	District	Total Population (thousand people)	Rural Population (thousand people)	Municipal entities (total)	Tentative number of selected municipal entities
		Bobojon Gafurov	400	380	11	8
		Devashtich	190	174	8	7
		Istaravshan	299	233	10	7
		Isfara city	291	225	9	6
		Jabbor Rasulov	149	132	5	3
		Konybodom	224	169	6	4
		Shakhriston	25	25	2	1
		Spitamen	155	134	6	4
	Khatlon	Nosiri Khisrav	49	49	3	2
		Qubodiyon	206	193	8	7
		Sharituz	143	126	6	5
Uzbekistan	Total		3,105	1,645	122	60
	Andijan	Qo'rg'ontepa	230	132	5	2
		Marhamat	186	40	5	2
		Paxtaobod	209	133	4	2
	Fergana	Beshariq	243	158	9	4
		Quva	276	148	11	5
		Farg‘ona	222	85	16	8
	Namangan	Kososnsoy	228	91	7	3
		Pop	236	102	10	5
		Uychi	232	120	8	4
		Uchqo'rg'on	185	106	8	4
		Yangiqo'rg'on	237	75	11	5
	Surkhandarya	Boysun	124	72	7	4
		Sariosiyo	226	183	9	5
		Termiz	84	58	5	3
		Uzun	187	143	7	4

Source: Statistic Committees of the Kyrgyz Republic, Tajikistan and Uzbekistan

Operationally, the selection of the target districts process was organized in two sequential phases that moved from evidence-based pre-selection to field-validated finalization. During the funding proposal development phase, districts were first pre-selected by compiling and triangulating inputs from stakeholder consultations and analytical assessment. This included outcomes from informed discussions during stakeholder consultations in the Kyrgyz Republic, Tajikistan and Uzbekistan at the national level and two rounds of consultations at the sub-national level, including in several of the pre-identified districts. At these events, a working session was dedicated to identifying areas where the adaptation and mitigation needs of vulnerable land users in the land use sector are greatest. Participants discussed not only climate vulnerability, but also the transboundary connectivity of these areas. They finally mapped existing public investments and international development projects and identified areas that were underserved. The regions mentioned above were confirmed by the participants as priority areas for the proposed programme. These consultation outcomes were combined with a climate risk and vulnerability assessment to identify where climate impacts and adaptation needs were greatest. The resulting evidence was then screened against the prioritization criteria, including climate vulnerability, rural population size, potential land area that could benefit, government adaptation priorities, transboundary connectivity, and complementarity with existing initiatives. This screening produced a shortlist of priority districts that was then validated at a regional workshop in April 2026, resulting in pre-selected target districts that are reflected in the funding proposal. See Annex 7a for more information on stakeholder consultations.

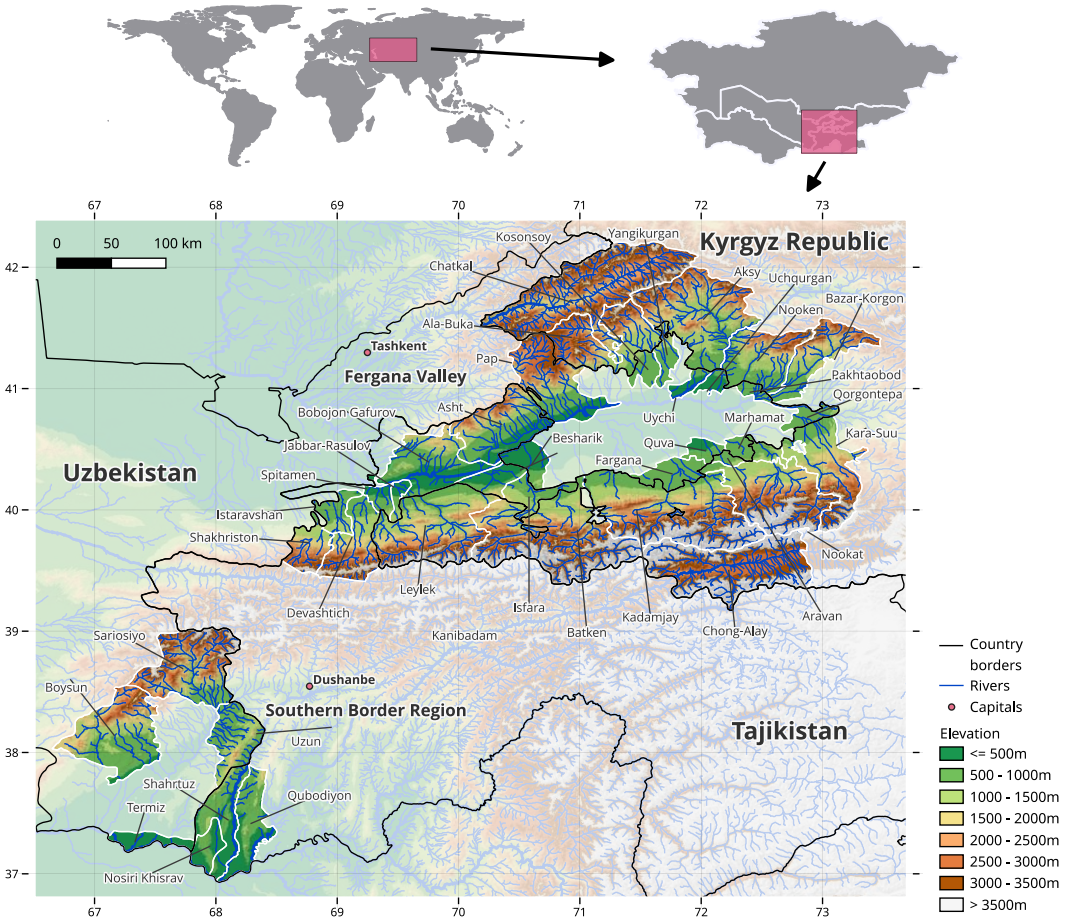
To ensure the programme adds value and strengthens coherence across the wider portfolio of interventions, complementarity with existing projects and initiatives was explicitly assessed to avoid duplication and redundancies. This included identifying where a programme can reinforce, fill gaps in, or scale up existing work rather than replicating it. The selection also prioritized districts that include important ecosystems under threat or that are national priority ecosystems for climate change adaptation, as well as districts that are key for important sub-sectors under threat or identified as national priority sub-sectors. Finally, the willingness of stakeholders in the relevant sub-sectors to collaborate was considered essential, reflecting the practical reality that successful implementation depends not only on biophysical suitability and risk levels but also on the capacity and readiness of

local actors to engage in planning, coordination, and sustained implementation. The selected districts are outlined in Table 35 above and Figure 52 below.

This assessment has been supported by the NDAs of the three target countries that repeatedly expressed their interest in strengthening regional cooperation to address climate risks and the need for adaptation, at national level and in transboundary landscapes.

Once implementation begins, the most suitable municipalities will be identified within each district following a participatory process, ensuring that the final geographic focus is sufficiently specific for effective implementation, operationally realistic and grounded in stakeholder recommendations and collaboration potential. Component 2 will be implemented in these areas, while Component 1 will operate at the national level and Component 3 focus on furthering regional cooperation on climate change mitigation and adaptation and will work with the five Central Asian countries.

Figure 52: Programme areas: Districts around Fergana Valley (top right) and Southern Border Area between Uzbekistan and Tajikistan (bottom left); total of 39 labelled districts[7]; colours according to elevation (30m x 30m grid)



Source: Own illustration based on Copernicus Programme, 2021[8]

A total of 25 state forest enterprises were selected within these districts based on criteria similar to those used for the district selection. In addition, more extensive consultations were carried out with the countries' forest administrations regarding current forest management and expansion targets within these SFEs, to ensure the programme's additionality to these targets. The table below provides basic data on the selected SFEs. Across these districts and SFEs, the programme focuses on several interconnected land-use systems, including:

- irrigated annual crops,
- irrigated perennial crops,

[7] GADM. (2022). GADM database of Global Administrative Areas, version 4.1. https://gadm.org/
[8] Copernicus Programme. (2021). Copernicus Digital Elevation Model (DEM), GLO-30 Public. https://registry.opendata.aws/copernicus-dem/

- rain-fed agriculture,
- pasture systems, and
- forest landscapes which together underpin rural livelihoods, agricultural production, and key ecosystem functions across the target regions.

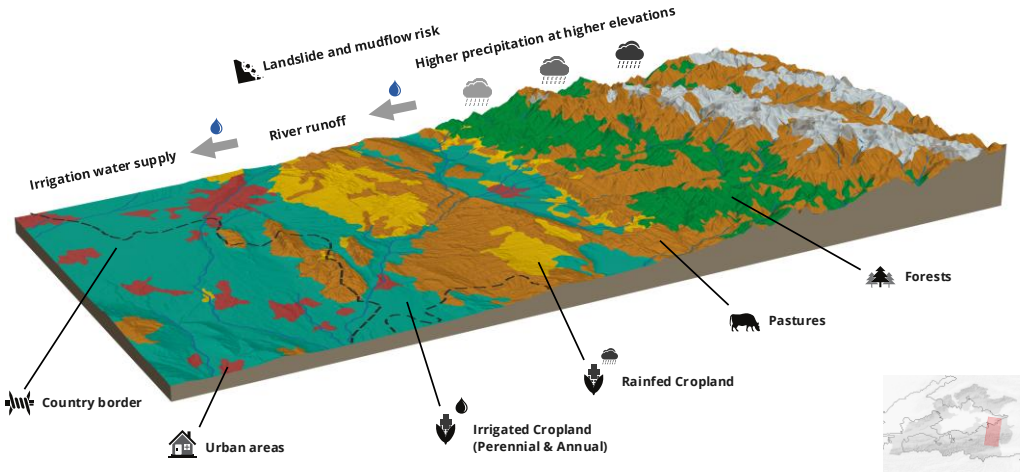
Table 36: Selected SFEs in the target regions

Country	Region	State Forest Enterprise	Total SFE territory (ha)	Forest area (ha)
Kyrgyz Republic	Jalal-Abad	Arstanbap	18,917	9,673
		Kyzyl-Unkur	56,150	29,643
		Aksy	62,589	41,303
		Ala-Buka	49,828	30,448
		Chatkal	35,482	16,255
	Batken	Batken	162,410	59,516
		Leilek	110,236	54,578
		Arka	51,147	14,762
		Uch-Korgon	111,583	56,056
	Osh	Kara-Kulja	74,295	18,735
		Nookat	94,237	32,007
Tajikistan	Sughd	Asht	64,470	11,643
		Devashtich	55,970	9,347
		Shahriston	47,175	22,931
	Khatlon	Qobodiyon	28,565	10,628
		Shahritus	407	193
		Nosiri Khusrav	18,548	599
Uzbekistan	Andijan	Andijon	10,540	3,766
	Fergana	Kokand	12,629	5,762
		Fergana	7,061	6,339
	Namangan	Pap	133,712	15,940
		Kasansay	4,143	1,255
	Surkhandarya	Uzun	106,365	28,395
		Boysun	119,452	72,052
		Babatag	65,732	46,878

Source: Forest administrations of the Kyrgyz Republic, Tajikistan and Uzbekistan

These systems are distributed along vertically connected landscapes (see Figure 53 for a schematic overview), ranging from lowland areas dominated by irrigated crop production (both annual and perennial crops) to foothill zones where irrigated and rain-fed agriculture coexist, followed by mid-elevation pastures used for livestock grazing, and upper mountain forests that provide essential ecosystem services. These zones are closely linked through hydrological interdependence, as downstream agricultural areas depend on water resources originating in upstream catchments. At the same time, national borders intersect these landscapes, often complicating coordinated water management and land-use governance across the transboundary system.

Figure 53: Scheme of the vertical geography scheme typical for the programme area (exemplarily for the area around Nookat, Kyrgyzstan)

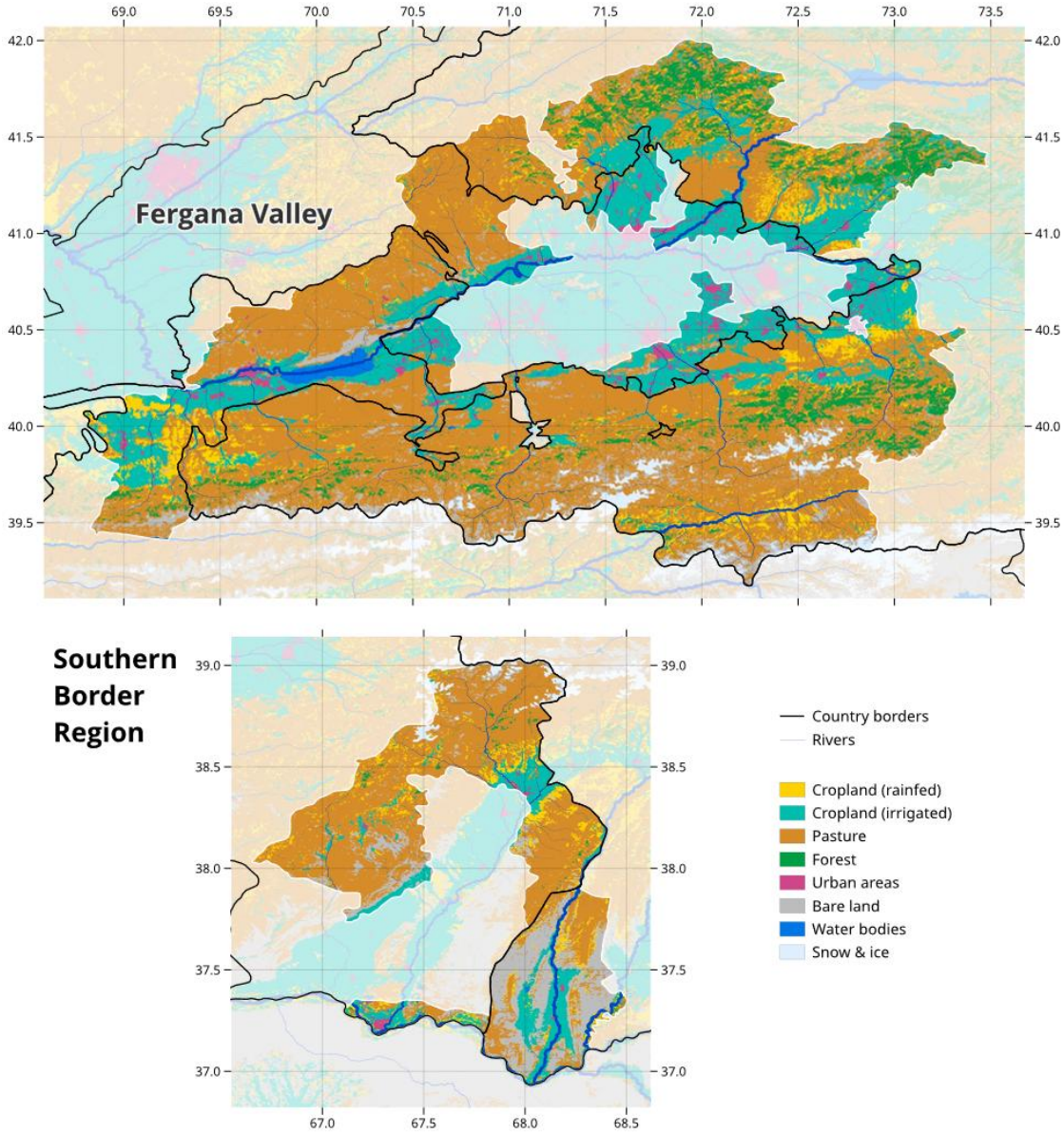


Source: Own illustration based on Copernicus Climate Change Service, 2021[9]. (Land use data has been smoothed for presentation)

Figure 54 further illustrates the distribution of major land-use categories within the programme landscapes, including irrigated cropland, rainfed cropland, pasture/grassland, and forest. This spatial overview provides context for understanding how climate variability interacts with land-use patterns and regional water demand.

[9] Copernicus Climate Change Service, Climate Data Store. (2019). Land cover classification gridded maps from 1992 to present derived from satellite observations. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). https://doi.org/10.24381/cds.006f2c9a

Figure 54: Land use distribution in the programme areas (Top: Fergana Valley; Bottom: Southern Border Area)
(Note that the dataset is based on satellite observations and differentiation between irrigated and rainfed schemes for cropland are only historic estimates)



Source: Own illustration based on Copernicus Climate Change Service, 2019[10]

Under climate change the risks for each land use type are expected to worsen. Not only are the risks of degraded land, water, and forest ecosystem services as well as decreased biodiversity and ecosystem integrity already substantial. Strong linkages between elevation levels and land-use systems amplify these risks across the landscape. Specifically:

- decreased crop productivity and stability for crop agriculture,
- decreased livestock productivity and pasture carrying capacity of grasslands, and
- degraded forest and agroforestry functions

These impacts further threaten rural livelihoods and income security, increased food insecurity and nutritional stress, and overall might deepen poverty and vulnerability of rural populations. Tajikistan, for example, has experienced severe droughts that have significantly reduced crop yields as well as

[10] Copernicus Climate Change Service, Climate Data Store. (2019). Land cover classification gridded maps from 1992 to present derived from satellite observations. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). https://doi.org/10.24381/cds.006f2c9a

livestock productivity, particularly in the southern Khatlon region where low precipitation and high temperatures prevail. Similar patterns are affecting lowland areas more broadly across the region, including the southern and eastern areas of Surkhandarya Province and the north-west of Uzbekistan. In the Kyrgyz Republic, exposure takes a different but equally severe form; high-elevation areas are vulnerable to landslides, placing local populations and land systems at particularly high risk (World Bank Group & Asian Development Bank, 2021a). In Tajikistan, mudslides cause destruction comparable to annual losses of USD 15 million and additionally cost 35 lives per year, underlining the scale of recurrent climate-related hazards and their socioeconomic consequences (Republic of Tajikistan, 2018b). Taken together, these examples illustrate not only the diversity of hazards across the three countries, but also the common thread of increasing climate-related disruption to land systems and rural economies, especially in areas characterized by high exposure and limited capacity to manage risk. These risks have direct implications for rural communities because rural livelihoods are closely tied to climate-sensitive production.

Without interventions, these mutually reinforcing pressures risk a downward spiral of environmental degradation, declining productivity, and rising socio-economic vulnerability across the transboundary landscape.

6.5.2 Adaptation needs identified among target groups

Important climate change adaptation needs among programme beneficiaries were identified through local consultations with stakeholders across the identified areas. These consultation workshops at the local level took place in October 2025 and in January and February 2026 to inform the ESS process and the CRVA, with participants recorded as 1,300 individuals. They captured the target group's priorities and constraints based on their direct experience of climate risks and impacts. The key needs emerging from these discussions are summarized in the table below.

Table 37: Needs identified during consultation with target groups

Theme / intervention area	Needs of target groups	Examples of priority actions / interventions
Water Management	Reliable water access, particularly in remote pastures, and more efficient water use in agriculture to reduce production losses and stabilize livelihoods under heat and drought. Reduction of on-field water losses, improvement of water efficiency.	Water-saving irrigation (drip, sprinkler, pervaporation); renewable energy (solar, wind, agrivoltaics) to improve irrigation reliability. Construction of water retention structures, e.g., tanks, for alternative irrigation.
Sustainable Land & Ecosystem Management	Healthier landscapes and ecosystems to protect soils, pastures, forests, and systems that underpin agriculture, livestock, and beekeeping. Restoration of degraded lands; protection of forests and nurseries from overgrazing/livestock damage.	Shelterbelts, afforestation and reforestation; pasture restoration and rotational grazing; soil mapping, erosion control, and fertility management; protection of forest ecosystems. Fencing for pastures and forestry nurseries to prevent uncontrolled livestock access; saxaul planting for dust and sandstorm mitigation; temporary community-led land protection (temporary fencing) for ecosystem recovery; greening of degraded lands; biological protection of forests against pests.
Climate-Resilient Production Systems	Climate-resilient inputs and production models that maintain yields and reduce sensitivity to heat, water stress, and variability. Reduced reliance on synthetic inputs through organic/biological approaches; improved fodder quality; protection from transboundary pests (locusts, caterpillars); preservation of productive local varieties.	Drought- and heat-resistant crop/pasture/fodder varieties; improved feed bases and seed production systems; promotion of organic fertilizer use, balanced plant nutrition, integrated pest management and biological control; crop rotation practices; drought-resistant fodder plants on pasture; conservation of local apple and apricot varieties.

Theme / intervention area	Needs of target groups	Examples of priority actions / interventions
Monitoring, Diagnostics & Technology	Practical risk-monitoring and diagnostic capacity to manage climate shocks earlier and more effectively.	Application of climate statistics, mapping, and forecasting tools. Drone/satellite technology for monitoring, assessment of carrying capacity of rangelands.
Knowledge, Capacity & Extension	Stronger, hands-on advisory support and skills to adopt and maintain climate-resilient practices and technologies. Entrepreneurship and business management skills; practical (not theoretical) training delivery; culturally appropriate formats for women; integration of science with local knowledge.	Practical training and knowledge exchange; better integration of science, production, and advisory services; strengthening agronomists and foresters. Deployment of Farmer Training Schools (practical training adaptation measures); entrepreneur skills training including proposal preparation; women-only training formats near residential areas; safe use training for fertilizers/pesticides.
Finance	Affordable, accessible finance to invest in climate change adaptation; current barriers include high interest rates, collateral requirements, and weak cooperative/blended finance structures. Financing mechanisms for vulnerable groups (widows, orphans, persons with disabilities); technical support to complete loan documentation; alternatives to traditional collateral.	Matching grants and concessional loans for small- and mid-size producers/family enterprises. Revolving funds (equipment leasing) for continuous input access and mechanised services; interest-free or low-interest loans for vulnerable groups; technical specialists to assist farmers with loan documentation; support for youth and women's self-employment and MSMEs.
Policy & Institutional Environment	More stable and coherent enabling environment to reduce uncertainty and make climate-resilient investments viable at scale. Simplified land access and transformation procedures; early institutional consultation during programme planning; coordination among agriculture, water, and forestry agencies; addressing legislative restrictions on private afforestation.	Policy stability and cross-sector coherence; alignment across agriculture, water, forestry, and energy; stronger enforcement of environmental standards; incentives for climate-resilient investment. Streamlined land management procedures; inter-agency coordination mechanisms; early coordination with banks to align programme mechanisms with existing credit procedures; district-level agronomist support centers for technical guidance and market access.
Regional / Cross-Border Cooperation	Cooperation mechanisms for shared resources and shared risks that cannot be managed locally.	Joint transboundary landscape management; regional research and training initiatives; mechanisms for regional knowledge exchange programs and study visits; regional collaboration on protected area management.
Gender & Youth Inclusion	Inclusive programme design so women and youth, who make up a large share of the workforce, can access resources, skills, and decision-making opportunities. Safe and culturally appropriate participation spaces; targeted support for women-headed enterprises.	Support women/youth in value-added processing, small enterprises, and technical roles; design measures that increase inclusion, skills development, and income diversification; gender quotas for decision-making processes; promotion of youth engagement in agricultural innovation.

Theme / intervention area	Needs of target groups	Examples of priority actions / interventions
Value Chain, Processing & Post-Harvest Infrastructure	Market linkages, processing capacity, and logistics to reduce post-harvest losses, prevent price collapse during oversupply, and increase income from climate-resilient production. Support for cooperative aggregation and export readiness.	Cold storage facilities and drying equipment; processing workshops for walnuts, fruits, and vegetables; cooperative strengthening for product aggregation, certification; 'turnkey' service packages providing seeds, machinery, sowing, and harvesting support; improved market timing and coordination to prevent sharp price drops during harvest periods.
Overarching implications for programme design	Integrated, landscape-based solutions, backed by finance, knowledge systems, and inclusive governance to scale what communities are already doing.	Promote adoption of integrated landscape approaches with focus on addressing water as the central constraint; strengthen monitoring/diagnostics; remove finance bottlenecks; design gender-sensitive interventions; embed regional cooperation.

Within these three countries, border areas appear to be among the most at risk. This includes the administrative regions of the Fergana Valley and the neighbouring provinces of Khatlon (Tajikistan) and Surkhandarya (Uzbekistan). These regions are characterized by a great diversity of land uses, including irrigated valley bottoms, hills used for rainfed crop production, nut production and grazing, and mountain areas where pastures and forests dominate the landscape. These different land uses and natural ecosystems are interlinked and inseparable elements of continuous and transboundary landscapes.

These areas play a key role in the agricultural production, employment and economy of their respective countries. Population density is also particularly high, as compared to many other areas in the region (GRID Arendal, 2006; Statistics Agency under the President of the Republic of Uzbekistan, 2024b; TAJSTAT, 2024a).

6.6 Exit strategy and sustainability

At the national level (Component 1), the programme ensures sustainability by institutionalising climate-informed planning processes across sectors, establishing multisectoral climate change-focused platforms, and aligning public incentives with climate change mitigation and adaptation objectives and commitments. The programme activities under Component 1 are closely aligned with national commitments, such as NDCs and NAPs, as well as the Regional Climate Change Adaptation Strategy, fostering long-term ownership of results beyond the programme's implementation period. A key element of the programme's financial exit and sustainability strategy at national level is the strengthening of domestic institutional capacity and financing systems that can continue to support climate-resilient and low-emission investment after programme completion. In particular, the programme will support selected LFIs to better identify, assess, and manage climate-related risks in AFOLU lending and to develop internal systems, procedures, and reporting approaches relevant to climate-resilient agricultural finance. This includes support for agriculture financing facilities within partner institutions, covering governance arrangements, product design, eligibility criteria, environmental and social safeguards procedures, climate risk considerations, portfolio tagging, and reporting systems. The programme will also support green/thematic bond readiness, including development of bond frameworks, eligible pipeline identification and screening, external review requirements, and post-issuance allocation and impact re-porting systems. These measures are intended to strengthen the longer-term institutional readiness of participating financial institutions to appraise and finance CRLE-related investments beyond the programme period. At the same time, the continuation of specific financial products, facilities, or issuances remains subject to the commercial decisions of participating institutions and the prevailing regulatory context.

At the local level (Component 2), sustainability efforts focus on embedding participatory planning processes that mainstream climate adaptation and strengthening the capacities of producers and land users in the agriculture and forestry sectors to adopt CRLE practices. This is complemented by the development of climate-resilient value chains and by targeted business development, practical financial literacy support, and investment-readiness support for producers, producer groups, cooperatives, and

MSMEs in the selected value chains. Through this, the programme will help generate a pipeline of investment-ready proposals, including business models and investment files aligned with market demand and, where relevant, the screening requirements of participating local financial institutions. This pipeline function is an important part of the exit strategy, as it helps strengthen the capacity of local actors to structure, cost, and present bankable CRLE investments beyond the programme's direct support.

At the local level, the programme uses several financing instruments with different sustainability pathways. The No-Till Adoption Accelerators in the Kyrgyz Republic is specifically designed to continue beyond the programme period through repayment and reinvestment cycles managed by a selected non-profit MCO. Re-payments will be formally recorded in the MCO's systems and the principal capital reused for subsequent financing cycles. The mechanism applies only a minimal fee or mark-up intended to cover operational costs associated with implementation, coordination, monitoring, logistics, advisory support, and repayment administration. Existing experience from the GIZ-supported model in the Kyrgyz Republic provides practical evidence of continuity through repayment and reinvestment, including the reinvestment of returned funds into additional mechanisation equipment for new beneficiaries.

Matching grant mechanisms are not expected to continue after all programme funds have been disbursed. Their sustainability lies primarily in the continued use and maintenance of programme-supported assets and technologies by beneficiaries after programme completion. Investments financed through matching grants and No-Till Adoption Accelerators are expected to support continued adoption of CRLE practices and equipment that improve water efficiency, resilience to drought, heat, frost and pests, soil fertility, productivity, and post-harvest management. The adaptation benefits of these investments are expected to continue through improved ecosystem services, enhanced water retention and soil health, diversified livelihoods, and increased adaptive capacity of land users and institutions.

For durable assets financed through the programme, sustainability will depend not only on ownership arrangements but also on clear responsibilities for operation and maintenance, and on the technical, operational, and financial capacity of the receiving institution or beneficiary to manage the asset after transfer. For equipment procured through matching grants, beneficiaries will retain responsibility for operation and maintenance costs after programme completion. For equipment provided through the capitalisation of the No-Till Adoption Accelerators, the relevant MCO will be responsible for operation and maintenance. For forestry and pasture-related investments, the responsible management institutions will assume responsibility for long-term operation and maintenance in line with the relevant management and investment plans. The intangible assets generated by the programme, including knowledge products, training materials, planning tools, and information and monitoring systems, are expected to be integrated into existing institutional mandates and routine functions. A more detailed handover plan will be developed during implementation, specifying ownership, operation and maintenance responsibilities, and funding sources for long-term management.

At the regional level (Component 3), the programme will enhance knowledge management and knowledge transfer on climate change adaptation and mitigation across Central Asia (five countries). Regional leaders will develop the skills needed for long-term, project-independent planning by improving their foresight capacities. In the long term, the programme is expected to strengthen regional cooperation on climate investment priorities, improve the visibility and structuring of transboundary adaptation and restoration needs, and support continued exchange on climate-resilient and low-emission development pathways. Sustainability at the regional level will be reinforced through knowledge management, foresight capacity, regional exchange mechanisms, and the use of Central Asian Climate Information Platform resources. The regional climate investment platform is intend-ed to contribute to this process. However, due to its innovative nature in the Central Asian context, and the political discussions and agreements required prior to its establishment, its long-term institutional ownership, governance arrangements, and financing model will only be fully defined during implementation.

The programme systematically addresses and removes barriers to transitioning towards climate-resilient, low-emission development pathways in the region. Its exit strategy does not rely on all financing mechanisms continuing unchanged beyond programme completion.

7. Programme description

Table 38: Programme overview

	Output	Activity	Sub-Activity
Component 1: Enabling environment for climate-resilient and low-carbon AFOLU sectors at national level	1.1 Climate informed integrated sectoral and land use planning & programming processes and plans at national level are institutionalized	1.1.1 Improve the knowledge base and institutionalise climate-informed planning and monitoring at the national level	1.1.1.1 Institutional strengthening and improving Hydromet's data management capacities (EE: GIZ)
			1.1.1.2 System-based co-creation of innovative, targeted climate information products for the AFOLU sectors (EE: GIZ)
			1.1.1.3 Strengthening of digital land information systems at the national level (EE: GIZ)
			1.1.1.4 Supporting a conducive environment for the use of digital tools and climate information in government-driven planning and policy processes (EE: GIZ)
			1.1.1.5 Fostering capacities on climate-informed planning within sectoral and sub-national institutions (EE: GIZ)
			1.1.1.6 Institutionalizing capacity building on climate-informed planning (EE: GIZ)
		1.1.2 Mainstream climate information into intersectoral coordination platforms and plans	1.1.2.1 Strengthening of multisectoral and multiscale coordination for evidence-based, climate informed cross-sectoral decision making in the AFOLU sectors (EE: GIZ)
	1.2 Public financing environment promoting climate-resilient and low-emission land uses strengthened	1.2.1 Support a conducive public financing environment promoting climate-resilient and low-emission land uses	1.2.1.1 Consolidate existing country climate investment platforms and strengthen the capacities of public institutions in climate finance (EE: GIZ)
			1.2.1.2 Enhancing access to innovative climate finance (EE: GIZ)
			1.2.1.3 Identification of subsidies that are harmful to climate adaptation and mitigation in the AFOLU sectors (EE: GIZ)
			1.2.1.4 Supporting repurposing of subsidies that are harmful to climate adaptation and mitigation in the AFOLU sectors (EE: GIZ)
	1.3 Catalysing private sector finance for CRLE land use systems	1.3.1 Support domestic financial institutions to better manage climate risks in the agriculture sector	1.3.1.1 Development of training module for financial institutions (EE: GIZ)
			1.3.1.2 Rollout of training programme for local financial institutions on enhanced climate risk management (EE: GIZ)
		1.3.2 Establishing climate-smart agriculture financing facilities and supporting issuance of green bonds	1.3.2.1 Financial Institution Selection (EE: GIZ)
			1.3.2.2 Climate Smart Agriculture Facility Design and Establishment (EE: GIZ)
			1.3.2.3 Green Bond Transaction Support (EE: GIZ)
Component 2: Promotion and adoption of climate-resilient and low-emission practices and	2.1 Climate-informed AFOLU planning processes and plans at subnational level are institutionalized	2.1.1 Prioritization of municipalities based on district-level climate diagnostics	2.1.1.1 Screening and scoring of target municipalities (EEs: ARIS, CIIP, NCECC)
			2.1.1.2 Validation of target municipalities (EEs: ARIS, CIIP, NCECC)
		2.1.2 Develop local AFOLU adaptation plans in selected landscapes	2.1.2.1 Local level diagnostic of climate hazards and adaptation needs (EEs: ARIS, CIIP, NCECC)
			2.1.2.2 Participatory AFOLU adaptation planning (EEs: ARIS, CIIP, NCECC)
			2.1.2.3 Approve climate-informed AFOLU adaptation plans at local level (EEs: ARIS, CIIP, NCECC)

	Output	Activity	Sub-Activity
technologies at local level	2.2 Forests and pastures restored and under sustainable and climate-resilient use	2.2.1 Scale land restoration practices in degraded forests in transboundary landscapes	2.2.1.1 Development of training material for intermediary partners (EEs: MoWRAPI, CIIP, NCECC)
			2.2.1.2 Training of the intermediary partners (EEs: MoWRAPI, CIIP, NCECC)
			2.2.1.3 Development of climate-informed participatory forest resources management plans, including investments (EEs: MoWRAPI, CIIP, NCECC)
			2.2.1.4 Formalisation of community investments (EEs: MoWRAPI, CIIP, NCECC)
			2.2.1.5 Technical assistance in forest restoration (EEs: MoWRAPI, CIIP, NCECC)
			2.2.1.6 Investments in forest restoration (EEs: MoWRAPI, CIIP, NCECC)
		2.2.2: Scale land restoration practices in degraded rangelands in transboundary landscapes	2.2.2.1 Development of training material for technical advisory partners (EEs: ARIS, CIIP, NCECC)
			2.2.2.2 Training of the technical advisory partners and intermediary partners (EE: ARIS, CIIP, NCECC)
			2.2.2.3 Development of climate-informed pasture management plans, including investments (EE: ARIS, CIIP, NCECC)
			2.2.2.4 Technical assistance in pasture restoration (EEs: ARIS, CIIP, NCECC)
			2.2.2.5 Investments in pasture restoration (EEs: ARIS, CIIP, NCECC)
	2.3 Farmers capacitated and incentivized to adopt climate-resilient and low-emission practices	2.3.1 Scale the adoption of locally relevant CRLE land use practices and technologies in agriculture in transboundary landscapes	2.3.1.1 Adjustment of PICSA to regional conditions (EE: GIZ)
			2.3.1.2 Operationalisation of E-PICSA (EE: GIZ)
			2.3.1.3 Development of training material for climate-informed extension services, training of extension services and intermediaries (EE: GIZ)
			2.3.1.4 Implementation of E-PICSA in the selected municipalities (EE: MoWRAPI, CIIP, NCECC)
			2.3.1.5 Technical assistance for adoption of climate-resilient and low-emission land use practices and technologies in agriculture (EE: MoWRAPI, CIIP, NCECC)
			2.3.1.6 Investments in the adoption of CRLE practices and technologies in agriculture (EE: MoWRAPI, CIIP, NCECC)
		2.3.2: Establishment of financial mechanisms for enabling the adoption of CRLE practices in the agricultural sector	2.3.2.1 Replicating and scaling No-Till Adoption Accelerators in the Kyrgyz Republic (EE: GIZ)
			2.3.2.2 Establishing matching grant mechanism for CRLE technology adoption and value chain development (EE: MoWRAPI, CIIP, NCECC)
		2.3.3 Investment in climate-resilient and low-emission agriculture and associated value-chain infrastructure	2.3.3.1 Development of investible business models and support for producer groups, cooperatives and MSMEs (EE: GIZ, MoWRAPI, CIIP, NCECC)
			2.3.3.2 Operationalisation of EIB credit programme in KG, TJ, UZ (EE: MoFs)
			2.3.3.3 Value chain investments (EE: MoWRAPI, CIIP, NCECC)
Component 3: Regional cooperation	3.1 Regional climate-informed development pathways for AFOLU and foresight capacities established	3.1.1 Strengthening regional foresight and planning capacities	3.1.1.1 Selection of national and regional partner institutions (EE: GIZ)
			3.1.1.2 Stock taking and megatrend analysis (EE: GIZ)
			3.1.1.3 Development of a training package on strategic foresight capacity (EE: GIZ)
			3.1.1.4 Institutionalization of the training package (EE: GIZ)
			3.1.1.5 Development of foresight capacities (EE: GIZ)
			3.1.1.6 Foresight capacity development of young leaders (EE: GIZ)

	Output	Activity	Sub-Activity
		3.1.2 Creation of regional climate-informed development pathways for AFOLU	3.1.2.1 Scenario-based pathways development (EE: GIZ)
	3.2 Enhanced regional knowledge exchange and information sharing through sustainable mechanisms	3.2.1 Enhancing regional knowledge exchange and information sharing through sustainable mechanisms	3.2.1.1 Knowledge and exchange events (EE: GIZ)
			3.2.1.2 Enhance sustainability of knowledge exchange (EE: GIZ)
		3.2.2 Development of a climate resilience toolbox	3.2.2.1 Strengthen content and user interface of the Central Asia Climate Information Portal (EE: GIZ)
			3.2.2.2 Strengthen regional expert pools on CACIP resources (EE: GIZ)
	3.3 Regional climate investment platform established	3.3.1 Creation of a regional climate investment platform	3.3.1.1 Definition of the platform's structure and role (EE: GIZ)
			3.3.1.2 Formal establishment of the regional climate investment platform (EE: GIZ)
			3.3.1.3 Institutional and staff capacity building (EE: GIZ)
			3.3.1.4 Creation of an investment roadmap (EE: GIZ)
		3.3.2 Support the implementation of adaptation actions in transboundary landscapes in the AFOLU sectors	3.3.2.1 Establishment of a funding mechanism under the regional investment platform (EE: GIZ)
			3.3.2.2 Development of climate adaptation action plans in transboundary landscapes (EE: GIZ)
			3.3.2.3 Technical assistance for climate adaptation in transboundary landscapes (EE: GIZ)
			3.3.2.4 Investments in adaptation actions in transboundary landscapes (EE: GIZ)
			3.3.2.5 Monitoring and regional learning (EE: GIZ)

The structure of the proposed programme is the following:

7.1 Component 1 Enabling environment for climate-resilient and low-carbon AFOLU sectors at national level

The outputs under Component 1 focus on establishing integrative cross-sectoral and multilevel planning processes in the AFOLU sectors that consider the effects of climate change in the respective country where the intervention is taking place. These outputs support the alignment of policies and incentives in the AFOLU sectors with national and regional climate change commitments, and between countries in the region. They also contribute to generating the climate and technical knowledge, procedures and capacities needed for the large-scale adoption of CRLE practices and technologies. They finally establish the infrastructure necessary to catalyse additional finance to scale CLRE practices and technologies in the region. The results and learnings from Component 1 will enable scaling CRLE land use measures under Component 2 and support constructive and well-informed dialogues and information exchanges on the regional level under Component 3.

7.1.1 Output 1.1 Climate informed integrated sectoral and land use planning & programming processes and plans at national level are institutionalized

Output 1.1 will address the barriers to climate-informed integrated sectoral and land use planning at national level in the Kyrgyz Republic, Tajikistan and Uzbekistan. Building on existing institutional set-ups, Hydromet capacities, digital land information systems and coordination mechanisms, the output will focus on supporting the institutional and policy shifts required to improve the knowledge base for climate-informed planning and monitoring, integrate climate information into land use planning, and strengthen cross-sectoral coordination and planning-budgeting complementarities. Activity 1.1.1 will support Hydromet institutions and other relevant bodies to improve data management, co-create innovative climate information products, strengthen digital land information systems, establish a legal basis for data exchange and the use of digital tools such as satellite data and artificial intelligence, and foster and institutionalize capacities on climate-informed planning within sectoral and sub-national institutions. Activity 1.1.2 will focus on establishing or strengthening permanent multisectoral and multiscale coordination platforms for evidence-based, climate-informed cross-sectoral decision making in the AFOLU sectors, including the use of digital land information systems and climate products to guide prioritization, policy alignment and implementation decisions across the three countries.

Baseline	In the **Kyrgyz Republic**, land use planning is fragmented and sequential due to distributed responsibilities across ministries and agencies, such as the Ministry of Water Resources, Agriculture and Processing Industry, the State Agency for Land Resources, Cadastre, Geodesy, and Cartography under the Cabinet of Ministers of the Kyrgyz Republic, the Forest Service under the Ministry of Emergency Situations, the Ministry of Natural Resources, Ecology and Technical Supervision and the Ministry of Economy which oversees socio-economic development planning. National planning remains sectoral and document-based. Terminology and procedures are inconsistent and coordination with financial planning is weak. This is a poor alignment of sustainable growth priorities and investment policy. There is a lack of technical basis, institutional capacity, a necessary legal and regulatory frameworks, ineffectiveness and insufficiency of public environmental policies. The national and sector planning system lacks a climate-informed planning workflow with standardized methods, indicators, and revision triggers. The guidelines omit climate risk screening, and climate requirements are not mandatory across all planning processes. The National Council for Water and Land Resources is mandated to provide a strategic platform for the development of integrated, coherent, and evidence-based policy recommendations and measures on the sustainable management, use, and protection of water and land resources of the Kyrgyz Republic, in order to ensure effective inter-institutional coordination and alignment with long-term national development priorities. However, this Council and its members (members of the Cabinet of ministers) lack the resources to effectively perform core functions resulting in project-driven, ad-hoc coordination. The recent Government Decree on State Programme of inclusive socio-economic development of regions of the KR 2025-2030 establishes a ground for cross-sectoral and inclusive land planning. The document will become a key instrument for implementing a new generation of regional policy aimed at eliminating spatial and socioeconomic imbalances, creating sustainable growth areas, and ensuring a systemic approach to local development management. The Kyrgyz Hydromet has limited human and technical capacities for long-term climate modelling and the generation of long-term climate scenarios, client tailored climate products that can be shared and used by land use planning institutions. Since 2024, Hydromet has initiated the publication of an annual climate bulletin, providing key climate indicators and indices, but its integration into sectoral planning remains limited. Other data from Hydromet are

not available for free to other state institutions and are shared based on prescribed legislation. Climate information products are therefore not systematically integrated into national land allocation, zoning, or program design, and sectoral plans due to limited human capacities, climate and hazard data from hydrometeorological and emergency services. There is a basic national system for official spatial data, but it remains underused as its use by public institutions is not obligatory. There has been, to date, little connection between local participation mechanisms and national planning.

The government of the Kyrgyz Republic has tasked the State Agency for Land Resources with setting up a geospatial platform incorporating land cover data from the Land Use Institute, land registration data from the Cadastre, and climate-related disaster risk information (e.g. landslides and flooding) from the Ministry of Emergency Situations. The Agency is also responsible for completing district land-use plans by the end of 2026, although this deadline is likely to be extended to 2027 or 2028 given limited resource allocation. This database will span national to local levels and be available to local self-governance to support socio-economic development and land use planning. Once it is operational, this system will constitute a suitable basis for integrated land use planning considering specific aspects of disaster risk reduction. The State Agency for Land Resources lacks sufficient resources, the necessary software and hardware upgrades, clear governance arrangements under a coordination committee/secretariat, and an enforced mandate for cross-government platform use. Additionally, it lacks adequate institutional capacity, standardized methodologies, training-of-trainers, and scalable training modules for central and sub-national staff. Finally, the Agency does not hold AI-enabled capabilities for tasks such as multi-criteria land use analysis and for the identification of hotspots under different climate scenarios.

Tajikistan has national land-use legislation, a functioning land cadastre, and sectoral planning mandates at both national and sub-national levels. The country also has an existing institutional set-up for land and climate governance, involving the State Committee for Land Management and Geodesy, the Ministry of Agriculture, the Forestry Agency under the Government of the Republic of Tajikistan, the Committee for Local Development and the Committee for Environmental Protection, which together create a solid entry point for institutionalizing climate-informed AFOLU planning. This centralized governance structure provides a unique opportunity for rapid system-wide uptake of integrated and climate-informed planning approaches once institutional mandates, workflows, and data requirements are aligned. At the policy level, Tajikistan has also adopted several strategic and regulatory frameworks that provide an entry point for climate-informed and integrated AFOLU planning, including the National Development Strategy 2030, the updated Nationally Determined Contribution, the National Climate Change Adaptation Strategy, and sectoral strategies on agriculture, water, and pasture management. Nevertheless, in its current form, this highly centralized and top-down land use planning limits integrated land use planning and sustainable land management and is marked by competing mandates, overlapping objectives, gaps, and conflicting priorities. Policies and programmes are implemented in silos, information exchange is weak, and local participation is uneven. Coordination mechanisms remain fragile and land governance is fragmented in practice. Feedback loops between national planning documents and sub-national implementation, particularly for agriculture, pasture management, and land restoration measures, are not operational. National planning outputs are often weakly linked to operational guidance, budget prioritization, and monitoring at district and jamoat levels, which constrains the effective uptake of climate-resilient land-use measures in the AFOLU sectors. The absence of a formalized workflow for data exchange and joint use of climate and land information further constrains evidence-based planning, as climate risk and variability are not routinely considered in land allocation, pasture management, or sector investment decisions.

As a result, planning instruments are often insufficiently translated into implementable investment priorities, and climate considerations are not systematically reflected in land allocation, management, or AFOLU sectors support measures. The core challenge is therefore not the absence of policy commitments, but the lack of institutionalized procedures, mandatory data use requirements, and coordination mechanisms to operationalize them across the AFOLU sectors. Climate-informed planning in this context requires the combined use of climate projections, vulnerability indicators, land use and cadastral data, soil and pasture assessments, and socio-economic information within standardized planning and budgeting procedures to guide prioritisation, zoning, public investment programming, and monitoring.

Most land in the country is state-owned, with use rights allocated to *dehkan*[11] farms, cooperatives, and households under long-term uses. These small-scale farmers form the backbone of Tajikistan's agriculture but remain largely neglected in existing policy frameworks, which tend to emphasize large-scale production, cash crops, and orchard intensification. Overall, Tajikistan's land resources illustrate a structural paradox: while land remains the backbone of rural livelihoods, its availability is extremely limited, its quality is declining, and competing uses - agriculture, pastures, forestry, and settlements - create increasing pressures. However, because *dehkan* farms account for the majority of agricultural production, it also means that policy and planning reforms in the AFOLU sectors potentially have a direct and immediate transmission pathway to farm-level practices, making Tajikistan a high-impact context for climate-informed planning interventions. Targeted investments in institutional coordination, climate-informed planning tools, and planning–finance linkages in the country are expected to yield disproportionately high resilience and development returns compared to more institutionally mature but structurally complex contexts in the region.

The Tajik Hydromet does not have the full capacity to develop comprehensive digital climate models in-house. Recent GIZ support, including hydrological modelling, climate risk assessment methodologies, and water discharge modelling, has established an initial foundation for a more systematic and in-depth use of climate information in planning processes. Building on this progress will require further strengthening of institutional coordination mechanisms as well as enhanced technical capacities to ensure climate data and models can be applied consistently and effectively across sectors and planning levels. The State Committee for Land Management and Geodesy of the Republic of Tajikistan is responsible for general land use planning, land economic assessment, and the storage of soil, geobotanical, and other maps. However, it does not cooperate with the Tajik Hydromet. As a result, opportunities to align adaptation, mitigation, and economic development in national and sector plans are currently being missed.

In **Uzbekistan**, the structure of institutions operating within the AFOLU sectors results in fragmented governance, multi-level subordination, duplication of functions, and inconsistent priorities. The land-use planning system is sector-based, reliant on non-integrated data sources, and inconsistent indicators. Formal mechanisms, such as inter-ministerial platforms under the Cabinet of Ministers, exist but often lack clear decision-making protocols, and routine data-sharing. Planning workflows, monitoring, methodologies and evaluation are uneven. MRV and forecasting tools are not embedded in a harmonized, legally mandated workflow. Climate risk integration into land-use planning decisions is partial and inconsistent. Provisions for climate adaptation and unified soil and land degradation accounting are insufficiently detailed, and several norms are outdated. As a result, national and sector programs do not systematically undergo climate stress testing, and greenhouse gas and carbon assessments are fragmented. Nevertheless, Uzbekistan is actively integrating climate considerations into national planning through efforts like developing an Ecology Code that provides for the implementation of a system of incentives for the conservation, restoration, and enhancement of biodiversity. A draft of the ecological code has been drawn up and is currently awaiting approval by the relevant ministry before being submitted to the Cabinet of ministers.

The Uzbek Hydromet has good modelling capabilities which are being further strengthened with support from the Adaptation Fund and the World Bank. However, data sharing with other ministries is rather ad hoc and on a fee basis. Recent policy advances are expected to improve this situation. The Cabinet of Ministers Decision No. 808 of 23 December 2020, "On Measures to Further Develop the Open Data Sphere in the Republic of Uzbekistan," approved the National Concept for Open Data Development (2021–2025). The decision promotes open, accessible, and interoperable government data to enhance transparency, innovation, and evidence-based policymaking. In parallel, the GIZ Regional Programme "Climate Risk Management in Central Asia" (CRM CA) is supporting Uzhydromet in the digitization and preservation of historical hydrometeorological, hydrological, and agrometeorological datasets covering the period 1910 – 1939. Once completed, these digital archives will form the foundation of a unified electronic repository of climate and hydrological data accessible to national agencies, researchers, and development partners. This will enable their use in climate trend analysis, risk assessment, and model calibration for climate risk products and sectoral planning. Complementing this, the GIZ project "Green Central Asia" is also assisting Uzhydromet in modernizing data infrastructure and digitizing additional archives to enhance regional data exchange and early-warning

[11] A dehkan farm is a small-scale, independent family-based agricultural holding common in Central Asia

capacities. Together, these initiatives provide a foundation for more open, interoperable, and climate-relevant data systems that can strengthen evidence-based planning and cross-sectoral coordination in the AFOLU sectors.

In all three countries, the legal basis for using innovative tools, such as artificial intelligence, in land use planning and other government-driven processes is not yet in place.

Climate change, land degradation and biodiversity loss are closely intertwined. As outlined in the per-country descriptions above, these three challenges are addressed in a siloed manner rather than comprehensively in all three countries. This results in missed opportunities to build synergies, despite recent estimates suggesting that fully coordinated land restoration activities could achieve implementation efficiency gains of up to 24% compared to parallel efforts (Mirzabaev & Akramkhanov, 2025). Strengthening climate resilience in the AFOLU sectors in a coordinated manner has substantial potential to generate multiple co-benefits for alleviating land degradation and biodiversity loss and generating ecosystem services. This need for strengthened alignment is already outlined in national strategic documents, such as Uzbekistan's NDC.

These barriers highlight the critical need for interventions under Output 1.1. The programme seeks to support the institutional and policy shifts required for strengthening the AFOLU sectors's adaptation by improving the knowledge base for climate-informed planning and monitoring, integrating it into land use planning, and enhancing cross-sectoral coordination and planning-budgeting complementarities.

Activity 1.1.1: Improve the knowledge base and institutionalise climate-informed planning and monitoring at the national level

Description

This activity will support enhancing the production of climate information in the Hydromets and other institutions involved in the production of climate information in the three target countries. It will also improve the integration of this information with other relevant data, such as soil data generated by other institutions. To ensure a certain level of comparability between countries, this activity will start by holding a regional workshop for Hydromet institutions to exchange, define country priorities and topics for mutual learning.

Considering the limitations Hydromets demonstrate for data sharing, focus will be placed on the delivery of climate products such as comprehensive climate risk maps, using where relevant global data calibrated with national-level data that can be used for sectoral planning at the national level and for informing the use of local-level climate-informed planning tools such as LAPA (Local Adaptation Plans of Action) and E-PICSA (Participatory Integrated Climate Services for Agriculture) deployed under Component 2. The type, scope, and accuracy of these products will be carefully co-designed jointly with the Hydromet institutions and decision-making bodies in the AFOLU sectors. The emphasis will be on producing decision-oriented climate information that is fit for use in planning, prioritization, and scenario analysis, rather than stand-alone analytical products. Limited investments will be available to support software licenses when opensource software is not available, and data visualization. To ensure sustainability and downstream implementation in the countries' context where institutional capacity is concentrated at central level, the climate information products developed under this activity will be digitalized in standardized formats and designed for integration into national planning platforms and geoportals. To ensure institutional reliability, these products will be developed using reproducible methodologies, nationally owned data pipelines, and clearly assigned institutional responsibilities for updating, validation, and use. This will enable routine use beyond the programme lifetime and support their institutionalization within formal AFOLU planning and decision-making workflows.

The relatively stronger capacities of the Uzbek Hydromet will be leveraged for experience sharing with the same institutions in the Kyrgyz Republic and in Tajikistan. Enhanced communication between the three Hydromets will also be sought to align the climate products made available for the AFOLU sectors.

Further, this activity focuses on mainstreaming climate information into national and sectoral AFOLU planning frameworks to scale climate change adaptation. The objective is to enhance capacities and provide advanced tools in the region to facilitate evidence-based decision-making and ensure alignment with climate goals. This will be achieved through the implementation and institutionalization of digital climate, land use, and soil maps, satellite monitoring, and the application of artificial intelligence. Institutionalization in this context refers to the routine and systematic use of climate and land information, tools, and procedures within formal planning and decision-making processes, beyond programme-based application. In the

	three countries where planning authority and data stewardship are highly centralized, institutionalisation is a prerequisite for ensuring that climate-informed tools are not used on an ad hoc or pilot basis, but are formally embedded in national and sectoral planning, budgeting, and approval procedures This activity will improve and align the procedures and formats for the exchange of data and information between hydrometeorological institutions and other institutions that generate meaningful information for land use planning. This will ensure that the information meets the required level of granularity for national-level planning and the local-level planning tools used in Component 2. This activity will finally support the establishment of a legal basis for data exchange and for the use of certain tools in government-driven processes, such as satellite data and artificial intelligence, which is not yet in place. Establishing such a legal basis is essential to reduce institutional risk, clarify mandates, and enable the routine use of digital tools in planning decisions in the AFOLU sectors. Across all sub-activities, emphasis will be placed on institutional arrangements that assign clear responsibilities for data maintenance, tool usage, and updates within national institutions, ensuring continuity and sustainability beyond the programme lifetime. The University of Reading will provide key technical support through extensive work with and capacity development of the Hydromet institutions in the three countries. Activity 1.1.1 will be implemented through six sub-activities: • Sub-activity 1.1.1.1: Institutional strengthening and improving Hydromet's data management capacities • Sub-activity 1.1.1.2: System-based co-creation of innovative, targeted climate information products for the AFOLU sectors • Sub-activity 1.1.1.3: Strengthening of digital land information systems at the national level • Sub-activity 1.1.1.4: Supporting a conducive environment for the use of digital tools and climate information in government-driven planning and policy processes • Sub-Activity 1.1.1.5: Fostering of capacities on climate-informed planning within sectoral and sub-national institutions • Sub-activity 1.1.1.6: Institutionalizing capacity building on climate-informed planning
Sub-activity 1.1.1.1: Institutional strengthening and improving Hydromet's data management capacities (EE: GIZ)	
Description	This sub-activity will enhance the data management of the Kyrgyz, Tajik, and Uzbek Hydromet institutions. The country-specific, need-based interventions will include the digitisation of critical climate data for use in the AFOLU sectors, as well as software support for modelling, data visualisation, sharing and mapping. The sub-activity will also support the integration of critical data for AFOLU planning, including climate and soil data. The sub-activity will be delivered through training for Hydromet staff to enhance their internal data management processes and their ability to combine data produced by their own stations (insufficient network of meteorological stations in the Kyrgyz Republic and Tajikistan) with global climate datasets calibrated and trained with historical national observations, for use in the AFOLU sectors. This approach is necessary to address data gaps and temporal limitations in national datasets, improve spatial resolution, and ensure that the innovative and operational climate change information products agreed upon between Hydromet and relevant institutions in the AFOLU sectors under Sub-activity 1.1.1.2 remain robust, updateable, and usable for decision-making over longer planning horizons. The sub-activity will also enhance the capacity of the Hydromet staff to use open-source tools such as the Climate Risk Planning and Management Tool (CRISP), which is widely used and is becoming the standard tool promoted across all GIZ projects. Training participants will be selected in close coordination with Hydromet's management, based on how relevant their current position within the institution is to the knowledge delivered during the training.
Deliverables	• KG: 15 Hydromet staff capacitated on data management and climate product development • TJ: 15 Hydromet staff capacitated on data management and climate product development

	• UZ: 15 Hydromet staff capacitated on data management and climate product development
Key institutions involved	EE: GIZ will hire the University of Reading to carry out capacity building on adequate data management, modelling of climate change influence on agricultural systems, data visualisation. Beneficiaries: Hydromet institutions in KG, TJ and UZ. These institutions will also be responsible for the generation of weather and climate information, and to operate, maintain and manage all hardware and database systems connected to it. Beyond benefiting from the activity, the UZ Hydromet will share knowledge and experience sharing with the two other Hydromets on selected topics.
Sub-activity 1.1.1.2: System-based co-creation of innovative, targeted climate information products for the AFOLU sectors (EE: GIZ)	
Description	Within this sub-activity, iterative discussions between Hydromet institutions and the national institutions responsible for national land use and sector planning (e.g., Ministries of Agriculture, Land Planning and Cadastre Agencies, Forest Agencies etc.) will identify the specific climate information products that are suited for integration into AFOLU planning processes at national and sub-national levels, including relevant technical units responsible for digitalization and innovation within sectoral ministries, where appropriate. This will include agreeing on specific product types, such as a nationwide climate forecast map or climate risk maps with sufficient detail to be incorporated into the national geospatial platforms strengthened under Sub-activity 1.1.1.3 (Under establishment in the Kyrgyz Republic and Tajikistan, established in Uzbekistan), alongside land use and land cover data. The co-creation process will focus on ensuring that the selected products directly respond to concrete planning needs and decision points within existing AFOLU planning workflows. While GIZ will support fruitful and continuous cross-institutional dialogue, the University of Reading will contribute key technical expertise to the discussions to ensure consistency and alignment with the capacity-building measures undertaken in Sub-activity 1.1.1.1. This sub-activity will also engage with national institutions that have a mandate for the development of digital tools, good data management and visualisation capacities, as well as experience in integrating various spatial information. This includes for example the Centre for Digitalization and Innovation of the Ministry of Agriculture in Tajikistan (with mandate to review and validate Agriculture Digitalization related tools) and the Centre for Space Monitoring and Geoinformation Technologies of the Uzbek Space Agency. The development of innovative climate products for the land use sector will capitalize on the data management capacities strengthened under Sub-activity 1.1.1.1.
Deliverables	• KG: 1 set of innovative and operational climate change information products agreed between Hydromet and relevant institutions in the AFOLU sectors (e.g., climate forecast map, climate risk maps, climate-and-soil maps, indicators, etc.) • TJ: 1 set of innovative and operational climate change information products agreed between Hydromet and relevant institutions in the AFOLU sectors (e.g., climate forecast map, climate risk maps, climate-and-soil maps, indicators, etc.) • UZ: 1 set of innovative and operational climate change information products agreed between Hydromet and relevant institutions in the AFOLU sectors (e.g., climate forecast map, climate risk maps, climate-and-soil maps, indicators, etc.)
Key institutions involved	EE: GIZ. GIZ will hire the University of Reading to contribute key technical expertise to the discussions to ensure consistency and alignment with Sub-activity 1.1.1.1. Beneficiaries: Staff in Hydromet institutions will lead the creation of innovative climate change products. Sectoral ministries and institutions in the AFOLU sectors will provide inputs on climate information needs in planning processes and benefit from the end products.
Sub-activity 1.1.1.3: Strengthening of digital land information systems at the national level (EE: GIZ)	
Description	This sub-activity will support the strengthening of digital land information systems in the three countries based on their needs, with a particular focus on integrating climate information generated in sub-activity 1.1.1.2 together with land use and soil information, which are key elements of consistent land use planning. An expected co-benefit from this sub-activity is the emergence of synergies between climate, biodiversity and land degradation agendas through centralized geospatial information platforms.

In the Kyrgyz Republic, the programme will support the development of climate modules for the national land information system across national, sub-national, and local levels. This will include funding need-based software and limited hardware, development of services as an addition to the existing GIS system of the local municipalities, cloud integration, and governance setup aligned with the interministerial council strengthened under Activity 1.1.2.
Further, the sub-activity will facilitate the integration of additional relevant data layers for AFOLU planning, such as georeferenced information on pasture conditions from the pasture management information system which is currently under development with GIZ support. This sub-activity will also support agency-wide adoption of data use rules and policies.

The use of tools such as remote sensing to analyse time series of satellite imagery, combined with suitable ground truthing, will be promoted, thereby helping to track long-term changes. An AI module that can generate land use scenarios using existing land use and other geospatial data from the state land information system, alongside climate information, will be developed and integrated in the platform. The use of such AI-enabled decision tools for climate-informed land-use planning, including for example decision on the location of the value chain logistic hubs (value chains will be strengthened under Activity 2.3.3) tied to smallholder farmers' geographical concentration and water availability, will be then rolled-out. Co-financing from the Land Agency, notably in terms of hardware use and staff costs is secured to ensure sustainability.

Finally, in the Kyrgyz Republic, this sub-activity will also enhance climate adaptation in forest management by supporting the addition of a climate layer to the recently developed suitability maps for afforestation and reforestation activities in the country, and to the methodology used for forest management planning at the Forest Inventory Department of the Forest Service.

In Tajikistan, this sub-activity will build upon the AFOLU action plan develop as part of a GCF readiness project implemented by GIZ. It will support the design of the geospatial portal hosted by the State Committee for Land Management and Geodesy, with functions for monitoring and displaying general climate information, soil conditions, water resources, land degradation, and agrometeorological data. Beyond data visualization, the geoportal will be designed as a planning support tool to inform land allocation, pasture management, and prioritization of climate-resilient investments in the AFOLU sectors. Particular emphasis will be placed on ensuring that the portal supports routine use in land-use planning and pasture management processes, including regular updates, clear institutional responsibilities for data provision and maintenance, and practical usability by planning staff at national and sub-national levels.

Like in the Kyrgyz Republic, the sub-activity will support the development of AI modules that can generate land use scenarios and support decision making. Start-ups developing AI tools in the country exist and have the potential to be associated to this work.

In Tajikistan, other relevant technical units such as the Center for Digitalization and Innovation of the Ministry of Agriculture may be engaged to support user-oriented design, interoperability with agricultural information systems, and downstream uptake by planning and extension services. Implementation will prioritize a limited set of high-impact functionalities to ensure operational use, with phased expansion based on institutional readiness and planning demand.

Uzbekistan is implementing a National Spatial Data Infrastructure (NSDI) project (2025–2030), managed by the Cadastre Agency, to create a centralized digital platform for managing, sharing, and utilizing geospatial data. Nevertheless, it is not being used to its full potential, as only cadastre data is currently available. There is no climate-related information available on this portal yet. This sub-activity will support the development of climate modules in the NSDI, designed for use in the AFOLU sectors across national, sub-national, and local levels. It will provide technical support for professional data management and integration, as well as a user-oriented design and interoperability with other national information systems and downstream uptake by users.

Other specific interventions within this sub-activity will address the key needs identified by the Land Planning Strategy currently under development with support from the World Bank, as far as they pertain to strengthening the digital land information system for use in the AFOLU sectors.

The functional geoportals established under this sub-activity will be critical for the sustainability of local AFOLU adaptation planning processes supported under Component 2 and for ensuring that climate-informed land-use decisions at local level are directly grounded in nationally validated data and planning criteria.

Deliverables	• KG: o 1 climate module integrated in the digital land information system o 1 operational AI module to run scenario-based analysis of land use and climate data • TJ: o 1 climate module integrated in the digital land information system o 1 operational AI module to run scenario-based analysis of land use and climate data • UZ: 1 climate module integrated in the digital land information system
Key institutions involved	EE: GIZ. GIZ will hire technical advisory partners to develop the (1) AI modules and (2) provide technical support to upgrade the digital land information systems. Beneficiaries: Land Use Agencies will contribute to the identification of opportunities and barriers within the current digital land information systems and the development and incorporation of new tools. They will benefit from technical support, hardware and software upgrade. Sectoral ministries and institutions in the AFOLU sectors will provide technical inputs to the development of new tools and benefit from the climate-informed land use data provided by the geoportals.
Sub-Activity 1.1.1.4: Supporting a conducive environment for the use of digital tools and climate information in government-driven planning and policy processes (EE: GIZ)	
Description	In all three countries, this sub-activity will support the establishment of a conducive legal environment for data exchange. Data-sharing protocols will be developed and implemented to populate and regularly update the respective digital platforms with inputs from various institutions. Further, the sub-activity will support the development of specific procedures (through bylaws or others) to operationalize the systematic use of critical data and information, such as climate information, in land use and sector planning and policy formulation processes at national and sub-national levels. This will involve aligning the provision of climate data with the cycles of national and sectoral planning and monitoring, including the decision points, timing, formats and analytical outputs required to support the prioritisation of evidence and coordinated decision-making in the AFOLU sectors. Finally, technical assistance will be provided to enable the use of AI-based scenarios and other innovative digital tools in planning and policy formulation processes in the AFOLU sectors in the three countries. This includes legal arrangements to mitigate AI-related risks, including data origin, accuracy, and responsible use. The deliverables under this Sub-activity constitute a prerequisite for the implementation of specific tools, such as AI modules, under Sub-activity 1.1.1.3. The deliverables, especially data-sharing protocols will also facilitate interoperability and data sharing at the level of the multiscale, multistakeholder platforms supported under Activity 1.1.2.
Deliverables	• KG: 1 set of draft legal documents and procedures for improved data sharing, land use planning using climate information and the use of innovative digital tools • TJ: 1 set of draft legal documents and procedures for improved data sharing, land use planning using climate information and the use of innovative digital tools • UZ: 1 set of draft legal documents and procedures for improved data sharing, land use planning using climate information and the use of innovative digital tools
Key institutions involved	EE: GIZ will hire national legal experts to develop legal documents and convene national workshops to discuss the draft and final products. Beneficiaries: planning officers in sectoral ministries and institutions in the AFOLU sectors.
Sub-activity 1.1.1.5: Fostering capacities on climate-informed planning within sectoral and sub-national institutions (EE: GIZ)	
Description	This sub-activity aims to strengthen the capacity of mid- and higher-level staff in sectoral ministries and other relevant institutions, such as the Ministry of Agriculture, forestry and pasture agencies, depending on the country. The aim is to enable them to efficiently utilise the data and information made available through national digital platforms for their routine work and longer-term planning needs. The sub-activity will support the development of methodologies and the training of national and sub-national staff, including those from devolved institutions.

	External participants will also be invited, notably from national training centres responsible for continuous capacity development of civil servants and from high education organizations to facilitate the uptake of the training materials by these institutions under Sub-activity 1.1.1.6. Training participants will be selected in close coordination with relevant entities in the AFOLU sectors and at sub-national level, based on how relevant their current position within the institution is to land, local or sector planning. Capacity development will be designed to support the practical application of acquired skills within ongoing climate-informed land use planning and programming processes, rather than stand-alone training events. Emphasis will be placed on linking training content directly to mandated planning tasks and tools used by central and sub-national institutions, to ensure immediate application and institutional uptake. Capacity building will focus on the following aspects: • Use of the climate modules of the land use platform for climate-informed planning (KG, TJ, UZ) • Application of these tools in the preparation and prioritization of local AFOLU adaptation plans. • Use the built-in AI modules within some of these platforms to develop informative, decision-aiding scenarios considering climate change (KG, TJ). • Use of the climate products developed under Activity 1.1.1 within specific planning systems, for example in the forest management planning systems in place in the three countries, or in specific management tools such as the database to identify afforestation, reforestation and forest restoration areas in the Kyrgyz Republic. • Foundational capacities on accessing, interpreting, and routinely using digital planning tools and climate information products within existing institutional workflows. These trainings will be implemented as far as possible in the premises of the respective land agencies/committees to strengthen their prominent role for capacity development in land use planning. The training modules will be institutionalized in these institutions. and in higher education organizations in the following sub-activity.
Deliverables	• KG: Capacitated mid- and higher-level staff in AFOLU-relevant national and devolved institutions on climate-informed planning • TJ: Capacitated mid- and higher-level staff in AFOLU-relevant national and devolved institutions on climate-informed planning • UZ: Capacitated mid- and higher-level staff in AFOLU-relevant national and devolved institutions on climate-informed planning
Key institutions involved	EE: GIZ will hire a service provider to develop training modules and carry out trainings on climate-informed planning based on the systems and data available in the countries, in close coordination with the land agencies/committees and institutions in the AFOLU sectors. Implementing partners: The Land Agency in KG, the State Committee for Land Management and Geodesy in TJ and the Ministry of Economy and Finance in UZ as trainers for other Sectoral ministries and institutions in the AFOLU sectors and sub-national administrations. Beneficiaries: High-level and mid-level staff in sectoral ministries, national and devolved institutions in the AFOLU sectors.
Sub-activity 1.1.1.6: Institutionalizing capacity building on climate-informed planning (EE: GIZ)	
Description	This sub-activity will focus on the institutionalization of the training material developed under Sub-activity 1.1.1.5. It will firstly support the institutionalization into national training centres responsible for continuous capacity development of civil servants. These training centres are either placed within specific institutions (e.g., training centre of the Ministry of Economy) or cover specific topical issues and will be already involved in the first round of training under the previous activity. Secondly, this sub-activity will engage with higher education institutions such as the Central Asia Green University (based in Uzbekistan) or of the Kyrgyz Economic University, to facilitate their integration into existing or new curricula.
Deliverables	• KG: Training materials institutionalized in 1 institution • TJ: Training materials institutionalized in 1 institution • UZ: Training materials institutionalized in 1 institution

Key institutions involved	EE: GIZ will engage with training institutions and facilitate the institutional process throughout. GIZ will hire national experts where relevant. Beneficiaries: Centres for continuous education of civil servants. Central Asia Green University, Kyrgyz Economic University, other universities to be identified during programme implementation.
Activity 1.1.2: Mainstream climate information into intersectoral coordination platforms and plans	
Description	This activity will work towards the establishment (or strengthening where they exist) of multisectoral and multiscale planning processes. It will develop coordination mechanisms for inter-ministerial (horizontal) and local-subnational-national (vertical) climate-informed land use planning. These mechanisms will include political platforms, and technical task forces, which will generate appropriate information for the former. The activity will build on the coordination mechanisms and related capacities for climate finance established within the readiness projects. However, this did not strengthen the coordination of the AFOLU sectors, which is required for the smooth implementation of Component 2. This activity will also support downscaling the regional pathways to the national level to inform policy and investment decisions. The experience of the Land and Water Resources Coordination Council in the Kyrgyz Republic will be used as a relevant example to replicate and adapt in Tajikistan and Uzbekistan. The activity will promote an active participation of the private sector in the technical task forces to ensure that its challenges and interests are adequately reflected in planning processes. This activity will consist of one sub-activity: • Sub-activity 1.1.2.1: Strengthening of multisectoral and multiscale coordination for evidence-based, climate-informed cross-sectoral decision making in the AFOLU sectors
Sub-activity 1.1.2.1: Strengthening of multisectoral and multiscale coordination for evidence-based, climate informed cross-sectoral decision making in the AFOLU sectors (EE: GIZ)	
Description	This sub-activity will adopt a country-specific approach with the ultimate goal of establishing – or strengthening where they already exist – functioning, permanent, multisectoral, multiscale platforms for evidence based, climate informed cross-sectoral decision making in the AFOLU sectors. A key approach that has proven efficient will be to establish within these platforms topic-related working groups with clear tasks, governance structures and reporting mechanisms. The digital land information systems, including the climate modules, that will be strengthened under Sub-activity 1.1.1.3 as well as the climate information products from Sub-activity 1.1.1.2, will be key sources of information for the platforms' data-driven operations. Data sharing protocols established under Sub-activity 1.1.2.2 will facilitate standard and regular exchange of information. These platforms are intended to function not only as coordination mechanisms, but as decision-support and validation bodies that guide prioritization, sequencing, and approval of climate-informed AFOLU planning and investment actions. Beyond AFOLU sectors coordination alone, the establishment of such platforms will also offer significant opportunities to align the efforts across climate, biodiversity, and land agendas which are respectively outlined in the countries' National Determined Contributions (NDCs), National Biodiversity Strategies and Action Plans (NBSAPs) and Land Degradation Neutrality (LDN) declarations. These platforms will finally serve as the entry point for downscaling the regional development pathways developed under Component 3 into the national contexts of all three countries. This will involve discussing specific actions to be undertaken by particular sectoral ministries and institutions to reflect development pathways in national policies and institutions, making them binding priorities and implementation decisions, rather than remaining at the level of strategic guidance. In the Kyrgyz Republic, the sub-activity will target the National Council for Water and Land Resources. It will strengthen the formal mandate of the Council to coordinate across government agencies in the AFOLU sectors. It will build the capacities of its technical secretariat and promote the establishment of thematic technical task forces to support the secretariat with specific topics, including climate change risks. It will strengthen the involvement of the financial sector and business unions. Options which will be pursued to enhance the Council's mandate include resolving cross-sector conflicts and overseeing integrated plans and reporting.

	Institutional roles will be clarified, and duplication across ministries and agencies will be eliminated through a package of legal and regulatory amendments prioritising integrated planning, procedures and conflict resolution mechanisms. In Tajikistan, the sub-activity will work on establishing a legally mandated, high-level Inter-Ministerial AFOLU Coordination Council to institutionalize joint and climate-informed planning, data-sharing, and policy alignment across institutions in the AFOLU sectors, and to clarify overlapping mandates. This Council will serve as the primary institutional interface between cross-sectoral planning, digital land information systems, and downstream implementation under Component 2, ensuring that climate-informed priorities are translated into coordinated actions and funded interventions. In Uzbekistan, the establishment of a National AFOLU Interagency Council under the Cabinet of Ministers will be initiated, with a legal mandate to align budgets, approve cross-sector indicators, resolve institutional conflicts, define clear roles for institutions in the AFOLU sectors and mainstream climate change risk across the sector. The up-coming National Land Planning Strategy will identify additional priorities which will be considered for support. In the three countries, the establishment (TJ, UZ) or strengthening (KG) of these multistakeholder platforms will be followed by intensive capacity development of their secretariats and by the development of all internal rules and procedures required to assure their proper functioning. This will include, among others, rules for advanced disclosure, inclusive engagement, including women and vulnerable groups.
Deliverables	• KG: National Council for Water and Land Resources with extended mandate • TJ: Set of statutory documents for a multisectoral and multiscale platform drafted • UZ: Set of statutory documents for a multisectoral and multiscale platform drafted
Key institutions involved	EE: GIZ will hire national legal experts to create or strengthen the statutory documents of the respective platforms. International and national consultants will be hired to build the capacities of the platforms' secretariats on governance, communication and management through trainings and coaching, and on the creation of synergies between the climate, land and biodiversity conventions. Beneficiaries: Decision makers and planning officers in sectoral ministries and institutions in the AFOLU sectors.

7.1.2 Output 1.2 Public financing environment promoting climate-resilient and low-emission land uses strengthened

Output 1.2 will strengthen the public financing environment for climate-resilient and low-emission land uses by building on past and ongoing readiness programmes in the Kyrgyz Republic, Tajikistan and Uzbekistan and by focusing on AFOLU-relevant climate finance capacities. The output will support public institutions in identifying and advancing implementable investment concepts in the AFOLU sectors, while also assessing the potential of carbon finance from compliance and voluntary markets. Activity 1.2.1 will support the consolidation of country climate investment platforms and strengthen the capacities of public institutions through methodological guidance, technical assistance and trainings on climate finance instruments and programme development approaches relevant to the AFOLU sectors. It will also enhance access to innovative climate finance by supporting options assessments, legal documents, guidelines and, in Tajikistan, a pipeline of AFOLU investment concepts linked to carbon finance and other mechanisms. In parallel, the activity will carry out Climate Public Expenditure and Institutional Reviews in the Kyrgyz Republic and Tajikistan and an AFOLU-specific public expenditure review in Uzbekistan to identify subsidies harmful to climate adaptation and mitigation in the AFOLU sectors. Building on these analyses, the programme will provide technical assistance, expert inputs and policy dialogue support to repurpose harmful subsidies into public support for scaling up CRLE practices and restoring degraded ecosystems in the AFOLU sectors.

Baseline	Across the countries in the region there is limited public funding for the implementation of countries' mitigation and adaptation measures and a significant funding gap to finance climate action. The Kyrgyz Republic estimates the funding needed to implement its third NDC at USD 23 billion, of which there is a gap of USD 9.3 billion (Kyrgyz Republic, 2025a). Tajikistan's NDC outlines that at least 7% of GDP is required for financing climate change activities from 2020-2030, highlighting that this would translate into at least USD 1 billion per year by 2030 in climate finance (with circa 50% related to land use: agriculture, irrigation, and biodiversity-related) (Republic of Tajikistan, 2021). In its recent NDC 3.0, Uzbekistan estimates the investment gap at USD 9.5 billion until 2030 (USD17.4 billion until 2035) for climate change mitigation while the

climate adaptation funding deficit reaches USD 7.2 billion until 2030 (Republic of Uzbekistan, 2025).

The countries recognise the importance of multilateral climate funds in addressing these investment gaps, as well as the potential of domestic and international public and private investments, including through carbon markets, which remain largely untapped in all three countries. While all three countries have benefited from international climate finance readiness programmes over recent years, these efforts have largely focused on general institutional readiness and access modalities. Sector-specific readiness, particularly for agriculture, forestry, land use, and livestock systems remains limited. As a result, AFOLU-relevant ministries and agencies often lack the technical, procedural, and institutional capacity to translate climate finance opportunities into implementable, sector-anchored investment pipelines.

There is a lack of uniformity in the interpretation of concepts related to green practices, and many countries do not have clear definitions. Additionally, there is a misalignment between sustainable growth priorities and investment policies. The three countries are in the early stages of aligning economic priorities with the principles of green growth, climate resilience and low-carbon development. Furthermore, the necessary legal frameworks for regulating green and climate finance are lacking, and public environmental policy is ineffective. The high risks associated with green projects stem from insufficient environmental risk analysis.

Recent analytical work in the region has demonstrated that aligning climate mitigation, adaptation, biodiversity, and land degradation objectives within a single investment framework can significantly increase efficiency and impact compared to parallel sectoral interventions. In the AFOLU sectors, such integrated approaches are particularly relevant, as the same investments (e.g. pasture restoration, agroforestry, soil rehabilitation) can deliver multiple climate and environmental benefits while improving rural livelihoods.

The Kyrgyz Republic has initiated work to tap into additional potential sources of finance through market-based mechanisms. Its carbon market is still in its infancy, but there is growing institutional momentum around climate finance and Article 6 readiness. National rules for a carbon market, including legal procedures and a temporary regulation aligned with Article 6.2 are drafted but not endorsed yet. Institutional capacity and inter-agency coordination is lacking. Technical expertise for carbon project development, validation and verification, and transaction structuring, alongside weak national systems for data collection and management (GHG inventories, land-use data, baselines) are other challenges which need to be addressed before a complete roll-out of the carbon related legislation. Financial barriers (high upfront and transaction costs) and limited private investment appetite are compounded by an enabling environment that still lacks mature carbon market infrastructure and clear rules on carbon rights and benefit sharing. These priorities are outlined in the country's Climate Investment Plan.

Tajikistan has multiple ongoing international climate projects (over USD 211 million referenced), spanning major climate funds and MDBs. Lately, the country has positioned carbon finance as an explicit national instrument for the green transition. Key barriers mirror typical Article 6 readiness constraints: the need for a comprehensive regulatory framework (authorization, accounting, MRV), strong institutional capacity and coordination, and reliable data systems for emissions, land use, baselines, and monitoring. Technical capacity is a major constraint with limited expertise in project development, methodology selection, validation and verification. Financing barriers include limited public funds, high upfront and transaction costs, limited private investment, and constrained access to affordable finance (high interest rates). Additional barriers include stakeholder engagement capacity (community inclusion and benefit sharing), transparency and accountability systems, and potential constraints to accessing international carbon markets due to regulatory or logistical issues. At the same time, Tajikistan's concentrated AFOLU emissions profile, extensive pasture systems, and dominance of smallholder agriculture create strong potential for bundled mitigation–adaptation investments, provided that sector-specific finance readiness and aggregation mechanisms are strengthened

Uzbekistan is moving toward operational carbon market mechanisms: a presidential decree outlines organizational measures for carbon credit trading, including a register of carbon units and oversight by the Center for Green Economy Projects under the Ministry of Economy and Finance. A national emissions trading system is planned in pilot mode from the beginning of 2026 onwards. Uzbekistan has also accessed results-based carbon finance, including a World Bank-supported transaction paying USD 7.5 million for verified emission reductions. Key barriers for using carbon markets to drive AFOLU transformation include incomplete or evolving regulatory frameworks for Article 6 participation (including robust MRV, authorization, and accounting rules), limited institutional coordination across agriculture, forestry, energy, and

climate authorities, and data management constraints (reliable activity and emissions data in AFOLU). In AFOLU sectors specifically, fast growth in livestock emissions and the dominance of smallholders *dehkan* farms make monitoring and aggregation difficult and raise transaction costs.

The three countries have national subsidy programs for agriculture and livestock, offering soft loans and import tax exemptions for agricultural inputs and machinery, among other incentives. Currently, there are few tools in place to systematically assess the positive and negative impacts of these subsidy programs and other public funding on climate adaptation and mitigation in the AFOLU sectors. A public expenditure review carried out by the World Bank in Uzbekistan in 2019 only outlines agricultural sector expenditure without characterizing its impact on climate. The only relevant regional experience lies with the UNDP's identification of several harmful agricultural subsidies in the Kyrgyz Republic that could be repurposed to finance biodiversity protection, but this document dates from 2019. Carrying out such analyses at scale will help to identify the funding lines or subsidies that are most harmful to the climate and initiate a process to repurpose them for the adaptation and mitigation of the sector. This is in line with Target 18 of the Kunming-Montreal Global Biodiversity Framework and can contribute to filling the investment gap outlined in the countries' NDCs.

Activity 1.2.1: Support a conducive public financing environment promoting climate-resilient and low-emission land uses

Description

This activity will build on the outcomes of past and ongoing readiness programmes in the three countries to further improve the human and institutional capacities of the NDAs and of key line ministries on climate finance and for assessing the potential of carbon finance, both from compliance and voluntary markets, as a means to support the transition to a low-carbon AFOLU sectors. While previous readiness efforts have strengthened general national climate finance frameworks, significant gaps remain in translating these capacities into sector-specific pipelines, particularly in agriculture, forestry, land use, and livestock systems. This activity therefore focuses on strengthening AFOLU-relevant climate finance capacities, enabling sector institutions to originate, aggregate, and advance implementable investment concepts

In the Kyrgyz Republic, the updated NDC (NDC 3.0) outlines that the country aims to pursue its unconditional, economy-wide emissions reduction target below the BAU through measures supported by domestic financing and may then voluntarily participate in Article 6 of the Paris Agreement. Participation in market-based mechanisms and cooperative approaches will be contingent on greater clarity regarding the functioning of Article 6 instruments and their potential application in the country. Therefore, there are no clear institutional responsibilities for Article 6 as these are still to be defined. The Ministry of Natural Resources, Ecology and Technical Supervision is identified as the authority to provide authorisation, and UNFCCC information indicates designated focal points for Article 6.4. However, arrangements for Article 6.2 authorisation and tracking are currently under consideration, and reporting arrangements are not yet in place.

In the Kyrgyz Republic, this activity will be implemented in close coordination with the Climate Finance Centre (CFC) under the Cabinet of Ministers which has been mandated as the main vehicle for support the country's access to climate finance.

In Tajikistan, strengthening access to climate and carbon finance is essential for transforming the country's AFOLU sectors. Agriculture accounts for nearly half of the country's greenhouse gas emissions, yet the sector remains underfunded and underprepared to engage with emerging carbon finance opportunities. For Tajikistan, strengthening climate finance capacities in the AFOLU sectors is equally about enabling bankable rural investment pipelines—combining mitigation, adaptation, and livelihood benefits—rather than carbon transactions alone.

The voluntary carbon market (VCM) already has precedents in Tajikistan, such as the GIZ-supported Gold Standard afforestation pilot in Gorno-Badakhshan. These experiences demonstrate feasibility but also highlight the need for stronger institutional capacity, credible carbon methodologies, and reliable data systems. To benefit from the opportunities opened by Article 6, in the near term, capacity development should prioritize voluntary and programmatic approaches suited to the AFOLU sectors, while progressively preparing institutions and data systems for future participation in regulated mechanisms.

In Tajikistan, the activity will closely work with the Committee for Environmental Protection which acts as a node for all domestic and international climate finance processes. The Ministry of

Finance will also be involved, as it leads work on financial structuring and international negotiations.

With regard to carbon markets, Uzbekistan has introduced a decree that sets out initial rules for participation in international carbon markets under Article 6 of the Paris Agreement, including the use of Internationally Transferred Mitigation Outcomes (ITMOs). Eligibility for carbon credits is limited to mitigation activities that are included in the national GHG inventory and aligned with the country's NDC, with prioritisation of mitigation measures linked to conditional NDC commitments that depend on international support. The decree also defines a credit allocation approach whereby 20% of ITMOs issued from each project are retained to help ensure national climate commitments are met and to reduce the risk of overselling, while up to 80% may be exported through public–private partnerships or government-involved projects subject to state approval.

Institutional governance and oversight arrangements are assigned across government, with the Prime Minister responsible for overall coordination, and the Cabinet of Ministers tasked with defining tradable volumes and rules for revenue distribution. The Interagency Council for Green Economy Transition is mandated to monitor compliance with Article 6 requirements and to set annual limits for credit exports. The Ministry of Economy and Finance acts as the Designated National Authority, responsible for authorising participation, approving procedures and documentation standards, granting approvals for issuance and export, and managing sales of credits from state-approved projects. All transactions are to be administered through a National Carbon Registry under the Ministry of Economy and Finance, to be launched in 2026 in coordination with the National Committee on Ecology and Climate Change, and international partners.

The country requires significant infrastructure, capacity building, and sector-specific strategies in energy and industry to support these goals which includes training of specialists in MRV of emission reductions and strengthening institutional coordination and support by the interlinkages of sector-specific strategies and as well as development of a compliance carbon market, including a potential cap-and-trade system.

At the concept note stage, it was also considered that this activity would support the improvement of regulatory frameworks to better guide financial institutions in aligning their portfolios with climate goals. Meanwhile, green taxonomies have been endorsed in two of the three countries and are advancing in Tajikistan. The regulatory frameworks have been strengthened thus making programme support redundant on this. The actual operationalization of these green taxonomies at the level of financial institutions remains relevant, and has been identified as an important need, which is addressed in Output 1.3.

Instead, this activity will conduct an in-depth analysis of public expenditure at the national levels to identify AFOLU-sectors subsidies that hinder countries' climate adaptation and mitigation efforts. The analysis will identify ways to reduce or redirect these harmful subsidies into incentives that enable adaptation and mitigation, through better alignment with climate adaptation and sustainability criteria.

The activity will also identify and develop legal and financial options to increase the scale of existing public incentives that promote AFOLU-relevant climate-resilient and low-emission practices. It will provide continuous technical support to countries throughout the repurposing process.

Activity 1.2.1 will be implemented through four sub-activities:

- Sub-activity 1.2.1.1: Consolidate existing country climate investment platforms and strengthen the capacities of public institutions in climate finance
- Sub-activity 1.2.1.2: Enhancing access to innovative climate finance
- Sub-activity 1.2.1.3: Identification of subsidies that are harmful to climate adaptation and mitigation in the AFOLU sectors
- Sub-activity 1.2.1.4: Supporting repurposing of subsidies that are harmful to climate adaptation and mitigation in the AFOLU sectors

Sub-activity 1.2.1.1: Consolidate existing country climate investment platforms and strengthen the capacities of public institutions in climate finance (EE: GIZ)	
Description	Across all three countries, capacity development under this sub-activity will focus specifically on climate finance instruments and programme development approaches relevant to the AFOLU sectors, including agriculture, forestry, pasture management, and land restoration, rather than

	economy-wide climate finance mechanisms. In all countries, programme support will entail methodological guidance and technical assistance for module preparation, institutional development and the roll-out of trainings for the public (and private) sectors. Whenever possible, standard training packages will be developed for the three countries to improve efficiency. Training participants will be selected in close coordination with relevant public and private entities in the three countries, based on how relevant their current position within the institution is with respect to accessing climate finance in the AFOLU sectors. In the Kyrgyz Republic, this sub-activity will leverage on the rapid development of the CFC which has recently established a consulting department to support other government institutions in better understanding and accessing climate finance. As part of this process, a training centre has also been launched to serve the public sector, among others. Programme support will align with the second priority of the national climate investment plan, with focus on (1) strengthening the technical and institutional potential of state structures and SMEs on climate finance and (2) enhancing the potential of the newly created training center. On the former point, an example of concrete project support under this sub-activity will be to strengthen institutional capacities of the Forest Service for implementing the regulation for determining and distributing revenue generated from CO2 sequestration/emission trading projects within the state forest fund. In Tajikistan, training for institutions and personnel in the public sector will focus on the use of climate finance instruments and project development in line with international standards. In the public sector, a strong focus will be placed on strengthening the Green Finance Centre and the Climate Division within the Ministry of Finance which have expressed high interest in getting support. Support will prioritize the ability of these institutions to originate, assess, and package AFOLU-specific investment concepts, linking climate finance instruments with concrete sectoral measures such as pasture restoration, climate-smart agriculture, and forestry interventions. In Uzbekistan, the sub-activity will align with the NDC3.0 and focus on building national capacities through investment in targeted training for employees of government agencies and the private sector on the use of climate finance instruments, project development in accordance with international standards, carbon auditing, managing market risks and MRV systems and data management for climate risk and emissions monitoring. To ensure sustainability, core training modules and methodological materials developed under this sub-activity will be digitized in standardized formats (e.g. modular presentations, guidance notes, practical case studies, and step-by-step toolkits) and integrated into existing national training and knowledge platforms. These materials will be aligned with the mandates and workflows of relevant national institutions (e.g. climate finance units, sectoral ministries) and designed for repeated use in refresher and on-the-job training. This approach will enable continuous capacity development beyond the programme period without reliance on external trainers or ad hoc programme financing.
Deliverables	• KG: Public and private sector partners capacitated on accessing climate finance • TJ: Public sector partners capacitated on accessing climate finance • UZ: Public sector partners capacitated on accessing climate finance
Key institutions involved	EE: GIZ. The EE will hire national and international consultants to develop the training material and run the trainings. Beneficiaries: Sectoral ministries and state institutions: direct recipient of capacity development. Contribute to identifying and communicating their specific needs.
Sub-activity 1.2.1.2: Enhancing access to innovative climate finance (EE: GIZ)	
Description	Across all three countries, this sub-activity will focus on enhancing access to climate finance instruments that are directly applicable to AFOLU sectors investments, including agriculture, forestry, pasture management, and land restoration, with carbon finance serving as a key though not the only entry point. In the Kyrgyz Republic, this sub-activity will support the implementation of national carbon market rules, which the CFC considers to be a key strategic means of funding NDC-related actions. The following areas of expertise were identified during the feasibility study as key entry points: developing carbon projects; establishing and rolling out validation and verification mechanisms; and improving data collection and management systems. With regard to forest and pasture carbon specifically, this sub-activity will also provide technical assistance to address gaps in the operationalization of the current regulations for establishing, determining and distributing revenue generated from GHG sequestration in forest and pasture lands.

	In Tajikistan, this sub-activity will initially support the government with a gap assessment for engaging in carbon markets under Article 6 of the Paris Agreement, as well as identifying pathways for engagement in the voluntary carbon market. Following this assessment, technical assistance will be provided for developing carbon market regulations, including rules, a registry, MRV, institutional roles and stakeholder engagement, to enable participation in the VCM in the near term and in Article 6 cooperative approaches. The Committee for Environmental Protection, and the Green Finance Centre and the Climate Division within the Ministry of Finance will be closely associated throughout the process. In parallel, the sub-activity will support the identification and structuring of priority AFOLU investment concepts (e.g. pasture rehabilitation, agroforestry, climate-smart agriculture) that could be aggregated and financed through these mechanisms Uzbekistan's planned national carbon trading architecture provides strong opportunities to link carbon finance to scalable AFOLU levers, including pasture restoration, where adaptation and mitigation can be combined. Needs identified during the feasibility study include strengthening MRV and enhancing transparency. Additional needs might be identified after the launch of the national carbon trading system in 2026.
Deliverables	• KG: ○ 1 options assessment for accessing carbon finance for the AFOLU sectors ○ 1 set of draft legal documents and guidelines to enhance access to innovative climate finance • TJ: ○ 1 options assessment for accessing carbon finance for the AFOLU sectors ○ 1 set of draft legal documents and guidelines to enhance access to innovative climate finance ○ Pipeline of AFOLU investment concepts • UZ: ○ 1 options assessment for accessing carbon finance for the AFOLU sectors ○ 1 set of draft legal documents and guidelines to enhance access to innovative climate finance
Key institutions involved	EE: GIZ. The EE will hire national and international consultants to prepare the necessary legal documents and guidelines, and the pipeline of investment concepts.
Sub-activity 1.2.1.3: Identification of subsidies that are harmful to climate adaptation and mitigation in the AFOLU sectors (EE: GIZ)	
Description	This activity will focus on carrying out Climate Public Expenditure and Institutional Reviews (CPEIR) in Tajikistan and the Kyrgyz Republic, with a focus on the AFOLU sectors. In Uzbekistan, it will develop a detailed public expenditure review (PER) of the AFOLU sectors (a CPEIR was already carried out with support from UNDP in the country). These analyses will establish current levels and trends of climate-relevant spending and show how well national climate goals are linked to budget allocations in the AFOLU sectors, highlighting alignment or misalignment. CPEIRs and detailed PERs will specifically identify where spending for adaptation and mitigation in the sector falls short, and where financing gaps can be filled through repurposing of subsidies that are harmful for the climate or driving land and biodiversity degradation. The analysis will focus on existing public funds dedicated to the AFOLU sectors. Examples of such funds include the Agricultural Fund in the Kyrgyz Republic and the Fund for the Support of Farmers, d*ehkan* Farms and Landowners in Uzbekistan. Funds that are available for subnational development will also be screened, such as the Regional Development Funds in the Kyrgyz Republic which provides subsidies to SMEs, agriculture development activities and water supply, among others.
Deliverables	• KG: CPEIR completed • TJ: CPEIR completed • UZ: PER in the AFOLU sectors completed
Key institutions involved	EE: GIZ will hire service providers to carry out CPEIRs and PER

	Beneficiaries: Sectoral ministries, national and sub-national institutions in the AFOLU sectors. These will also contribute to providing data and clarifications on public expenditures in their respective sub-sectors.
Sub-activity 1.2.1.4: Supporting repurposing of subsidies that are harmful to climate adaptation and mitigation in the AFOLU sectors (EE: GIZ)	
Description	Building on the findings of Sub-activity 1.2.1.3, this sub-activity will support the Kyrgyz Republic, Tajikistan and Uzbekistan in reducing or eliminating public subsidies and funding identified as having adverse impacts on their efforts to achieve the adaptation and mitigation objectives stated in the NDCs. Technical assistance will be provided to support policy dialogue, as well as the necessary expert analyses and contributions to drive the process of repurposing those harmful subsidies into public support for scaling up climate-resilient and low-emission practices and restoring degraded ecosystems in the AFOLU sectors, including by promoting the reallocation of some of these resources to programme-related financial mechanisms (e.g., scaling up the No-Till Adoption Accelerators).
Deliverables	• KG: Harmful subsidies identified and repurposing initiated to scale up climate-resilient and low-emission practices and restoring degraded ecosystems in AFOLU sectors • TJ: Harmful subsidies identified and repurposing initiated to scale up climate-resilient and low-emission practices and restoring degraded ecosystems in AFOLU sectors • UZ: Harmful subsidies identified and repurposing initiated to scale up climate-resilient and low-emission practices and restoring degraded ecosystems in AFOLU sectors
Key institutions involved	EE: GIZ will hire international and national consultants to provide expertise on suitable repurposing options and support policy dialogue. Beneficiaries: Sectoral ministries and institutions in the AFOLU sectors. Contribution to and participation in the repurposing process through technical inputs and political decisions. The Ministries of Economy and Finance as supervising and steering bodies throughout the overall repurposing process.

7.1.3 Output 1.3 Catalysing private sector finance for CRLE land use systems

Output 1.3 will address the barriers for accessing finance from the supply side, building on the experiences generated by the GIZ Green Economy project on supporting sustainable finance at the system and industry levels in the Kyrgyz Republic, as well as by the Global Green Growth Institute (GGGI) in Uzbekistan supporting the establishment of dedicated financing vehicles for climate-resilient and low-emissions agriculture. Given that the pastures and forests are managed at collective level by associations or by local state institutions, the main focus of the outcome will be on the agriculture sector, nevertheless potential financing approaches for forests and pastureland will be also explored. Activity 1.3.1 will support local financial institutions to better identify and manage climate risks in the agriculture sector and to better understand the financial profiles of CRLE production practices. Activity 1.3.2 will focus on providing technical support for establishing climate-resilient agriculture financing facilities in the Kyrgyz Republic and Tajikistan and expanding the geographical coverage of the existing facility in Uzbekistan beyond Karakalpakstan, that can leverage additional sources of finance and provide financial products and services attuned to the needs of climate-resilient and low-emission practices in the supply chains supported under component 2. These measures are conceived as a critical part of the programme's exit strategy as they are intended to strengthen the longer-term institutional readiness of participating financial institutions to appraise and finance CRLE-related investments beyond the programme period.

Baseline	The countries in the region have started to make significant strides in their sustainable and green finance agendas. In the **Kyrgyz Republic**, the sustainable and green finance agenda has progressed through the establishment of policy and regulatory frameworks. The Green Taxonomy of the Kyrgyz Republic, approved by the Cabinet of Ministers in 2025, provides a national framework for the identification and classification of sustainable economic activities and associated investments. It outlines eligibility criteria, definitions and reporting requirements intended to support consistent assessment by public authorities, financial institutions, and private sector actors. The taxonomy covers key sectors including energy, transport, water management, waste, and agriculture, and is designed to contribute to mobilising investments into green projects and align national approaches with international sustainable finance standards. The taxonomy aims to support access to green finance and encouraging low-carbon, resource-efficient, and climate-resilient practices, including within the AFOLU sectors. The enabling environment for the finance sector is also evolving, with measures to strengthen environmental and social risk management and the integration of ESG considerations within

financial institutions. The National Bank of the Kyrgyz Republic launched the Green Finance Development Programme in 2020 and, in October 2023, issued ESG Guidelines for the banking sector, setting minimum expectations for the management of ESG risks and providing recommendations on integration into business planning, organisational arrangements, governance and risk management. A Roadmap for 2024 to 2026 further outlines actions to develop the sustainable finance ecosystem, including improvements to the regulatory framework, introduction of market instruments, and enhanced capacity for climate related risk assessment.

Despite this progress, technical level support for pipeline development and systematic application of climate risk management practices remains limited, including in relation to AFOLU-related risks and the operationalisation of relevant E&S risk management systems across domestic financial institutions.

In **Tajikistan**, the efforts to transition towards a green economy are being complemented by initial steps to strengthen the enabling environment for a sustainable and green financial system. The Green Economy Development Strategy 2023 to 2037 sets out national priorities that are expected to require significant mobilisation of public and private capital, including for eco-friendly agriculture and other climate relevant investments. While the strategy is economy wide, it provides an overarching framework that Incentivises financial institutions to increase lending for climate adaptation and mitigation, and thus to better screen for environmental and climate risks.
At the financial sector level, the National Bank of Tajikistan has begun establishing the foundational institutional and technical building blocks for sustainable finance. This includes the creation of a Green Finance Unit, with a mandate that provides for the development of a green finance taxonomy, and the issuance of guidance on sustainable banking, encouraging financial institutions to consider environmental and social risks within lending decisions. Despite these developments, the market framework for green financial products remains at an early stage, and further operational guidance and capacity are needed to scale green lending and associated risk management practices.

Several stakeholders are actively supporting the development of sustainable finance in Tajikistan. The primary actor is the International Finance Corporation (IFC), through its *ESG Advisory Program in Central Asia*, funded by the Swiss government. Under this program, IFC has been supporting the Ministry of Economic Development and Trade of the Republic of Tajikistan in developing national standards for environmental, social, and governance (ESG) practices. Another key stakeholder is the European Bank for Reconstruction and Development (EBRD), which is active through two complementary streams. The first is a financial facility: in September 2023, the EBRD launched *GEFF Tajikistan II (2023–2028)*, a USD 50 million credit line developed in partnership with the Green Climate Fund, the Austrian Federal Ministry of Finance, and the Republic of Korea. This facility provides climate finance to the private sector through local financial institutions and supports investment in high-performing climate technologies. The project is implemented by GOPA Consulting Group, with core staff from AFC Consultants, and contributes to building a green economy in Tajikistan by accelerating market penetration of climate technologies, with a particular focus on climate resilience and resource-efficient solutions for agriculture and rural areas.

The second EBRD-supported stream focuses on capacity building. In this context, the Frankfurt School of Finance and Management has delivered workshops and seminars on climate risk management and transition planning. These activities have included training for local bank staff as well as the development of a local pool of consultants capable of supporting ESG implementation within financial institutions.

Despite these initiatives, there remains a notable lack of knowledge and practical experience within local institutions, which must be addressed to facilitate the effective implementation of sustainable finance. There is strong demand for practical guidance on how sustainable finance principles can be applied to financial decision-making, particularly with regard to the integration of environmental, social, and governance factors into credit assessment, risk management, and portfolio strategies. As the regulatory authority, the National Bank of Tajikistan requires targeted technical assistance to further develop and operationalize a comprehensive sustainable finance framework.

In addition, a number of smaller-scale initiatives are taking place, including an introductory ESG course for local banks delivered by Sparkasse Stiftung and training on sustainable finance instruments, such as thematic bond issuance, conducted by a UN agency. Given that climate mitigation and adaptation are identified as top national priorities under the *Green Economy*

	Development Strategy 2023–2037, green finance is expected to become an increasingly important focus for policymakers and regulators, including the National Bank of Tajikistan. In **Uzbekistan**, the enabling environment for green finance has been strengthened in recent years, and there is increasing recognition that the financial sector will need to support the country's transition agenda while managing the risks arising from climate change, including in the AFOLU sectors. In April 2022, the Central Bank of Uzbekistan and the Ministry of Economy and Finance jointly developed and introduced Uzbekistan's first green finance taxonomy, and the Ministry of Economy and Finance has been appointed as the executive body responsible for the introduction and coordination of the taxonomy. The taxonomy provides a common classification framework to help banks and other market actors identify and label eligible green activities and financial products, including categories relevant to AFOLU, such as sustainable land use and forestry, and climate change adaptation and resilience. However, the associated regulatory framework to support implementation, including disclosure requirements and other supporting regulations, remains pending, which limits consistent application across institutions and reduces comparability of reporting. At the financial sector level, the Central Bank has established a Green Finance Department, providing early entry points to strengthen climate risk management and ESG practices across banks and other financial institutions. Given the dominant role of banks in financial intermediation in Uzbekistan, banking sector practices will be particularly important for expanding climate relevant lending and for ensuring that climate related physical risks and transition risks are identified, managed, reported and disclosed. For AFOLU, this is especially relevant due to exposure of agricultural borrowers to water stress, heat extremes and productivity shocks, as well as wider land and ecosystem risks. In practice, many existing green lending products for AFOLU are currently channelled through international green credit lines implemented via participating financial institutions, often accompanied by capacity building support to strengthen internal procedures and develop the local green lending market. In addition, Uzbekistan has begun to use capital market instruments, including a developing green bond market and thematic bond issuances, alongside preferential credit lines, grants and subsidies that can support climate smart agriculture and sustainable land use investments. While these instruments indicate growing activity, the systematic integration of AFOLU-related climate risk considerations into domestic financial institutions' environmental and social risk management systems and product design remains uneven, and further capacity and operational guidance are required.
Activity 1.3.1: Support domestic financial institutions to better manage climate risks in the agriculture sector	
Description	This activity will reinforce and advance ongoing efforts in the region to green the financial sector by providing technical assistance to local financial institutions to help them better identify and manage climate risks in the land use sector as part of their overall environmental and social risk management framework. It will include support to financial institutions to better understand the financial profiles of sustainable and climate-resilient agricultural production and animal husbandry models. The activity will support local financial institutions in the three countries to develop the capacities needed to comply with the environmental and social safeguards of the European Investment Bank that will channel finance under output 2.3. The activity will be implemented in coordination with EBRD and ADB, both of which support private banks in developing their green finance portfolios. During the development of the feasibility study, the programme development team identified ongoing capacity development activities for financial institutions, particularly in the Kyrgyz Republic. However, there remains a need for targeted support for financial institutions on enhanced E&S risk management, including climate risk management, and for better understanding and assessing CRLE practices. The activity is developed by two sub-activities: • Sub-activity 1.3.1.1 Development of training module for financial institutions • Sub-activity 1.3.1.2 Rollout of training programme for local financial institutions on enhanced climate risk management
Sub-activity 1.3.1.1: Development of training module for financial institutions (EE: GIZ)	
Description	Under sub activity 1.3.1.1 a targeted training package for domestic financial institutions in the Kyrgyz Republic, Tajikistan, and Uzbekistan will be developed. The training package will

	be focused on strengthening the screening, identification, assessment, monitoring, and management of environmental and social risks in lending and investment operations in the AFOLU sectors, with a specific focus on climate-related financial risks. The training will be designed to complement existing national initiatives on green finance and ESG integration, including the implementation of the green taxonomy. Given the highly dynamic environment of sustainable finance in the region, the training package will be developed based on an updated training needs assessment and consultations with selected local financial institutions, ADB, and EBRD, to identify key capacity gaps in each country to be carried out at the beginning of the programme. Topics will cover AFOLU-specific risk factors, climate risk screening and categorisation at the transaction level, incorporation of climate risks into credit appraisal, integration of environmental and social safeguards into internal policies and procedures, and monitoring and reporting requirements. The training programme will also include dedicated content on the financial and production profiles of climate-resilient agricultural, in order to strengthen participating institutions' ability to assess financial viability, repayment capacity, and resilience co-benefits. Materials will be tool-based and include guidance notes to facilitate integration of these topics into financial institutions' internal processes. This will include agriculture -specific risk screening. The training content will be aligned with the environmental and social safeguards and compliance requirements of international financial institutions. Training materials will be made available to the broader market to ensure that materials developed with GCF funding generate public goods. Banks under sanctions will not be eligible to receive training from the programme.
Deliverables	• KG: Training curriculum developed considering the country's specificities and digitized as video-modules • TJ: Training curriculum developed considering the country's specificities and digitized as video-modules • UZ: Training curriculum developed considering the country's specificities and digitized as video-modules
Key institutions involved	EE: GIZ. Implementing partner: GGGI will be responsible to develop the tailored training curricula for the three countries. Beneficiaries: risk managers and loan officers of selected financial institutions in the three countries.
Sub-activity 1.3.1.2: Rollout of training programme for local financial institutions on enhanced climate risk management (EE: GIZ)	
Description	Under sub-activity 1.3.1.2 the contracted service provide will roll out the targeted training programme developed under sub-activity 1.3.1.1 to selected domestic financial institutions in the Kyrgyz Republic, Tajikistan, and Uzbekistan. Preliminary financial institutions identified during the development of the feasibility study include: Eldik Bank, Ayil Bank, Kompanion Bank, and State Development Bank in the Kyrgyz Republic; Eskhata Bank, ICB, Amonat Bank, Bank Arvand, IMON International, and SBB, in Tajikistan; and SQB, Turon Bank, Asakabank, and Business Development in Uzbekistan. The rollout will focus on the roles that are critical for integrating climate and broader environmental and social risk management into lending and investment decisions in the AFOLU sectors. Particularly, risk managers, environmental and social specialists, members of credit committees, loan officers and portfolio managers. The objective is to provide training that is relevant for day-to-day operations, thus strengthening participating institutions' capacity to identify, assess, manage, monitor, and report climate-related risks within their overall E&S processes related to their AFOLU portfolio.
Deliverables	• KG: Staff of the selected banks capacitated on climate risk management • TJ: Staff of the selected banks capacitated on climate risk management • UZ: Staff of the selected banks capacitated on climate risk management
Key institutions involved	EE: GIZ. Implementing partner: GGGI will be responsible to rollout the tailored training curricula for the three countries. Beneficiaries: risk managers and loan officers of selected financial institutions in the three countries.

Activity 1.3.2: Establishing climate-smart agriculture financing facilities and supporting issuance of green bonds	
Description	This activity will strengthen selected financial institutions in the Kyrgyz Republic, Tajikistan and Uzbekistan to mobilise capital for climate-resilient and low-emission agriculture by (i) supporting the issuance of thematic/green bonds and (ii) establishing dedicated climate-smart agriculture (CSA) financing facilities in KG and TJ, and increasing the coverage of the existing facility in UZ, that originate and manage CSA/CRLE loan portfolios. The activity will be implemented through three interdependent sub-activities covering: • Competitive selection and confirmatory due diligence of partner institutions; transaction-oriented technical assistance for green/thematic bond issuance, including development of a credible bond framework, eligible pipeline screening, coordination of external review (including SPO where required), and post-issuance allocation/impact reporting. • Design and operationalisation of CSA financing facilities (products, eligibility criteria, governance, safeguards procedures, and MRV systems). • Support will follow a phased approach from issuer identification and readiness through issuance and post-issuance accountability, consistent with established good practice for thematic bond support. The activity addresses regional constraints that currently limit scaling of thematic/green instruments, including gaps in market infrastructure and verification capacity including that no domestic institution is currently authorised to issue Second-Party Opinions (SPOs) for sustainable bonds. • Sub-activity 1.3.2.1: Financial Institution Selection • Sub-activity 1.3.2.2: Climate Smart Agriculture Facility Design and Establishment • Sub-activity 1.3.2.3: Green Bond Transaction Support
Sub-activity 1.3.2.1: Financial Institution Selection (EE: GIZ)	
Description	This sub-activity will identify and onboard a small set of partner financial institutions (FIs) in Uzbekistan, Tajikistan and the Kyrgyz Republic to receive transaction-oriented support for (i) thematic/green bond issuance and (ii) establishment of climate-smart agriculture (CSA) financing facilities. The selection will be conducted through a transparent, competitive three-stage process designed to ensure that chosen FIs have the minimum institutional readiness to issue credible thematic instruments (aligned with recognised market practice, including the use of external review/SPO and post-issuance reporting) and to originate and manage CSA/CRLE loan portfolios. This is particularly important given known market gaps such as limited standardisation around thematic issuance requirements and verification capacity. Stage 1 – Market screening (desk-based assessment): The programme team will conduct a structured market scan in each country to map candidate FIs, their capital markets track record (where applicable), strategic interest in sustainable finance, and their baseline readiness in governance, reporting, and E&S risk management. The scan will consider evidence that thematic issuances are feasible in the region (e.g., recent sustainable/green bond issuances by commercial banks in the Kyrgyz Republic) while recognising that institutional readiness varies across markets. Stage 2 – Expression of Interest (EOI) and FI self-reporting (pre-screening questionnaire): Interested FIs will submit an EOI and complete a standard questionnaire covering: (i) governance and decision-making for thematic instruments, (ii) pipeline origination capacity and ability to tag eligible assets, (iii) E&S/ESMS and climate risk management capacity (including AFOLU exposure), (iv) data systems for allocation/impact reporting, and (v) willingness to dedicate staff and internal resources to complete the issuance and establish a CSA facility. Stage 3 – Confirmatory due diligence (validation and final selection): Shortlisted FIs will undergo confirmatory due diligence through management meetings and document review to validate self-reported information and assess feasibility of progressing through the full thematic bond issuance

	pathway (framework development, external review/SPO, issuance preparation, and post-issuance reporting) consistent with good practice.
Deliverables	• KG: 1 institution onboarded with documented readiness gaps and an agreed support plan for the sub-activities (bond transaction support and CSA facility establishment) • TJ: 1 institution onboarded with documented readiness gaps and an agreed support plan for the sub-activities (bond transaction support and CSA facility establishment) • UZ: 1 institution onboarded with documented readiness gaps and an agreed support plan for the sub-activities (bond transaction support and CSA facility establishment)
Key institutions involved	EE: GIZ. Implementing partner: GGGI will be responsible for FI selection process design; conduct of Stages 1-3; preparation of all selection documentation; and coordination with partner banks and regulators. Acts as independent assessor of selection criteria. Beneficiaries: Selected Financial Institutions that provide institutional information, respond to questionnaires, participate in management meetings, and supply documentation for due diligence review. Selected bank will become TA recipients and implementers in subsequent bond support and facility design sub-activities.
Sub-activity 1.3.2.2: Climate Smart Agriculture Facility Design and Establishment (EE: GIZ)	
Description	This sub-activity will replicate the experience of GGGI in Uzbekistan, where it has been supporting the establishment of a climate-smart agriculture financing facility focused on Karakalpakstan region. Experience from GGGI's earlier support to SQB in Uzbekistan demonstrated that the development of facility documentation alone is not sufficient to ensure operationalisation. While previous support focused primarily on the preparation of the business model and facility regulatory framework, implementation was constrained by a combination of factors, including limited internal capacity within the bank to operationalise and manage the facility, lower-than-expected readiness among potential borrowers to identify and apply for eligible green loans, reliance on external stakeholders for capitalisation, and changes in market conditions affecting the enabling environment for launch. These lessons underscore the importance of complementing facility design with practical implementation planning, stronger and more technical capacity building for partner financial institutions, and targeted measures to build awareness and pipeline readiness among intended beneficiaries. Under this sub-activity, selected partners will be supported not only to design CSA financing facilities, but also to put in place the operational, institutional, and pipeline-development arrangements needed for effective implementation. The CSA facility will be designed as an internal institutional capability (governance, procedures, product suite, and reporting), enabling the partner bank to (i) screen and tag eligible CSA/CRLE investments, (ii) integrate climate and environmental and social (E&S) considerations into credit processes, and (iii) produce portfolio-level reporting for internal management and external stakeholders (including potential thematic bond investors where relevant). This approach is aligned with good practice in sustainable finance instrument development, where credible pipelines and monitoring/reporting systems are needed to sustain repeat issuance and scalable green lending. Core design elements. • **Business model and portfolio strategy:** market assessment and segmentation (farmers, cooperatives, agri-MSMEs, suppliers/service providers); portfolio targets and product positioning; operational resourcing and internal roles. • **Product suite and eligibility:** definition of eligible CSA/CRLE investment categories aligned with national taxonomies where applicable (including CSA-relevant categories such as irrigation/water-related investments) and mapped to internal credit products (term loans/working capital/leasing where applicable) • **Credit process integration:** borrower intake and documentation requirements; climate/CSA rationale checks; incorporation of agricultural seasonality and climate risks into appraisal; standard templates for investment plans and cash-flow projections. • **E&S safeguards integration:** screening and risk categorisation procedures, exclusion list, monitoring requirements, and recordkeeping, consistent with expectations for credible CSA financing

	• **MRV and reporting system:** establishment of a minimum dataset and tagging approach to track use of funds and results and portfolio-level reporting templates • **Gender and inclusion integration:** facility-level approach to ensure access for women-led and youth-led borrowers.
Deliverables	• KG: 1 finance facility established • TJ: 1 finance facility established • UZ: 1 facility operationalised
Key institutions involved	EE: GIZ. Implementing partner: GGGI with overall responsibility for facility design process; leads market analysis, stakeholder consultation, and business model development; prepares regulatory framework and operational guidelines; MRV, and safeguards; monitors facility implementation. Beneficiaries: Selected Financial Institutions which commit organizational resources for facility establishment; leads operational implementation (staff recruitment, systems setup, borrower outreach, loan origination); adopts GGGI-prepared regulations and guidelines; implements MRV system; produces annual allocation and impact reports; integrates facility into broader bank business planning. Bank would install a Facility Management Committee across treasury, risk, credit, operations, ESG which is responsible for facility oversight, capital allocation, performance monitoring.

Sub-activity 1.3.2.3: Green Bond[12] Transaction Support (EE: GIZ)

Description

The sub-activity is designed to address to support selected financial institutions become credible, institutional-grade green/thematic bond issuers. The programme will not act as bookrunner or underwriter and focuses exclusively on "green/sustainable" aspects of issuance and institutional readiness.

Table 39: Phases for green-bond transaction support

Phase	Support
Phase 1 – Pre-issuance support	• Confirm issuer ambition, issuance route (public offer/private placement), high-level timeline, and internal governance. • Develop or update a Green/Thematic Bond Framework covering: (i) use of proceeds, (ii) process for project evaluation and selection, (iii) management of proceeds, and (iv) reporting. • Identify, screen, and document an eligible pipeline of assets/ and investments aligned with the framework (including basic climate rationale and safeguards screening as required). • Establish internal tagging and tracking arrangements for proceeds allocation • Obtaining SPO
Phase 2 – Issuance support:	• Support the issuer in coordinating with the commercial arranger/underwriter on disclosure language relevant to "green" credibility (use-of-proceeds, eligibility, governance, reporting commitments). • Coordinate the external review process (SPO), including preparing the documentation package and responding to reviewer queries. • Support issuer Q&A preparation for investor engagement focused on the thematic aspects and reporting. • Risk mitigation and credit enhancement.
Phase 3 – Post-issuance support:	• Establish systems and templates for allocation reporting (management of proceeds) and impact reporting (metrics, methodologies, assumptions, and limitations), and support preparation of the first reporting cycle. • Embed thematic bond processes into internal bank systems and policies (eligibility screening workflows, recordkeeping, E&S monitoring where applicable, reporting calendar), to enable repeat issuances and reduce future transaction costs.

Deliverables	At least 4, with expected disaggregation as follows: • KG: 2 green bond issued • TJ: 1 green bond issued • UZ: 1 green bond issued

[12] This may include other sustainability/climate labelled bonds

Key institutions involved	EE: GIZ Implementing partner: GGGI will be responsible for the design and delivery of all objectives of Pre-Issuance Support, Issuance Support in coordination with arrangers, manage post-issuance annual engagement and reporting. Beneficiaries: Selected Financial Institutions which will lead institutional policy development, committee establishment, investor engagement, and pipeline origination with GGGI guidance; responsible for all regulatory and board approvals; executes bond issuance with arrangers; produces annual allocation and impact reports.

7.2 Component 2 Promotion and adoption of climate-resilient and low-emission practices and technologies at local level

The Outputs under Component 2 are structured along a logical sequence of interventions involving climate-informed planning at the local level, context-specific prioritisation of climate-resilient and low-emission practices and technologies, targeted capacity building, and investments to enable adoption. These steps are described in Table 41 below.

Component 2 operates at the landscape level across three key land use categories within the AFOLU sectors: forests, pastures, and agricultural land. Management planning in these categories is implemented separately to align with the legal framework and institutional realities of the three countries. An overarching adaptation plan at the municipal level addresses cross-sectoral issues. The integration of this plan into higher-ranking planning tools (e.g., district-level plans) ensures the coordination and institutionalization of programme interventions and processes within the broader landscape. Component 2 activities are implemented in each of the three countries in transboundary landscapes. Support for jointly designed activities between two or more countries in transboundary landscapes is implemented under Component 3 through the regional climate investment platform.

The interventions under Component 2 are key to the large-scale adoption of climate-resilient and low-emission land use practices and technologies. The technical assistance and investment grants prepare the groundwork and reduce the risk of the public and private sector investments made available under Output 2.3, particularly through EIB co-financing. The table below shows the list of selected value chains that will be supported under Component 2 at both production and processing levels. The left column refers to the land use systems used for the development of climate impact chains as part of the climate risk assessment. The selection criteria for these value chains were (1) importance to sustaining the livelihoods of smallholders in the target regions, (2) technical and financial potential for transitioning towards climate-resilient and low-emission practices and technologies, (3) alignment with national priorities, (4) results from national and sub-national multistakeholder consultations, and (5) potential for scaling up successful pilot initiatives from past or ongoing projects and other initiatives.

Table 40: Land use systems and value chains supported under Component 2

Land use systems (used for impact chains)	Value chains	Key measures supported by the programme and impacts
Rainfed agriculture	Wheat	• No-till seeding: better water infiltration and retention • Cover crops: erosion control, improved soil fertility with use of legumes, enhanced soil organic matter • Crop rotation using drought resistant oilseed crops and legumes: enhanced soil fertility, sustainable income • Improved plant nutrition and pest management: enhanced productivity, reduced GHG emissions
Irrigated agriculture	Fruits	• Use of drought/heat/flood/frost resilient root stocks and fruit cultivars: enhanced resilience against climate-induced challenges • Improved orchard management technologies (soil cover, improved pruning practices etc.): better resilience to late frost, reduced disease • Use of drip irrigation: improved water efficiency • Use of insect-proof nets/shade nets: enhanced resilience to extreme heat and prevention of sunburns, reduced impact from pest
	Horticulture	• Use of climate resilient seeds and seedlings: enhanced resilience to heat, drought, frost and disease • Use of drip irrigation: improved water efficiency • Improved plant nutrition and pest management: enhanced productivity, reduced GHG emissions • Use of insect-proof nets/shade nets: enhanced resilience to extreme heat and prevention of sunburns, reduced pests

Land use systems (used for impact chains)	Value chains	Key measures supported by the programme and impacts
	Seed potato	• Upgrading local seed multiplication: better suitability of the resulting seeds to the local climate • Use of sprinkler irrigation: improved water efficiency • Improved plant nutrition and pest management: enhanced productivity, reduced GHG emissions
Forest	Non-timber forest products	• Sustainable collection practices: increased productivity of trees and bushes • Improved drying, processing and storage technologies: reduced harvest loss under high moisture conditions, improved marketability

Table 41: Overview of implementation steps at the local level under Component 2

#	Step 1	Step 3	Step 4	Step 5		Step 6
Output	**Output 2.1**			**Output 2.2**		**Output 2.3**
Activities	**Activity 2.1.1**	**Activity 2.1.2**		**Activity 2.2.1**	**Activity 2.2.2**	**Activity 2.3.1**
	Selection of intervention municipalities	**Local diagnostic**	**Development of local participatory AFOLU adaptation plans**	**Scale land restoration practices in degraded forests in transboundary landscapes**	**Scale land restoration practices in degraded rangelands in transboundary landscapes**	**Scale the adoption of locally relevant CRLE land use practices and technologies in agriculture in transboundary landscapes**
Detailed interventions	• Identification and selection of the implementation municipalities within the target districts, based on unified criteria and with involvement of District-level stakeholders. • Based on existing area-based climate risk assessments and assessments carried out during feasibility, or, where needed, on rapid participatory district diagnostic	• In 180 municipalities (60 per country) • Follows established methodologies for local diagnostic of main climate risks, key hazards at local level and opportunities to address them at district/local level, leveraging on PICSA methodological approach.	• Local participatory climate-informed adaptation plans across the AFOLU sectors (forest, pasture, agriculture). • Alignment with and integration within municipal/district socio-economic development plans (KG), district socio-economic development plans (TJ) and district master plans (UZ) • Endorsed by municipal/district (KG) and district authorities (KG, TJ, UZ).	• Participatory forest resources management and investment plans in 25 state forest enterprises (KG 11, TJ 6, UZ 8) • Investments in forest restoration • Technical assistance in forest restoration and climate-resilient management	• Climate-informed pasture management plans and investment plans • Investments in forest restoration • Technical assistance in pasture restoration and climate-resilient management	• Farm-level adaptation plans, including investment plans (PICSA-enabled) • Investments in the adoption of CRLE practices and technologies • Technical assistance for large scale adoption of CRLE practices and technologies in agriculture
Roles and responsibilities	**Advisory support**: local technical advisory partner for stakeholder mobilization, background/new climate change risk assessment, ESS **Participation:** district authorities, relevant AFOLU stakeholders in the districts **Decision making:** final decision with district authorities. Validation by national EEs	**Advisory support**: local technical advisory partner for stakeholder mobilization and implementation of workshops **Participation:** municipal authorities, local SFE, pasture users, farmers	**Advisory support**: local technical advisory partner for implementation of planning workshops and compilation of the adaptation plan, ESS **Participation:** municipal authorities, local SFE, pasture users, farmers **Decision making:** plan endorsement municipal/district authorities	**Advisory support**: local technical advisory partner for implementation of planning workshops, compilation of the plan, technical support during implementation of investments, ESS **Decision making:** plan approval by the SFE. Validation of investment plan by national EEs **Supervision of investments:** SFE	**Advisory support**: local technical advisory partner for implementation of planning workshops, compilation of the plan, technical support during implementation of investments, ESS **Decision making:** plan approval by the municipal/district authorities. Validation of investment plan by national EEs **Supervision of investments:** municipal/district authorities	**Advisory support**: implementation of E-PICSA by extension services, compilation of farm plans, technical support during implementation of individual investments, ESS **Decision making:** farmers **Supervision of investments:** national EEs

#	Step 1	Step 3	Step 4	Step 5		Step 6
				Implementation of investments: SFE, forest users, contractors	**Implementation of investments:** municipal/district authorities, pasture users, contractors	**Implementation of investments:** farmers, contractors

7.2.1 Output 2.1 Climate-informed AFOLU planning processes and plans at subnational level are institutionalized

Output 2.1 will support the institutionalization of climate-informed AFOLU planning processes and plans at subnational level by providing technical assistance within existing district and municipal planning procedures, strengthening the use of climate risk diagnostics, spatial data and participatory prioritisation, and promoting formal linkages between climate-informed plans, local budgets and investment programming. Building on GIZ experience with the LAPA tool in the Kyrgyz Republic and Tajikistan, introducing these approaches in Uzbekistan, and linking with Component 1 on Hydromet data management, climate products and digital land information platforms, the output will focus on existing procedures and strategic planning processes while adding climate additionality. Activity 2.1.1 will support the screening, scoring, prioritisation and validation of target municipalities in the 39 pre-selected districts through a harmonised, transparent and participatory approach, including the establishment of district supervisory councils and consultations with district and regional stakeholders. Activity 2.1.2 will support subnational institutions in 180 municipalities to carry out local diagnostics of climate hazards and adaptation needs, develop participatory climate-informed AFOLU adaptation plans, integrate defined priorities into existing municipal and district socio-economic development plans and budgets, and approve the plans through harmonised procedures compliant with national systems, including validation of climate information, roles, financing mechanisms and inclusion considerations.

Baseline	Local AFOLU plans in the three countries generally lack climate information and risk maps, and where they are present, this is typically in donor-funded projects rather than standard practice. Under Output 2.1, the programme will address these gaps by providing technical assistance to institutionalize climate-informed AFOLU planning within existing district and municipal planning procedures, strengthen the use of climate risk diagnostics, spatial data, and participatory prioritisation, and promote formal linkages between climate-informed plans, local budgets, and investment programming. The processes and results of this output will be linked to the programme support for strengthening digital land information platforms under Component 1, which will be finalized only after local land use planning has taken place under Output 2.1. This will enable climate considerations to move from ad hoc programme outputs to standard practice at the subnational level. The output will focus on existing procedures and strategic planning processes, but with innovative approaches and climate additionality. In the **Kyrgyz Republic**, key institutions responsible for subnational AFOLU planning are local self-governments (LSG[13], or Ayil Aimak), district level representatives of the Ministry of Water Resources, Agriculture and Processing Industry, the State Agency for Land Resources, Cadastre, Geodesy, and Cartography (SALRCGC) under the Cabinet of Ministers of the Kyrgyz Republic, the Forest Service under the Ministry of Emergency Situations, the Ministry of Natural Resources, Ecology and Technical Supervision and the Ministry of Economy and Commerce. Sector responsibilities remain fragmented with local planning for agriculture, forestry, pastures, biodiversity/protected areas, and water driven by separate ministries and agencies. There is no coordination body at this level with the mandate to harmonize and bring the resulting sector-specific plans together. The development of socio-economic development plans (SEDP) is carried out at the district and LSG levels. Local actors use cadastral data, statistics, forest and pasture inventories, and field data, but formats are fragmented, updates are irregular, and access, especially in digital format, is limited. A centralized spatial platform is under development by the SALRCGC, but the human capacities at the LSG level are insufficient to use this platform and other existing resources in developing their SEDP. Community engagement in planning is weak, and procedures for setting local development priorities are unclear. A core problem is that local development plans are not based on up-to-date spatial data, nor do they include geospatial references

[13] The names LSG, jamoat, and sub-district entities are used interchangeably with municipality, which is used as a general term across all three countries.

or climate information. There is therefore a disconnect between the SEDP, the actual land resources, and the impact of climate on the AFOLU sectors.

While climate information is not yet mainstreamed into the local planning process, there are ongoing efforts to better reflect such information in local economic development and land use and management plans. These include the CSFOR project funded by GCF and managed by FAO, which is establishing informal institutions at the local level to advance participatory management of natural resources, and a World Bank initiative aiming at promoting the use of climate information in local institutions. Nevertheless, none of these initiatives aims at institutionalizing the use of climate information in subnational AFOLU planning across the country.

In **Tajikistan**, key institutions responsible for local land use planning are District authorities and jamoats (municipality level). District land management departments lead baseline assessments and coordination and consult with jamoats. Jamoat administrations handle community-level land allocation (agricultural land, residential development, basic infrastructure) in discussion with village councils and community organizations. Regional administrations develop long-term territorial strategies (10–15 years) using spatial analysis and conduct technical reviews, public hearings, and national alignment and endorsement. Districts translate strategies into allocations and programs, with consultation via public meetings, focus groups, and individual consultations. jamoats use participatory approaches (community meetings), though capacity and equipment shortages limit implementation and updates of the plans. Climate information is not systematically embedded in these existing planning processes. Climate risk management is reactive, with limited integration of hazard mapping, risk assessment, or land-use restrictions into plans. As a result, land-use decisions in Tajikistan frequently increase exposure of rural households to drought, floods, landslides, and pasture degradation, reinforcing cycles of vulnerability, out-migration, and environmental degradation rather than reducing climate risk. Cadastre data and remote sensing are underutilized due to resource and capacity constraints. In addition, jamoats and district administrations have no formal requirement to integrate climate risk screening into socio-economic development plans. In practice, this is compounded by the lack of cross-sectoral coordination and limited fiscal decentralisation, which constrains the ability of jamoats and districts to translate climate-informed plans into funded actions. This creates a structural gap between national climate strategies and local implementation, where climate considerations remain advisory rather than binding in land-use decision-making.

Project-led efforts to mainstream climate information into local-level planning in Tajikistan include the GCF and IFAD-funded project CASP+, which will see the development of 400 Climate Sensitive Community Action Plans in 21 districts in the Khatlon (16), Region of Republican Subordination (3), and Sughd (2) regions (none in the districts targeted by this programme). While these initiatives represent important progress, they remain project-bound and largely parallel to formal district planning and budgeting systems. Climate-sensitive community and forest plans are not yet systematically embedded in district socio-economic development plans, land allocation decisions, or public investment pipelines, limiting their scalability and sustainability beyond project lifetimes. In the forestry sector, RESILAND+, funded by the World Bank Group, includes the development of up to 8 participatory sustainable forest management plans that will comprise a 10-year period and 64 pasture management plans (no overlap at the local level with the proposed programme).

In **Uzbekistan**, the key institutions responsible for local land use planning are the regional and district authorities. They coordinate with mahalla (local community) leaders, and with the Ministry of Agriculture, the Forestry Agency, and the Cadastre Agency under the Urbanisation and Housing Committee, as far as the AFOLU sectors are concerned. These authorities prepare and approve District master plans.

Planning is increasingly supported by cadastral digitalization (electronic mapping, land/real-estate registration, drones, information systems, and data centre). Work is also advancing on a National Spatial Data Infrastructure intended to link national and local geospatial databases and improve sharing across institutions and local authorities. However, there is no routine, systematic use of climate information within local land use planning procedures.

Efforts are underway to expand climate services and improve access to and use of climate information for decision-making across sectors. Despite the existence of formal interaction mechanisms, strategic indicators devolved from the national to the local level are often set within sectoral priorities, leading to misalignment of goals. For instance, afforestation and land reclamation targets are implemented separately even though they both directly affect carbon balance and land degradation indicators.

District authorities exercise direct management of land resources in their territory and control over their intended use, in coordination with national AFOLU-relevant sector authorities, primarily the Ministry of Agriculture, the Ministry of Water Resources, and the Forest Agency.

Activity 2.1.1: Prioritization of municipalities based on district-level climate diagnostics

Description

Municipalities have been defined as LSG in the Kyrgyz Republic, jamoat in Tajikistan, and sub-district entities in Uzbekistan. In the latter case, the decision to use the sub-district level instead of the Mahalla level (lowest territorial governance level) was guided by the need to harmonize the size and number of selected municipal entities across countries.

Under this activity, the intervention municipalities within the 39 pre-selected districts will be (1) screened, (2) prioritised, and (3) selected through a harmonised, transparent, and participatory approach. The process will screen municipalities within the pre-selected districts based on the eligibility criteria described in Sub-activity 2.1.1.1 below. The short list of eligible municipalities will then be scored during a participatory process against the criteria set in Sub-activity 2.1.1.1. The prioritised municipalities will then undergo validation with key district and regional stakeholders to avoid any potential discrepancies with existing plans, land-use mandates, and budget realities, ensure meaningful engagement of local stakeholders and minimise risks related to land-use conflicts or implementation feasibility.

Table 42: Selected districts and number of municipalities

Country	Region	District	Municipal entities (total)	Tentative number of selected municipal entities
Kyrgyz Republic (LSG)	Batken region	Batken	9	5
		Kadamjai	14	8
		Leilek	10	6
	Jalalabad region	Aksy	12	3
		Ala-Buka	8	4
		Bazar-Korgon	9	5
		Nooken	7	4
		Chatkal	4	2
	Osh region	Aravan	8	4
		Kara-Suu	16	9
		Nookat	16	9
		Chon Alai	3	1
Total			**116**	**60**
Tajikistan (Jamoats)	Sughd region	Asht	9	6
		Bobojon Gafurov	11	8
		Devashtich	8	7
		Istaravshan city	10	7
		Isfara city	9	6

		Jabbor Rasulov	5	3
		Konybodom city	6	4
		Shakhriston	2	1
		Spitamen	6	4
	Khatlon region	Nosiri Khisrav	3	2
		Qubodiyon	8	7
		Sharituz	6	5
Total			**83**	**60**
Uzbekistan (sub-district entities)	Andijon region	Qo'rg'ontepa	5	2
		Marhamat	5	2
		Paxtaobod	4	2
	Fergana region	Beshariq	9	4
		Quva	11	5
		Farg‘ona	16	8
	Namangan region	Kososnsoy	7	3
		Pop	10	5
		Uychi	8	4
		Uchqo'rg'on	8	4
		Yangiqo'rg'on	11	5
	Surkhandarya region	Boysun	7	4
		Sariosiyo	9	5
		Termiz	5	3
		Uzun	7	4
Total			**122**	**60**

The activity will be implemented along with two sub-activities:

- Sub-activity 2.1.1.1: Screening and scoring of target municipalities
- Sub-activity 2.1.1.2: Validation of target municipalities

Sub-activity 2.1.1.1: Screening and scoring of target municipalities (EEs: ARIS, CIIP, NCECC)

Description

Sub-activity 2.1.1.1 will see the screening and prioritization of target municipalities within the pre-selected districts using existing available inputs, such as climate risk profiles, climate and land-use data, and studies, etc., including from the climate risk assessment carried out during the feasibility study. The table below summarises the process that will be carried out from screening through prioritization of target municipalities. It is important to note that the process will first be started in districts with a climate risk profile and will only be started later in districts lacking such a comprehensive assessment, as this will require additional efforts to collect data and information from various sources.

Table 43: Prioritisation and selection process

Phase	Description	Inputs
1. Screening	The programme will establish a district supervisory council, comprising AFOLU-relevant devolved institutions and key subnational stakeholders. This council will play a key role in the initial identification of target municipalities and will further provide cross-sectoral coordination at the district level. Screening of municipalities within the pre-selected districts against eligibility criteria, including (1) geographic eligibility, (2) relevance of the AFOLU sectors for the most vulnerable land users (smallholder farmers, forest and pasture users), (3) potential for implementation (including minimum administrative capacity and feasibility of implementation), (4) level of priority in existing plans, and (5) additionality of the GCF investment.	Administrative boundaries and lists of municipalities; baseline information on AFOLU livelihoods, and vulnerability; mapping of ongoing, and planned projects to assess additionality; review of relevant subnational plans, including SDPs, district plans, and district master plans, as applicable; available information on local institutional capacity, budget envelopes, and land-use mandates.
2. Scoring and prioritisation	Jointly with district authorities, land use organizations, and civil society organisations where relevant, score eligible municipalities (LSGs, Jamoats,	WFP district risk profiles (KG); ACT-ED area-based risk assessments (KG and TJ); available hydromet and

		and sub-district entities) against (1) climate hazards, exposure, and risks, (2) sensitivity of AFOLU sectors and ecosystems, (3) vulnerability (4) scaling potential (5) degree of remoteness and access constraints and (6) transborder connectivity/interdependency, and develop a ranked shortlist.	sector data; remote sensing proxies for land degradation and water stress; basic socio-economic indicators. IFAD CASP+ project information (TJ). qualitative inputs from district consultations to flag land-use conflicts, implementation risks, or data gaps not captured in existing datasets.
	3. Verification with preselected municipalities	Consultations will be carried out with the pre-selected municipalities to verify their interest in participating in the programme, and to inform them that they will have the option to withdraw from the programme at any time during its implementation.	-
Deliverables	• **KG:** o List of circa 60 prioritised LSGs. • **TJ:** o List of circa 60 prioritised target jamoats. • **UZ:** o List of circa 60 prioritised target sub-district entities.		
Key institutions involved	EEs**:** ARIS, CIIP, NCECC supported by the technical advisory partners contracted for the programme. Beneficiaries: District and municipal authorities, line agencies, and selected local stakeholders.		
Sub-activity 2.1.1.2: Validation of target municipalities (EEs: ARIS, CIIP, NCECC)			
Description	Sub-activity 2.1.1.2 will focus on validating the final list of municipalities prioritized under sub-activity 2.1.1.1, following the process outlined in the table below. *Table 44: Validation process of municipality selection* **Phase** / **Description** / **Inputs** **4. Validation and confirmation** — Validate the prioritised municipalities with the district supervisory council through a protocolled decision to avoid discrepancies with activities and plans. — Consultations with district and municipal authorities, line agencies, and local stakeholders.		
Deliverables	• **KG:** o Final validated list of circa 60 target LSGs • **TJ:** o Final validated list of circa 60 target jamoats • **UZ:** o Final validated list of circa 60 target sub-district entities		
Key institutions involved	**EEs:** ARIS, CIIP, NCECC supported by the technical advisory partners contracted for the programme. Beneficiaries: District and municipal authorities, regional or district-level representations of line agencies, and selected local stakeholders.		
Activity 2.1.2: Develop local AFOLU adaptation plans in selected landscapes			
Description	This activity will strengthen devolved decision-making, locally led and cross-sectoral climate adaptation by supporting subnational institutions to develop participatory climate-informed AFOLU adaptation plans at the municipal level. The developed plans will also consider, where relevant, actions required with neighbouring authorities, or authorities located across the border in the same landscape, and with which cooperation actions or coordination bears the potential to enhance the overall adaptation potential of the area. It will build on and enhance previous experiences of GIZ which have focused on the use of the LAPA tool in the Kyrgyz Republic and in Tajikistan. It will also be linked		

	with the programme interventions in Component 1 which will strengthen and improve Hydromet's data management and product development capabilities with regard to the use of the PICSA tool. Given the programme implementation timeline, the results of Activity 2.1.2 will inform the ongoing processes of Sub-Activity 1.1.1.1. Notably, they will provide bottom-up information, obtained through consultations carried out by Reading University at the local level, to assess climate product needs. The programme will support the rollout of these tools in other regions and introduce them in Uzbekistan. In Tajikistan, results from the GCF-funded CASP+ project in developing local climate-smart action plans will also be a key resource on which the programme will build, while addressing gaps related to institutional embedding, implementation, and linkage to district planning and budgeting processes. This activity will be aligned with recent government decisions and policy measures, for example, the 2025 decree on local socio-economic development plans in the Kyrgyz Republic. Through an iterative, participatory process that begins with a local diagnostic and is followed by the development of the AFOLU adaptation plan, this sub-activity will strengthen the capacities of municipal authorities and other key local stakeholders, thereby ensuring sustained, long-term capacity and impact. To ensure that the resulting adaptation plans are not project-driven and that the acquired local capacities are used beyond the programme's lifetime, the sub-activity will provide technical assistance to integrate the defined priorities into existing municipal (and/or district) socio-economic development plans and budgets. It will also support local actors in subsequent formal municipal planning cycles to ensure the continuity of climate information integration into AFOLU planning at this level. In Uzbekistan, district authorities play a key role in planning at the sub-district level and will be involved throughout the process. In the Kyrgyz Republic and Tajikistan, district authorities will be primarily involved at the outset and will subsequently be informed of developments on a regular basis. The AFOLU adaptation plans developed under this activity will serve as overarching documents that set cross-sectoral priorities for the land use–specific plans developed under Activities 2.2.1, 2.2.2 and 2.3.1 and coordinate adaptation efforts at the landscape level, including prioritisation of investments and measures that can be implemented within existing institutional and fiscal constraints. Under this activity, the programme will target 180 municipalities, 60 in each country. While municipal authorities will be the prominent partner for this activity, other land management institutions will play a key role during the discussions and decision-making process. These include local and district-level institutions for agricultural and pasture use planning, the state forest enterprises (SFE) for forest management planning, and local biodiversity units of the environmental government institutions. It is expected that the steps to develop the adaptation plans will span two to three one-day local workshops in each municipality. This activity will include three sub-activities: • Sub-activity 2.1.2.1: Local level diagnostic of climate hazards and adaptation needs • Sub-activity 2.1.2.2: Participatory AFOLU adaptation planning • Sub-activity 2.1.2.3 Approve climate-informed AFOLU adaptation plans at the local level
Sub-activity 2.1.2.1: Local level diagnostic of climate hazards and adaptation needs (EEs: ARIS, CIIP, NCECC)	
Description	Under this sub-activity, the technical delivery partner will carry out a local assessment and diagnosis of the main conventional and climate risks that will be used as a basis

for developing the climate-informed AFOLU adaptation plan and investment plans for pasture and forests. The assessment and diagnostic work will follow a participatory methodology developed by GIZ for developing local adaptation plans for action (LAPA) in Central Asia[14]. The PICSA diagnostic methodology will also contribute to the diagnostic through consultations carried out by the University of Reading, and links established with the work conducted under Sub-activity 1.1.1.1 on strengthening the development of climate products by Hydromets. Importantly, where local plans (e.g., LSG's socio-economic development plans) or higher-standing plans, such as district level, exist, they will be used as key inputs to the analysis. District authorities will be thoroughly involved/informed at all stage of the diagnostic. The following steps will be undertaken as part of the local-level diagnostic:

Table 45: Steps of local level diagnostic

Step	Note
1. Establishment of a cross-sectoral working group for participatory local-level land use planning	• Stakeholder Identification and Engagement: Identify and engage all relevant stakeholders, including government agencies, local authorities, civil society organizations, private sector representatives, and community members, including the most vulnerable (women, youth, others depending on the context). Ensuring diverse representation, and representation of those involved in other government planning processes, such as municipal/district socio-economic development planning, pasture and forest management planning, will facilitate comprehensive and inclusive planning. • Technical assistance to the working group will include capacity building; development of internal rules and procedures; participatory planning processes; cross-sectoral coordination; integration of sustainable practices, monitoring and evaluation frameworks, and collaboration with external experts.
2. Define the scope	• Define the geographical scope of the diagnostic and plan to be subsequently developed.
3. Describe the current status of the land use systems	• Document the current status/health of ecosystems that local populations rely on.
4. Identify conventional threats	• Define and identify current and likely non-climate threats to ecosystems.
5. Understand the vulnerability of land use systems and communities, and adaptation capacities to climate change	• Assess climate vulnerability and climate–threat interactions. • Assess adaptation capacities. • Use climate risk assessments to inform participatory design of different climate scenarios. • Inputs to be used for the assessment include, for example, the risk assessment carried out by ACTED for the Isfana watershed (KG, TJ), WFP's district risk profiles (KG), existing natural risk layers available at municipal level (e.g., from the Ministries of Emergency Situations) and the climate risk assessments carried out as part of the feasibility study. • This step will benefit from consultations with the University of Reading to integrate elements of the PICSA diagnostic methodology and ongoing efforts on Hydromet strengthening under Component 1.
6. Prioritise threats and opportunities	• Prioritise conventional and climate threats to decide what should be addressed first.

[14] The methodology has been adjusted to produce land use plans and to reflect endorsement requirements for ensuring sustainability.

	7. Summarize the Situation model	• Consolidate findings in a situation model, including key socio-economic, institutional, political, and financial drivers.
	8. Basket of adaptation options	• Design a broad basket of suitable adaptation options based on the situation model. University of Reading will support this step by drawing on PICSA-related experience of matching the available climate information and adaptation options.

The outcome of the diagnostic work is captured in the summary situation model that will then be used for the planning process.

Deliverables	• **KG:** Situation models developed with the LAPA methodology in 60 LSGs, which include prioritised hazards and threats, scenarios used, baseline indicators for key ecosystems, and a basket of possible adaptation measures across different land use systems. • **TJ:** Situation models developed in 60 target jamoats. • **UZ:** Situation models developed in 60 target municipalities.
Key institutions involved	EEs: ARIS, CIIP, NCECC. The EEs will contract technical advisory partners, who will be responsible for carrying out the participatory assessment and diagnostic work in the selected villages, in close coordination with local stakeholders. The University of Reading, through its contract with GIZ (Component 1), will provide support to integrate elements of the PICSA diagnostic methodology, informed by the worked conducted with Hydromets under Activity 1.1.1.

Sub-activity 2.1.2.2: Participatory AFOLU adaptation planning (EEs: ARIS, CIIP, NCECC)

Description

In this sub-activity, the technical delivery partner will support the development of participatory adaptation plans for the AFOLU sectors at the municipal level. This will be done on the basis of the technical and participatory diagnostic carried out before and will follow the participatory/community-based methodology used for developing LAPAs. Local-level AFOLU adaptation planning will include all relevant subnational government institutions, in particular the district authorities, and build upon/integrate into existing processes and procedures to ensure a coordinated approach and alignment with, or integration within, existing socio-economic development plans at the district and municipal level and with existing budget resources and allocations. The developed plans will cover the entire territory of the selected municipalities, including land managed by other state institutions (e.g., forests, protected areas), but excluding purely urban areas.

This sub-activity will also promote and contribute to the institutionalisation of local feedback mechanisms, tools for consultations, public hearings, and information disclosure for use during planning processes. Local government institutions will be provided with the knowledge and tools necessary to ensure inclusive engagement, including that of women and vulnerable groups.

The specific steps to be undertaken include:

Step	Note
1. Spatialise priorities	➢ Translate diagnostic priorities into spatial and management priorities, including priorities going beyond the municipality's territory, e.g., neighbouring municipalities or authorities located across the border.

Deliverables	• **KG:** Local AFOLU adaptation plan ready for approval in 60 LSGs • **TJ:** Local AFOLU adaptation plan ready for approval in 60 jamoats • **UZ:** Local AFOLU adaptation plan ready for approval in 60 sub-district entities
Key institutions involved	EEs: ARIS, CIIP, NCECC. The EEs will contract technical advisory partners in their respective countries.

	The technical advisory partners will be responsible for carrying out the participatory assessment and diagnostic work in the selected villages. The University of Reading, through its contract with GIZ (Component 1), will provide support on the definition of a basket of adaptation options.
Sub-activity 2.1.2.3: Approve climate-informed AFOLU adaptation plans at local level (EEs: ARIS, CIIP, NCECC)	
Description	Sub-activity 2.1.2.3 will see the approval of the AFOLU adaptation plans. The approval process will follow a harmonised sequence across the three countries, while remaining fully compliant with national procedures. Before submission for approval, the plans will undergo a final technical and participatory validation to confirm that: (i) priority hazards, vulnerabilities, and adaptation measures reflect the diagnostic "situation model" developed under Sub-activity 2.1.2.1; (ii) climate information and scenarios have been integrated; (iii) roles and responsibilities, are clearly specified; (iv) safeguards-relevant sensitivities and inclusion considerations (including women and vulnerable groups) have been addressed; and (v) budget availability and financing mechanisms have been clarified. In Tajikistan and Uzbekistan, the plans will be approved at the district level. In the Kyrgyz Republic, approval will take place at the LSG level and will be integrated into the unified digital system used by all subnational institutions. Where relevant, the resulting package of documents will also include annexes or companion documents subsequently developed under activity 2.2.1 and activity 2.2.2., such as pasture and forest management and investment plans and maps, to ensure coherence between spatial priorities, management measures, and the subsequent investment planning. In addition, plans will be disclosed in accessible formats, and feedback will be documented to strengthen transparency and accountability.
Deliverables	• **KG:** Local AFOLU adaptation plan approved in 60 LSGs • **TJ:** Local AFOLU adaptation plan approved in 60 jamoats • **UZ:** Local AFOLU adaptation plan approved in 60 sub-district entities
Key institutions involved	EEs: ARIS, CIIP, NCECC. The EEs will contract technical advisory partners in their respective countries. Local authorities will approve the plans. Where required by national legislation, second-level approval by district authorities will be obtained.

7.2.2 Output 2.2 Forests and pastures restored and under sustainable and climate-resilient use

Output 2.2 will support the restoration of forests and pastures and their sustainable and climate-resilient use through country-specific approaches in transboundary landscapes in the Kyrgyz Republic, Tajikistan and Uzbekistan, thereby directly contributing the countries' pledges to the Bonn challenge, 323,000 ha, 66,000 ha and 500,000 ha, and respectively. Building on the priorities defined in the municipal AFOLU adaptation plans, the output will focus on developing climate-informed participatory forest resources management plans and climate-informed pasture management plans, while ensuring that these are aligned with landscape-level restoration, adaptation and sustainable use objectives. Activity 2.2.1 will support selected state forest enterprises through the preparation and approval of climate-informed participatory forest resources management and investment plans, the formalisation of community investments through lease agreements or joint forest management agreements, the provision of technical assistance, and the financing of restoration and afforestation or reforestation investments to achieve climate resilient sustainable forest management. Activity 2.2.2 will focus on scaling land restoration practices in degraded rangelands through the preparation and approval of climate-informed pasture management plans including investments, the provision of technical assistance to pasture management institutions and pasture users, and investments in pasture restoration, sustainable use and climate-resilient management.

Activity 2.2.1: Scale land restoration practices in degraded forests in transboundary landscapes	
Description	This activity will build on the general recommendations of various regional processes. For example, the UNCCD highlighted that restoration works better when approached at a landscape scale. The LDN process found that restoration actions are more effective when linked to livelihoods and productive land use rather than environmental objectives alone. The Global Mechanism showed that restoration is more effective when combined with inclusive governance, knowledge systems and local implementation support. Based on the priorities outlined in the municipal AFOLU adaptation plan, this activity will support the development of climate-informed participatory forest resources management plans in the three countries. The approach will differ and match country-specificities as well as forest types, which determines forest use as well as the general interest of the local population in participating in forest management. The activity will be based on the existing management plans of SFE[15]. These plans typically include activities such as forest plantations and management, enhancement of natural regeneration, seedling production, and income generation from non-timber forest resources. The programme will support the integration of additional climate information into these existing plans, as they are generally missing. It will expand these plans through the identification of climate adaptation and restoration options and help address the key drivers of deforestation and forest degradation identified in Section 2.4 by establishing local agreements on forest-livestock interactions and clarifying fuelwood extraction rules, and by engaging communities together with state forest enterprises in restoration activities. The plans will include the costing of key investments at the SFE level to support climate change adaptation in forest management. Throughout this process, the activity will promote an active participation of the local population, including of vulnerable groups, with the objective to scale forest landscape restoration and forest expansion on degraded land in transboundary landscapes. Long-term contractual arrangements between SFE and local forest users will be promoted and facilitated, in line with the local legislation. Small-scale investment grants will be allocated to support restoration initiatives, adaptation, climate resilient forest management actions, and forest expansion driven by the SFE and forest users. As pastures make up most of the land area managed by SFE, the forest resources management plans will also consider better governance of pasture, assessments of pasture conditions, and capacity development for sustainable pasture management, as part of the overall restoration of degraded forest landscapes. Local foresters and staff from higher-standing forest management bodies, called here intermediary partners, will be involved throughout the implementation. Firstly, their capacities will be enhanced. They will then oversee the development of the plans, with active supervision and support from the programme to ensure the new capacities are firmly established. Municipal authorities, community leaders, forest users (incl. women, youth), CSOs and private sector representatives (e.g., active in NTFP collection and processing) and local pasture institution will be actively involved at every planning and decision-making step of the process. The investments required to implement the management plans will be provided under Sub-activity 2.2.1.6, while technical assistance to the management activities, whether they are linked to an investment or not, will be provided under Sub-activity 2.2.1.5. This activity will be implemented in the following SFE/forest administrations which were selected through consultations with the national partners:

[15] SFE (also called leskhoz) are responsible for managing a certain forest area and are financially independent (Uzbekistan) or partly financed from the state budget (Kyrgyz Republic, Tajikistan). In forest types that produce substantial quantities of non-timber forest resources, such as walnut or pistachio forests, SFE lease forest plots to local tenants on a long-term or seasonal basis. Most SFEs own a tree nursery and produce seedlings for their own use or to sell.

- 11 SFEs in the Kyrgyz Republic: Batken, Leilek, Arka, Uch-Korgon (Batken), Nookat, Kara-Kulja (Osh), Kyzyl-Unkur, Arstanbap, Aksy, Ala-Buka, Chatkal (Jalal-Abad).
- 6 SFEs in Tajikistan: Asht, Devashtich, Shahriston (Sughd), Shahritus, Qobodiyon, Nosir Khusrav (Khatlon).
- 8 SFEs in Uzbekistan: Andijon (Andijan), Kokand, Fergana (Fergana), Pap, Kasansay (Namangan), Uzun, Boysun, Babatag (Surkhandarya).

This activity consists of the following six sub-activities:

- Sub-activity 2.2.1.1 Development of training material on climate-informed forest management planning
- Sub-activity 2.2.1.2 Training of the intermediary partners
- Sub-activity 2.2.1.3 Development of climate-informed participatory forest resources management plans, including investments
- Sub-activity 2.2.1.4 Formalization of community investments
- Sub-activity 2.2.1.5 Technical assistance in forest restoration
- Sub-activity 2.2.1.6 Investments in forest restoration

Sub-activity 2.2.1.1: Development of training material for intermediary partners (EEs: MoWRAPI, CIIP, NCECC)

Description

Sub-activity 2.2.1.1 involves developing practical training materials to enhance the capabilities of intermediary partners (selected active staff from national and sub-national forest administrations, as well as SFEs) who will assist in creating climate-informed, participatory forest resource management plans with the support of technical advisory partners (mainly non-governmental organisations in the Kyrgyz Republic and Tajikistan; mixed public and non-governmental organisations in Uzbekistan).

The training material will build upon and combine existing materials in the three countries (e.g., guidelines of the WB Resiland+ program for tree planting, Land Use Planning Catalogue of GIZ's regional natural resources management program). These will be contextualised and updated within the countries' forest management and legislative frameworks where required. The material will also be adapted for different forest types, as community participation in forest management depends on them obtaining benefits from non-timber forest resources (NTFPs), which not all forest types provide in the same quantities. Forestry training institutions (e.g., the Agrarian University in the Kyrgyz Republic) will be involved throughout the development of the training material to ensure uptake and continuity in forest education.

The training modules will include an introduction to climate-informed and participatory forest management planning. They will describe how intermediary partners will engage with SFE and forest users and how they will define suitable forest restoration interventions that offer adaptation and mitigation benefits, as well as co-benefits for the livelihoods of local communities. The training will also include sessions on the eligibility criteria for accessing the programme's financial mechanisms and the criteria used to prioritise investments. Last, the modules will take a broad look at forest management by also integrating cross-sectoral considerations such as the forest/pasture interface.

Table 46: Tentative training content for capacity building on forest management planning

Tentative Module	Potential Content (indicative)
1. Community mobilisation and participation in forestry	• Legal framework and opportunities for community engagement in forestry activities (for example, lease agreements in the Kyrgyz Republic, joint forest management (JFM) agreements in Tajikistan) • Facilitation methods
2. Climate information for	• How to use historical climate information in forest management planning, and where this data is available

	forestry and how to use it	• Use of the diagnostic established during the AFOLU adaptation plan development (Activity 2.1.2)
	3. Climate risk basics for the forest sector	• Main hazards in the SFE • What exposure, sensitivity, and adaptive capacity mean in practice for forest conservation, forest management, and the productivity of NTFPs. • Translating risk into forest management priorities
	4. Participatory forest management planning	• How to review existing forest management plans and identify key entry points for community participation • How to complement existing forest management plans with community initiatives and investments • Participatory identification of suited restoration and climate change adaptation interventions, including technical feasibility, responsibility, and costing and cost sharing • Timing and seasonality of planning • Risk management and contingency planning
	5. Forest management and forest restoration techniques and interventions	• Planting techniques for afforestation and reforestation • Seed and seedling production from local species • Selection of local climate resilient tree species • Support and management of natural regeneration • Efficient protection from grazing • Efficient irrigation • Integrated pest management • Livestock management within and near forest areas • Interactions with other land use systems • Non-timber forest product value chains: sustainable collection and processing
	6. Adoption and demonstrations	• Demonstration plot design and management • Farmer field days and peer learning • Working with producer groups and cooperatives • Typical adoption barriers, and how to address them
	7. Safeguards	• Working with women, youth, and vulnerable households • Avoiding elite capture in outreach and group work • Stakeholder engagement and communication approaches • Grievance and feedback channels
	8. Accessing the programme's investments	• Eligibility criteria and documentation requirements • Prioritization criteria for investments • Supporting SFE to prepare simple investment plans jointly with forest users • Record keeping for monitoring and verification
	9. M&E	• Key data to capture on outreach and technology adoption • Tracking changes in forest management and performance • Indicators in the logframe
Deliverables	• **KG:** 1 set of training material adjusted to the country's specificities • **TJ:** 1 set of training material adjusted to the country's specificities • **UZ:** 1 set of training material adjusted to the country's specificities	
Key institutions involved	EE: MoWRAPI, CIIP, NCECC. The national EEs will contract international and national technical advisory partners for developing the overall training material and country-specific modules.	
Sub-activity 2.2.1.2: Training of the intermediary partners (EEs: MoWRAPI, CIIP, NCECC)		
Description	Sub-activity 2.2.1.2 will roll out with intermediary partners the training on forest management planning developed under sub-activity 2.2.1.1, followed by supervised implementation in the selected SFEs and feedback loop mechanisms to adjust delivery over time. In a first step, this sub-activity will identify the intermediary partners to be trained in each country. This selection of staff of national, sub-national forest administrations and SFEs will be carried out with the forestry administration based on the following criteria: (1) relevance of the staff's current position to forest management planning, (2) demonstrated experience of community engagement and participator planning, (3) declaration of self-interest in local level forest resources planning (4)	

	In a second step, ToT workshops for the selected intermediary partners will be implemented in the three countries. It will enable them to become facilitators for well-informed and reflexive community-based planning workshops where land users and SFE staff are empowered to make their own context-specific decisions.
Deliverables	• **KG:** 1 one-week training session for intermediary partners • **TJ:** 1 one-week training session for intermediary partners • **UZ:** 1 one-week training session for intermediary partners
Key institutions involved	EE: MoWRAPI, CIIP, NCECC. National EEs will contract national technical advisory partners in their respective countries. These partners will then work alongside the international technical advisory partner contracted by GIZ to deliver training to intermediary partners.

Sub-activity 2.2.1.3: Development of climate-informed participatory forest resources management plans, including investments (EEs: MoWRAPI, CIIP, NCECC)

Description

This sub-activity involves developing climate-informed forest resource management plans at the SFE level. Local foresters, community leaders, forest users (incl. women, youth) and other relevant local stakeholders, including municipal and pasture management authorities, as well as private sector representatives involved in forest-related activities, will participate in this process.

Intermediary partners who were trained in the previous sub-activity will play a leading role in developing the plans, receiving direct and active support from the technical advisory partners. This support will cover technical and organisational aspects.

In all countries, the forest management plans will be developed in line with relevant priorities outlined in the municipal AFOLU adaptation plan developed under Activity 2.1.2, alongside the pasture management plan, to ensure a landscape management approach that considers the full natural resource base and cross-sectoral interactions.

The management plan will include both activities that require technical assistance and those that require investments. The latter will be translated into an investment plan.

Table 47: General forest management planning sequence

Step	Note
1. Acquisition of climate information	• In this first step, the technical advisory partner will support the intermediary partners in extracting relevant climate information from the diagnostic phase of the local AFOLU adaptation plan development.
2. Information sharing and community mobilisation	• This step includes (1) the first meeting with the SFEs to define and agree on the steps that will be followed during the development of the forest resources management plan and (2) community mobilisation through village meetings.
3. Review of the existing forest management plan and community initiatives	• In this step, the technical advisory partner will review the current SFE forest management plan, summarising its main activities and the key challenges affecting implementation. The review will also assess how local communities are currently involved, identify opportunities to strengthen their participation to improve delivery of the plan, and include a rapid check of current climate risks and whether the plan adequately accounts for them. It will identify missing technical and organisational capacities. Finally, it will examine how the plan is financed, highlighting priority forest restoration and climate adaptation actions that are currently not funded or lack secure funding. This step entails a first meeting with the SFE followed by desk-based preparation and by a circa half-day meeting with SFE staff.
4. Community-based natural resources mapping	• This step will be implemented with the involvement of SFE staff and community leaders, forest users (incl. women, youth) and other relevant local stakeholders, including municipal and pasture management authorities, as well as private sector representatives involved in forest-related activities. Non-SFE

	stakeholders will be selected after community mobilization (step 2 above) based on the following criteria: ▪ Demonstrated leadership or experience in forest resources use or management (including forest areas and non-forest areas under SFE management). ▪ Commitment to actively participate in management plan development and implementation ▪ Minimum requirements of 50% women and youth participants • In this step, local communities, working alongside SFE staff, will map the area's key natural and forest resources, including non-wooded areas such as pastures located in the SFE territory, and identify which of these are most important for livelihoods and income generation, soil protection, biodiversity, and other community and ecosystem benefits. They will then discuss and document recent trends in these resources, noting where conditions have been worsening, improving, or remaining stable over the past years. The group will also examine how climate change has affected these resources over the last decade, capturing the main impacts observed locally and the concerns communities see emerging. As part of this step, participants will also assess which locations and times of year livestock place the greatest pressure on forest resources. • Depending on the context, gender-specific sessions or sessions with youth will be held separately to ensure their views are fully captured.
5. Setting management objectives	• Based on the resource mapping from the previous step, planning participants will set mid-term management objectives. These objectives will align with climate priorities and the SFE targets, while also reflecting local communities' needs and their willingness and capacity to participate in the work required to achieve them.
6. Detailed activity planning	• Based on the mid-term management objectives, participants will develop a detailed five-year activity plan that consolidates all actions needed for forest restoration, climate-resilient sustainable forest management, and forest expansion in the local context. The plan will cover measures for forest regeneration, climate resilient management, afforestation and reforestation with native species, and the sustainable collection of non-timber forest products, as well as other relevant management activities. It will outline responsible individuals or structures for supervising and implementing the identified measures, and a timeline for implementation. Each proposed activity will be screened to ensure it strengthens the forest's resilience and adaptive capacity under current and projected climate risks. • The management plan will include activities that are important for forest restoration and adaptation, but which require collaboration with other institutions, such as municipal authorities or pasture user unions. Examples include the management of livestock migration corridors that cross forest areas. Activities that require transborder cooperation will also be considered. • Depending on the context, gender-specific sessions or sessions with youth will be held separately to ensure that the views of these groups are fully captured. • Where relevant, thematic sessions will be organised to capture local interests. For example, forest users involved in NTFP collection or herders grazing in the SFE territory will be gathered separately.
7. Investment planning	• In this final step, the investment-requiring activities in the management plan, including equipment/material and technical assistance (specific training), will be compiled in two key categories: (1) forest restoration and climate resilient sustainable management and (2) forest expansion on

		degraded open land. They will then be prioritized using the following criteria and the list of eligible investments defined under Sub-activity 2.2.1.6: ▪ **Expected climate impact**, including the forest area restored, sustainably managed or planted, and the contribution to landscape-level resilience; ▪ **Vulnerability and livelihood benefits**, prioritising forest users and communities that are highly vulnerable to climate change and dependent on forest resources; ▪ **Scale and reach of benefits**, considering the number and type of beneficiaries and the expecedt economic, social, and environmental benefits; ▪ **Equitable allocation of resources**, ensuring fair geographical distrbution and an appropriate balance between small-, medium- and large-scale interventions and SFEs; ▪ **Feasibility, ownership and sustainability**, including cost effectiveness, implementation capacity, beneficiary contributions and arrangements for long-term operation and maintenance. • The result will be an investment plan that assigns approximate costs to each proposed activity. The plan will also specify expected co-financing from grant beneficiaries, including contributions through labour and other in-kind support. These investments will be delivered as grants. • Steps 4-7 entail approximately two community workshops, each lasting one day.
	8. Plan approval	• After endorsement by the communities, the management and investment developed plans will be approved by the SFE and the national forestry administration. • The plans will obtain final approval by the national executing entities (EE) responsible for channelling the investments under Sub-activity 2.2.1.6 and technical assistance under Sub-activity 2.2.1.5. As part of their overall portfolio management responsibilities, the EEs will ensure a fair and balanced allocation of resources across target geographical areas and SFEs, including among small-, medium- and large-scale interventions as well as considering community-level vulnerability, livelihood needs and the expected contribution of each investment to strengthening resilience.
Deliverables	• **KG:** 11 forest resources management and investment plans developed and approved at the SFE level • **TJ:** 6 forest resources management and investment plans developed and approved at the SFE level • **UZ:** 8 forest resources management and investment plans developed and approved at the SFE level	
Key institutions involved	EEs: MoWRAPI, CIIP, NCECC. The national EEs will contract national technical advisory partners in their respective countries who will support the development of the plans.	
Sub-activity 2.2.1.4: Formalisation of community investments (EEs: MoWRAPI, CIIP, NCECC)		
Description	To secure strong commitment from SFE and from forest users to implement the management plan and the related investments, the technical advisory partners hired by the programme will facilitate and support the signing of formal agreements between the SFE and local community members. In the Kyrgyz Republic and Uzbekistan, this will be done through lease agreements that will document the activities identified by each forest user as well as the support they will receive from the SFE during implementation. In Tajikistan, the same purpose will be achieved through joint forest management (JFM) agreements, prepared in line with existing legal procedures and requirements.	
Deliverables	• **KG:** circa 100 new lease agreements or updated lease agreements with the inclusion of restoration and adaptation activities • **TJ:** circa 400 new JFM contracts	

<table>
<tr><td></td><td>• UZ: circa 200 new lease agreements or updated lease agreements with the inclusion of restoration and adaptation activities</td></tr>
<tr><td>Key institutions involved</td><td>EEs: MoWRAPI, CIIP, NCECC. The national EEs will contract national technical advisory partners in their respective countries who will support the development of the plans.</td></tr>
<tr><td colspan="2">Sub-activity 2.2.1.5: Technical assistance in forest restoration (EEs: MoWRAPI, CIIP, NCECC)</td></tr>
<tr><td>Description</td><td>Within this sub-activity, the programme will provide technical assistance throughout the implementation of the forest resources management plans through regular visits and targeted training for SFE staff and forest users. This support will extend to the activities benefiting from programme investments and those that will not.
This technical assistance will be primarily provided by the technical advisory partners that supported the development of the forest resources management plan, and also by additional national experts on a need basis.
Eligible recipients from technical assistance will be staff from the SFEs and active user of forest resources who were selected for the development of the management plan under Sub-activity 2.2.1.3.</td></tr>
<tr><td>Deliverables</td><td>• circa 55 need-based trainings held in all 11 targeted SFEs in the Kyrgyz Republic
• circa 30 need-based trainings held in all 6 targeted SFEs in Tajikistan
• circa 40 need-based trainings held in all 8 targeted SFEs in Uzbekistan</td></tr>
<tr><td>Key institutions involved</td><td>EEs: MoWRAPI, CIIP, NCECC. The EEs will hire technical advisory partners and experts to provide technical assistance to SFE staff and forest users.
The international technical advisory partner contracted by GIZ will provide support on a need basis.</td></tr>
<tr><td colspan="2">Sub-activity 2.2.1.6 Investments in forest restoration (EEs: MoWRAPI, CIIP, NCECC)</td></tr>
<tr><td>Description</td><td>Under this sub-activity, the programme will procure key inputs for restoring and enhancing the climate resilience of forest ecosystems and expand forest areas.
The equipment and material prioritized in the SFE investment plans developed under Sub-activity 2.1.3.3 will be procured and distributed directly by the EEs: MoWRAPI, CIIP, NCECC. The SFE will be responsible for coordinating the implementation of the investments included in the plan.
Table 48: Preliminary list of eligible investments in forestry
<table>
<tr><th>General objective</th><th>Items and categories of items eligible for programme funding</th><th>Rationale</th></tr>
<tr><td>Forest restoration</td><td>• Fencing material</td><td>• Protect areas under restoration from livestock grazing and other physical disturbance
• Channel livestock movement through forest areas
• Enable self-seeding and natural regeneration</td></tr>
<tr><td></td><td>• Seedlings</td><td>• Additional planting in most degraded areas
• Planting of locally selected climate-resilient seedlings</td></tr>
<tr><td></td><td>• Labour (planting costs and others)</td><td>• Labour costs for restoring large areas where only limited local community involvement is possible (e.g., juniper forests)</td></tr>
<tr><td></td><td>• Construction material for water points</td><td>• Channel livestock movement away from forest areas
• Avoid livestock roaming in forests</td></tr>
<tr><td>Reforestation on degraded open land</td><td>• Small machinery for use in tree nurseries</td><td>• Increase the production capacity of tree nurseries</td></tr>
<tr><td></td><td>• Equipment for tree nurseries</td><td>• Improve seedling quality and survival potential through, e.g., a well-developed root system and hardening</td></tr>
</table></td></tr>
</table>

		• Tree seeds	• Multiplication of locally selected high productivity and climate-resilient trees
		• Seedlings	• Plantation of indigenous tree species for which seedlings are not available
		• Equipment and construction material for efficient water retention and distribution	• Improvement of the survival rate of tree plantations
		• Fencing material	• Protection from livestock grazing
		• Labor (planting costs and others)	• Labour costs for tree planting and second-year re-planting • Labor costs for fire prevention measures within and around restored areas
	Management and reporting capabilities	• Equipment and hardware for the monitoring of forest conditions and for reporting	• Monitoring of forest conditions and of restoration impacts • Reporting to national forest information systems
Deliverables	• **KG:** o Investments in forest restoration and afforestation/reforestation activities according to the forest resources management plans ▪ circa 36,300 ha of forests under restoration or climate-resilient management ▪ circa 1,000 ha of reforested/afforested areas • **TJ:** o Investments in forest restoration and afforestation/reforestation activities according to the forest resources management plans ▪ circa 1,200 ha of forests under restoration or climate-resilient management ▪ circa 1,100 ha of reforested/afforested areas • **UZ:** o Investments in forest restoration and afforestation/reforestation activities according to the forest resources management plans ▪ circa 18,040 ha of forests under restoration or climate-resilient management ▪ circa 280 ha of reforested/afforested areas		
Key institutions involved	EEs: MoWRAPI, CIIP, NCECC		

Activity 2.2.2: Scale land restoration practices in degraded rangelands in transboundary landscapes

Description	Legislation relating to pasture management and the institutions responsible for planning and overseeing pasture use varies substantially between countries. These institutions are also dynamic, with the Kyrgyz Republic currently transitioning from community-based pasture management to a more centralised system. A recent institutional reform resulted in the merging of municipalities, with the newly established municipalities consisting of three to five former municipalities. This has significantly increased their area and loosened the ties between community members and the local administration, with direct implications on the process to develop pasture management plans at the local level. In Tajikistan, uneven implementation of the 2013 Pasture Law is due to a shortage of resources for establishing Pasture User Unions (PUUs), as set out in the law. With fewer than 400 PUUs established out of more than 3,000 villages, pasture management remains largely unplanned, including in the programme areas. In Uzbekistan, the 2024 Pasture Law is still being rolled out in various regions with the aim to implement rotational grazing, improve monitoring, and lease land for sustainable use. However, some challenges remain, partly due to the fact that

pastures are managed by different entities: the State Veterinary Committee, the State Forestry Agency, and the district authorities, which lack coordination mechanisms and alignment among themselves. Against this background, this activity will be country specific. Where existing planning tools are already comprehensive (e.g., pasture management planning in the Kyrgyz Republic), it will broadly support the addition of climate information in pasture management planning. Where such plans do not yet exist, they will be developed using a participatory approach with the aim of scaling up pasture restoration and climate resilience.

In Uzbekistan, the focus of this activity will be the Surkhandarya and Namangan regions, which have large areas of rangeland. In the Kyrgyz Republic and Tajikistan, the activity will cover all target regions. In all three countries, Activity 2.2.2 will focus primarily on districts, and, within them, on municipalities with the largest impact potential in transboundary landscapes. The table below provides a preliminary list of the districts where pasture restoration activities will be implemented. Within these districts, it is expected that the activity will be implemented in a total of 140 municipalities across all countries: 55 LSGs in the Kyrgyz Republic, 55 jamoats in Tajikistan and 30 sub-district entities in Uzbekistan.

Table 49: Preliminary list of districts for pasture restoration activities

Country	Region	Target District
Kyrgyz Republic	Jalal-Abad	Aksy
		Ala-Buka
		Bazar-Korgon
		Nooken
	Osh	Kara-Suu
		Aravan
		Nookat
		Chon-Alay
	Batken	Batken
		Kadamjay
		Leylek
Tajikistan	Sughd	Asht
		Bobojon Gafurov
		Devashtich
		Isfana
		Konybodom
		Shakhriston
	Khalton	Nosiri Khisrav
		Qubodiyon
		Shahrtuz
Uzbekistan	Namangan	Pap
	Surkhandarya	Boysun
		Sariosiyo
		Uzun

This activity will include five sub-activities:

- Sub-activity 2.2.2.1 Development of training materials for technical advisory partners
- Sub-activity 2.2.2.2 Training of the technical advisory partners and intermediary partners
- Sub-activity 2.2.2.3 Development of climate-informed pasture management plans including investments
- Sub-activity 2.2.2.4 Technical assistance in pasture restoration
- Sub-activity 2.2.2.5 Investments in pasture restoration

Sub-activity 2.2.2.1 Development of training material for technical advisory partners (EEs: ARIS, CIIP, NCECC)	
Description	Within this sub-activity, existing training materials will be improved, and where necessary, new material will be developed along two foci:

1. **Skills to support the development of climate-informed pasture management planning and monitoring.**

In the Kyrgyz Republic, this sub-activity will build on training materials developed under previous GIZ, World Bank, and IFAD projects, which have already been institutionalized within national non-governmental organizations. It will put a stronger focus on climate change and the use of climate change information in pasture management planning and implementation. In light of the recent institutional change that has significantly increased the area covered by municipalities, the former approach, whereby technical advisory partners supported local pasture committees to develop pasture management plans, has become outdated. The training materials will therefore be adapted to reflect a cascading approach: local facilitators at the village level (former municipality level), called here intermediary partners, will be trained to work with pasture users in their community to develop a pasture management plan (PMP), after which the plans from all villages will be aggregated at the municipal level.

In Tajikistan, no new training materials will be developed on this topic as they already exist from past and ongoing IFAD projects (LDPD I and II, CASP+). These resources will be strengthened by incorporating context-specific climate information, as well as climate and adaptation considerations into planning.

In Uzbekistan, this sub-activity will enhance climate integration in existing EU, ADB, FAO, and UNDP-developed training materials on pasture management planning, integrated land use and natural resources management, sustainable land management, climate resilience and rehabilitation of degraded areas, community-based pasture management, and rotative grazing.

2. **Technical skills in management interventions and technologies for pasture restoration and resilience.**

An assessment of existing technical training material during feasibility shows that the following is already existing:

- Kyrgyz Republic: grazing management in line with the carrying capacity of the pasture
- Tajikistan: rotational grazing, pasture restoration
- Uzbekistan: integrated land use management, integrated natural resources management, sustainable land management, climate resilience, and rehabilitation of degraded areas

Additional training modules on several key management interventions will be developed to support the provision of high-quality technical assistance during the development and implementation of the PMP. A specific focus will be placed on the following interventions/technologies:

- Pasture monitoring to determine levels of degradation and carrying capacity
- Rotational grazing and grazing management in line with the carrying capacity of the pasture
- Pasture rehabilitation measures (seed-broadcasting, temporary fencing)
- Water points and grazing infrastructure

The existing technical modules will be enhanced to incorporate climate information more effectively.

3. **Safeguards and monitoring**

Safeguards

- Working with women, youth, and vulnerable households
- Avoiding elite capture in outreach and group work
- Stakeholder engagement and communication approaches
- Grievance and feedback channels

	Monitoring • Key data to capture on outreach and technology adoption • Tracking changes in forest management and performance • Indicators in the logframe **4. Access to the programme's investments** • Eligibility criteria and documentation requirements • Prioritization criteria for investments • Supporting pasture management institutions to prepare simple investment plans jointly with users • Record keeping for monitoring and verification
Deliverables	• **KG:** 1 set of training material adjusted to the country's specificities • **TJ:** 1 set of training material adjusted to the country's specificities • **UZ:** 1 set of training material adjusted to the country's specificities
Key institutions involved	EE: ARIS, CIIP, NCECC. The national EEs will contract national technical advisory partners to mainstream climate information and adaptation considerations into the country-specific training materials and to develop the required technical training modules. An international technical advisory partner will provide need-based support.
Sub-activity 2.2.2.2: Training of the technical advisory partners and intermediary partners (EE: ARIS, CIIP, NCECC)	
Description	In light of the experience and skills of the existing technical advisory partners and the modalities for pasture management planning outlined in Sub-activity 2.1.4.3, this sub-activity will be implemented in the Kyrgyz Republic and Uzbekistan, where pasture management planning will be primarily implemented by intermediary partners at the local level. In Tajikistan, where it is foreseen that qualified technical advisory partners will directly support PMP development on the ground, the training will be lighter and only focus on themes such as climate-informed planning and cross-sectoral interventions at the landscape level. In the Kyrgyz Republic, a technical advisory partner will first select intermediary partners at the village level (former municipal level) in close coordination with LSG authorities. The selection criteria will include (1) experience in pasture management planning and pasture use, (2) community mobilization, (3) pasture monitoring, and (4) leadership. In a second step, the advisory partner will train the intermediary partners and municipal authorities (ultimately responsible for PMP development) using the modules developed under activity 2.2.2.1. Officers from the District Department of Agriculture will be involved to contextualize pasture management at the district level and beyond and inform on priorities for animal movements and coordination between municipalities and SFEs, which should be reflected in LSG's PMP. In Tajikistan, the one-week training session will be delivered to the existing advisory partners and representatives from the pasture management authorities, in particular regional representatives from the Pasture Trust. In Uzbekistan, a technical advisory partner will first select intermediary partners from the Veterinary Committee or district authorities (using the criteria outlined above for the Kyrgyz Republic), depending on land ownership and management modalities in the area. In a second step, the technical advisory partner will train these intermediaries.
Deliverables	• **KG:** 2 one-week training sessions for intermediary partners • **TJ:** 1 one-week training session for intermediary partners • **UZ:** 2 one-week training sessions for intermediary partners
Key institutions involved	EE: ARIS, CIIP, NCECC.

The national EEs will contract national technical advisory partners in their respective countries to train the intermediary partners.

Sub-activity 2.2.2.3: Development of climate-informed pasture management plans, including investments (EE: ARIS, CIIP, NCECC)

Description

As the formal process and level of progress in pasture management planning significantly differ between countries, this sub-activity will be tailored to each country's context. In all countries, PMP will be developed in line with the municipal AFOLU adaptation plan developed under Activity 2.1.2, alongside the forest management plan, to ensure a landscape management approach that considers the full natural resource base. Broad-based participation of relevant stakeholders will be ensured, including local pasture management institution, municipal authorities, community leaders, pasture users (incl. women, youth), CSOs, private sector (tourism, dairy, etc.) and representatives of the local state forest enterprise(s).

In the Kyrgyz Republic, pasture management plans will be prepared by a dedicated officer within the municipal administration who will aggregate village-level plans developed by the intermediary partners under the supervision and with extensive support from the national technical advisory partner engaged by the programme.

In Tajikistan, pasture management planning will be carried out by Pasture User Unions and will follow the methodology developed jointly by IFAD, WB, and the Ministry of Agriculture. Technical advisory partners and the Pasture Trust (PT) will provide continuous support and ensure that each plan includes all key elements of sustainable pasture management, including the integration of climate information and climate risks, as well as the identification of appropriate adaptation options.

In Uzbekistan, pasture management planning will be carried out by the authority responsible in the area: the Veterinary Committee, the Forest Agency or the District administration, in close coordination with the sub-district entities, the newly created pasture user associations, and under the supervision and with extensive support from the national technical advisory partner engaged by the programme.

The table below provides an overview of the major steps in each country. These steps may need to be adapted if the legislation or institutional set-up changes during the implementation of the programme. It is expected that these steps will be implemented in circa three half- or one-day community workshops in each municipality/village.

Table 50: Pasture management planning sequence

Step	Kyrgyz Republic	Tajikistan	Uzbekistan
1. Information sharing and community mobilization at the municipal level	Implemented in three phases: (1) Municipal-level meeting with district/municipal authorities and village leaders; (2) Village-level meetings with trained facilitators; (3) Creation of a formal local pasture committee to support PMP development under municipal authorities.	Communities mobilized and informed about community-based pasture governance framework, PUUs, rights and obligations under the Pasture Law. Awareness raising includes role of District Pasture Union Associations. Led by technical advisory partner with PT.	Communities mobilized and informed about pasture management framework depending on whether pastures are managed by Veterinary Committee, District Administration, or Forest Administration. Led by technical advisory partner with relevant authorities.
2. Creation and strengthening of local institutes for	Not applicable	Establishment and strengthening of Pasture Users Unions (PUUs). Support includes	Establishment and strengthening of Pasture Users Associations (PUAs) at village/Mahalla/sub- or

	pasture management		mobilization, awareness raising, legal registration, securing pasture rights, and land lease certificates.	District level. Support includes mobilization, awareness raising, and legal registration.
	3. Review of existing plans	Municipal AFOLU adaptation plans (Activity 2.1.2) reviewed, and pasture-related actions incorporated into PMP. Review of existing pasture management plans considering territorial reform, livestock movement, and climate risks.	Existing PMPs reviewed and assessed against main climate risks.	No formal PMP exists. Local pasture arrangements reviewed with users and authorities.
	4. Pasture management planning	Led at village level by trained facilitators and municipal officers with technical support. Includes: data preparation; assessment of pasture use and degradation; carrying capacity assessment; identification of restoration and climate-resilient measures.	PUUs lead PMP formulation with support. Includes: training on PMP and monitoring; pasture demarcation; carrying capacity assessment; pasture mapping; identification of restoration and resilience measures.	Authorities and pasture user associations lead PMP with technical support. Includes: data preparation; assessment of use and challenges; carrying capacity assessment; identification of restoration and climate resilience measures.
	5. Aggregation and identification of priority actions	Village-level PMPs aggregated at municipal level.	Not applicable	Not applicable
	6. Investment planning	Investment actions clustered (restoration or climate-resilient use) and ranked by eligibility, expected impact, beneficiary contribution and vulnerability, and landscape-level relevance.		
	7. Approval of the PMP	Approval by municipal authorities.	Approval by PUU, District Pasture Commission and Authorities.	Approval by responsible national and local authorities (Veterinary Committee, Forest Agency, District authorities). Final approval by executive entities responsible for investment and technical assistance.
Deliverables	• **KG:** 55 pasture management plans approved • **TJ:** 55 pasture management plans approved • **UZ:** 30 pasture management plans approved			
Key institutions involved	EE: ARIS, CIIP, NCECC. National EEs will contract national technical advisory partners in their respective countries to support the development of pasture management plans.			
Sub-activity: 2.2.2.4: Technical assistance in pasture restoration (EEs: ARIS, CIIP, NCECC)				
Description	Within this sub-activity, the programme will provide technical assistance to local and district/regional institutions responsible for pasture management, and to pasture users. This assistance will be implemented by the technical advisory partners, which supported the development of the forest resources management plan, and by additional national experts on a need basis, through regular visits and targeted			

<table>
<tr><td></td><td>trainings. This support will extend to the activities benefiting from programme investments, and those that will not, such as improved management and rotational grazing, which can be implemented without further investments.</td></tr>
<tr><td>Deliverables</td><td>• circa 50 need-based trainings held at LSG or district level in the Kyrgyz Republic
• circa 50 need-based trainings held at jamoat or district level in Tajikistan
• circa 30 need-based trainings held at sub-district or district level in Uzbekistan</td></tr>
<tr><td>Key institutions involved</td><td>EE: ARIS, CIIP, NCECC. The EEs will hire technical advisory partners and experts to provide technical assistance to pasture management institutions and pasture users.</td></tr>
<tr><td colspan="2">Sub-activity 2.2.2.5: Investments in pasture restoration (EEs: ARIS, CIIP, NCECC)</td></tr>
<tr><td>Description</td><td>This sub-activity will provide key inputs for restoring and bringing pastures under sustainable and climate-resilient management.

The equipment and material prioritized in the municipal pasture investment plans developed under Sub-activity 2.2.2.4 will be procured and distributed directly by the EEs: ARIS, CIIP, NCECC. The local institutions responsible for pasture management will be responsible for coordinating the implementation of the investments included in the plan, in close coordination with the higher-standing pasture management institution. These are the LSG and the District Department of Agriculture in the Kyrgyz Republic, the PUU and the regional Pasture Trust representative in Tajikistan, and the Veterinary Committee or the District authorities in Uzbekistan, respectively. The table below outlines eligible programme investments.
Table 51: Preliminary list of eligible investments in pasture management
<table>
<tr><th>General objective</th><th>Items and categories of items eligible for programme funding</th><th>Rationale</th></tr>
<tr><td rowspan="3">Pasture restoration</td><td>Local adapted climate resilient forage seeds</td><td>• Establishment and management of forage production areas.</td></tr>
<tr><td>Fencing material (permanent and temporary)</td><td>• Temporary exclusion of grazing in areas under reseeding or natural regrowth
• Permanent exclusion of small areas subject to high degradation and associated risks, such as landslides
• Temporary fencing of corridors to channel livestock away from the most degraded areas</td></tr>
<tr><td rowspan="3">Sustainable and climate-resilient use</td><td>Machinery (e.g., graders)</td><td>• Improvement of access roads to rebalancing pasture use between overgrazed near-village pastures and less intensively grazed distant pastures</td></tr>
<tr><td>Fencing material (permanent and temporary)</td><td>• Establishment and management of forage production areas
• Temporary exclusion of livestock within a rotational grazing system</td></tr>
<tr><td>Construction materials and services</td><td>• Improvement of access roads to rebalancing pasture use between overgrazed near-village pastures to less intensively grazed distant pastures
• Improvement of access to water through the creation of new water points in undergrazed distant pastures, and in degraded areas to diminish high-density livestock around existing water points</td></tr>
<tr><td>Management and reporting capabilities</td><td>Equipment and hardware</td><td>• Monitoring of pasture conditions
• Management of local data (e.g., livestock numbers, digital maps)
• Reporting to higher-standing pasture management institutions</td></tr>
</table>
</td></tr>
</table>

Deliverables	• **KG:** ○ Investments in pasture restoration, sustainable and climate-resilient use according to the pasture management plans. ▪ circa 421,000 ha of pasture under restoration, sustainable and climate-resilient use • **TJ:** ○ Investments in pasture restoration, sustainable and climate-resilient use according to the pasture management plans. ▪ circa 258,000 ha of pasture under restoration, sustainable and climate-resilient use • **UZ:** ○ Investments in pasture restoration, sustainable and climate-resilient use according to the pasture management plans. ▪ circa 123,500 ha of pasture under restoration, sustainable and climate-resilient use
Key institutions involved	EE: ARIS, CIIP, NCECC.

7.2.3 Output 2.3 Farmers capacitated and incentivized to adopt climate-resilient and low-emission practices

Output 2.3 will support farmers to adopt climate-resilient and low-emission practices by combining climate-informed extension services, financial mechanisms, and value chain investments in the Kyrgyz Republic, Tajikistan, and Uzbekistan. Building on past GIZ and University of Reading experience with PICSA and E-PICSA, as well as GIZ experience with asset-based leasing schemes, known as revolving funds in the Kyrgyz Republic, and support to value chain actors, the output will focus on translating municipal AFOLU adaptation priorities into farm-level and value chain-level decisions and investments. Activity 2.3.1 will scale the adoption of locally relevant CRLE land use practices and technologies in agriculture through the adjustment of PICSA to regional conditions, the operationalisation of E-PICSA, the development of training material and training of extension services and intermediaries, the implementation of E-PICSA in 180 selected municipalities, technical assistance for producers, farmer groups and cooperatives, and investments in CRLE practices and technologies through matching grants. Activity 2.3.2 will establish the financial mechanisms that directly support adoption of CRLE technologies, by replicating and scaling up revolving schemes into No-Till Adoption Accelerators in the Kyrgyz Republic and establishing matching grant mechanisms in all three countries for producers, producer groups, cooperatives, and micro and small enterprises. Activity 2.3.3 will support investment in climate-resilient and low-emission agriculture and associated value-chain infrastructure through business development and investment-readiness support, operationalisation of the EIB on-lending programme through participating local financial institutions, and value chain investments in post-harvest and value-addition business models.

Baseline	The three target countries each have a different set-up of extension services in agriculture. In the Kyrgyz Republic, most extension services are represented by civil society organizations with some private entities too. In Tajikistan, cooperatives and private sector entities dominate the sector. In Uzbekistan, private sector entities are the most important extension providers. In all three countries, public extension services exist but they generally lack the human and financial resources to perform their role at the required level. All public and non-government extension services across the region lack the experience, skills and tools to effectively link climate information with farm-level adaptation strategies. The PICSA tool, developed by the University of Reading, has been deployed in several districts in the Kyrgyz Republic (SAP002) and is currently being introduced in Tajikistan's cotton sector (GIZ-funded project). However, it requires further adaptation to the regional context, upgrading into E-PICSA (a phone application based on the PICSA methodology) and scaling. The three countries have emerging, but uneven experiences with financial mechanisms that combine public support with beneficiary contributions to enable

investments in agriculture and associated value chains, and there remains a persistent financing gap for the adoption of climate-resilient and low-emission (CRLE) technologies in the pre-selected value chains. Under this output, the programme will operationalise two financial mechanisms that can be implemented at scale with appropriate fiduciary, procurement, environmental, and social safeguards: (i) No Till Adoption Accelerators, as asset-based revolving schemes, applied only in the Kyrgyz Republic, (ii) Agriculture Finance Mechanism, applied in the Kyrgyz Republic, Tajikistan, and Uzbekistan. No Till Adoption Accelerators will be used where a repayment cycle can be sustained through an intermediary model, while the agricultural finance mechanism will be operationalised through matching grants focusing on smallholders, producer groups, cooperatives, and community-based organisations, and an EIB-backed credit programme that will provide MSMEs with access to concessional loan financing, which will be operationalised under Activity 2.3.3.

In the Kyrgyz Republic, the enabling environment for the No-Till Adoption Accelerators is more developed than in the other two countries, including a Cabinet of Ministers' resolution on regional funds' development that addresses the management of revolving schemes, a regulated microfinance and banking sector under the National Bank of the Kyrgyz Republic, and operational experience within ARIS, and the Ministry of Agriculture, alongside local structures such as pasture committees, and water user associations. Past programmes have tested revolving approaches, with results varying by the governance model, and the asset type, and GIZ has implemented a revolving model linked to producer groups and cooperatives to improve access to inputs, machinery, and processing equipment. Building on this experience, the programme will apply a more structured revolving input and mechanisation approach linked to clearly defined service delivery arrangements and to the programme's planning framework, in order to support CRLE technology adoption. In parallel, matching grants are an established co-financing modality in the Kyrgyz Republic under donor-funded, and some state-supported programmes, with experienced implementing bodies, and precedent for applying fiduciary, procurement, and environmental, and social requirements of international development partners.

In Tajikistan, the programme will apply a matching grant mechanism, reflecting stronger precedent for competitive grant windows with beneficiary co-financing than for revolving arrangements, and the need to use modalities that can be administered through existing fiduciary systems. Matching grants have been applied in donor-funded programmes supporting sustainable land management, and climate resilience investments, including through initiatives implemented by the Committee for Environmental Protection via the Center for Implementation of Investment Projects Tajikistan also has implementation experience with investment grant modalities under climate-smart agriculture programming delivered through national institutions, including CIIP, providing practical lessons on beneficiary targeting, disbursement, safeguards compliance, and monitoring. These lessons highlight the importance of transparent selection criteria, capped grant sizes, beneficiary co-financing requirements, and staged disbursements linked to implementation milestones. The programme-supported matching grant mechanism, operationalised through 2 Windows, will build on these experiences while introducing explicit segmentation, strong climate rationale, and verification requirements for CRLE investments in the pre-selected value chains. This will ensure that grant-supported investments in Tajikistan deliver measurable adaptation and mitigation benefits beyond business-as-usual practices, verified through climate-relevant indicators and linked to the programme's monitoring framework.

In Uzbekistan, competitive grant mechanisms with co-financing requirements have been applied in a range of programmes, including innovation support and agricultural commercialisation initiatives, providing precedent for administering calls, assessing applications against defined criteria, and verifying beneficiary

	contributions. In the agriculture sector, investment support models have been implemented through ministry-linked structures, including PIUs and specialised agencies, with defined beneficiary selection criteria, cost-sharing ratios, and implementation manuals. These experiences provide an institutional basis that the programme can build on to operationalise a matching grant mechanism focused on CRLE technology adoption and value chain development in the pre-selected agricultural value chains, with a strengthened climate rationale and results monitoring. Despite some targeted government credit programmes channelled through LFIs, access to medium- and long-term agricultural finance with adequate conditions for CRLE investments remains a challenge in the three countries. Especially for smallholders, producer organisations, cooperatives, and MSMEs. This is due to limited collateral, relatively short-term loans, perceived risks in the agriculture sector, and a limited pipeline of bankable projects. Many potential clients/ borrowers have limited business planning capacity to develop plans that meet the requirements of LFIs.
Activity 2.3.1 Scale the adoption of locally relevant CRLE land use practices and technologies in agriculture in transboundary landscapes	
Description	Under the umbrella of the municipal AFOLU adaptation plan and the local cross-sectoral priorities it identifies, this activity will increase farmers' awareness of climate change impact on their production system, support them in identifying suitable adaptation options, and translate the results into farm- or inter-farm level investment plans. Trained extension services will provide key support throughout the process. PICSA[16] will be used as the core approach for the provision of farm-level, climate-informed extension services and for strengthening climate-informed farm-level decision making. It will provide these services with a structured way to support producers to interpret climate risks, compare locally relevant options, and make context-specific decisions, including decisions on investments linked to the programme's financial mechanisms. In Central Asia, PICSA has been used in the Kyrgyz Republic (SAP002) and is currently being introduced in Tajikistan's cotton sector (GIZ-funded project). It is also being upgraded as a standard GIZ tool. Experiences from these past and ongoing experiences will be leveraged for the GCF programme.
	The approach will be further adapted to the region's needs and conditions, and the digital version of it (E-PICSA) will be operationalized to support scaling and cross-country exchange. Extension services will be trained and further implement E-PICSA in 180 selected municipalities across the three countries (60 in each country). Through this process, local farmers will identify adaptation options for their production systems, including low-cost measures and measures that are conditional upon specific investments. Eligible investments will be financed through matching grants under Sub-activity 2.3.1.6. Activity 2.3.1 will consist of six sub-activities: • Sub-activity 2.3.1.1 Adjustment of PICSA to regional conditions • Sub-activity 2.3.1.2 Operationalisation of E-PICSA • Sub-activity 2.3.1.3 Development of training material for climate-informed extension services. Training of extension services and intermediaries • Sub-activity 2.3.1.4 Implementation of E-PICSA in the selected municipalities

[16] PICSA is an innovative approach developed by the University of Reading that supports smallholder farmers to make informed decisions related to climate variability and change. It was co-developed with farmers, extension services, and technical experts through an iterative process over several years and in different countries. Unlike traditional extension models that prescribe recommendations, PICSA places farmers at the centre of decision-making. It equips them with reliable, locally specific climate information and participatory tools that help translate data into practical choices for their individual farms and households.

- Sub-activity 2.3.1.5 Technical assistance for adoption of climate-resilient and low-emission land use practices and technologies in agriculture
- Sub-activity 2.3.1.6 Investments in the adoption of CRLE practices and technologies in agriculture

Sub-activity 2.3.1.1: Adjustment of PICSA to regional conditions (EE: GIZ)	
Description	PICSA has been successfully used in over 30 countries to date across different regions of the world and with a very wide range of farming systems and environments. In the region, it has been implemented in selected areas in the Kyrgyz Republic and Tajikistan. Minor adjustments are made to the approach in each farming system and environment to ensure it is tailored to local needs and requirements. For example, in irrigated areas, temperature variability and change are more important than rainfall, and the approach is adapted to provide and use key types of temperature information in planning and decision making. Analysis of farming systems will be conducted through desk study reviews (including information from the value chain assessment prepared as part of the funding proposal) and scoping visits to selected municipalities in each country. For each of the main farming systems, the analysis and scoping will include: the main climate related challenges farmers currently face and are likely to in the future; the availability and use of climate information by farmers and supporting agencies (e.g. extension); the adaptation changes that farmers could make in farming practices in the different value chains to adapt to climate challenges; who the key decision makers are in farm enterprises and for different structures (e.g. households, co-operatives) and taking into account the specific roles and requirements of women and youth. Based on this, adjustments will be made to the information and decision-making support tools.
Deliverables	• Scoping report identifying regional adjustments in PICSA for the selected land use systems in rainfed and irrigated agricultural production systems.
Key institutions involved	EE: GIZ. GIZ will contract the University of Reading with the support of national experts further adapt the PICSA approach to regional conditions.

Sub-activity 2.3.1.2 Operationalisation of E-PICSA (EE: GIZ)	
Description	The digital solution E-PICSA was jointly developed by the University of Reading and GIZ to digitally support the highly successful PICSA approach and to facilitate taking it to scale. The E-PICSA App provides climate data (historical data and forecasts) alongside planning and budgeting tools. It is designed for extension staff to support their advisory services and enable farmers to use digital planning tools to improve their decision-making and adapt their activities. In addition, a farmer version of the App is available to be used directly by those farmers who have access to smartphones. This recently developed E-PICSA App has been successfully implemented and scaled in two countries and is designed to be easily adapted and applied in different countries. The available impact figures show high effectiveness in terms of implementing adaptation measures as well as increasing incomes and food security. Through the digitalisation of the approach, climate data is updated in real time, new extension features, such as training videos, can be easily shared, and scaling is facilitated. The following activities will be implemented by E-PICSA with regard to meteorological and climate data: preparation of historical climate data for inclusion in the digital system; linking with available forecasts and projections; validation and testing of systems. Activities regarding the support of Extension staff and farmers will include translation of the App interface and PICSA decision-making and planning tools in the App into local languages, re-shooting of training videos in the App for local social and cultural contexts. Extensive experience in developing, implementing, and scaling up E-PICSA with national partners is available (from GIZ and the University of Reading). It will be mobilised in order to leverage this expertise and enable effective and efficient implementation and scaling.

Deliverables	• E-PICSA operating in each country
Key institutions involved	EE: GIZ will contract the University of Reading for operationalizing E-PICSA.

Sub-activity 2.3.1.3 Development of training material for climate-informed extension services, training of extension services and intermediaries (EE: MoWRAPI, CIIP, NCECC)

Description

Sub-activity 2.3.1.3 will first develop practical training material for extension services to support the selection and adoption of context-specific climate-resilient and low-emission (CRLE) practices and technologies in the pre-selected land use systems. The training material will be designed for delivery through non-governmental extension services in the Kyrgyz Republic and Tajikistan, and for a mixed public and non-governmental extension setting in Uzbekistan, using E-PICSA. It will follow scoping missions by the University of Reading to selected target municipalities.

The three training modules will include an introduction to PICSA, as the main approach for how extension services will engage with producers, and will then apply it for the pre-selected production systems, to ensure that advisory support enables actionable and practical farm management decisions, including low-cost measures and measures that are conditional upon specific investments. These measures will build upon the basket of adaptation options developed under Sub-activity 2.1.2.2. The training will be optimised to use the potential of the E-PICSA digital tools. Further, the last training will include advice on how to access the programme's financial mechanisms.

Secondly, this sub-activity will roll out the E-PICSA training package through a structured Training of Trainers approach, followed by supervised implementation with farmer groups, and a learning cycle to strengthen delivery quality over time.

The extension organisations and staff to be trained in each country will first identify and, prioritising the main non-governmental service providers in the Kyrgyz Republic and Tajikistan, and a mix of public and non-governmental services in Uzbekistan, and will establish the cascade training arrangements within these organisations. It will then deliver initial ToT workshops for these extension services and intermediaries (circa 40 people per country), including practical application of E-PICSA tools and facilitation methods, and ensuring that training is adapted to the target production systems and pre-selected value chains. It will enable extension services to move away from providing land users with one-size-fits-all solutions to a more reflexive approach where land users are empowered to make their own context-specific decisions.
The ToT workshops will combine classroom-based learning with hands-on practice, including a farmer-facing field day, followed by a reflection and planning session to agree on detailed rollout plans for farmer group training, logistics, and timing across the season. Following the ToT, the programme will provide follow-on support to accompany trained trainers as they begin implementation with farmer groups, including supervision, monitoring, and remote support to ensure consistent delivery quality and correct use of climate products and E-PICSA tools, and to address any early issues. Refresher training will be provided based on implementation experience and review findings, focusing on E-PICSA tools, core concepts, and facilitation techniques, and introducing any new material or adaptations required. The sub-activity will integrate an evaluation and a learning loop, including an end-of-season assessment with farmers and extension staff, and a learning event with partners and relevant institutions, to capture lessons and inform the next cycle of scaling and institutionalisation

To enhance the sustainability of this sub-activity, links will be established with higher-level training institutions, and E-PICSA will be operationalized to ensure

efficient scaling and regular retraining of extension services beyond the programme lifetime. E-PICSA will also be made available on the Central Asian Climate Information Platform and regional experts will be trained on using it under Component 3.

Indicative content of the training programme includes:

Table 52: Training indicative content

Training module 1	
Topics	**Potential content (indicative)**
1. PICSA approach	• Introduction to PICSA logic and activity sequencing (pre, during, and post-harvest) • Facilitation methods for working with individuals and farmer groups, and practical use of participatory tools. • Documentation of farmer decisions, assumptions, and implementation actions
2. Climate products for PICSA and how to use them	• Geographically explicit historical climate information products and what and how they are used under PICSA • How to use historical, seasonal, and short-term forecasts within the PICSA approach
3. Climate risk basics for AFOLU	• Main hazards in the target landscapes • What exposure, sensitivity, and adaptive capacity mean in practice for producers • What maladaptation looks like, and how to avoid it • Translating risk into advisory priorities
4. Farm investment planning linked to advisory support	• Turning PICSA decisions into simple investment plans • Basic costing and cash-flow thinking • Timing, and seasonality (what is needed when) • Risk management and contingency planning • Link to producer group planning where relevant
5. Digital PICSA to complement physical	• E-PICSA as a digital support tool for intermediaries working with farmers

Training module 2	
Topics	**Potential content (indicative)**
1. CRLE practices and technologies (cross-cutting)	• Water-use efficiency • Soil moisture and fertility management • Input efficiency and good practice • Integrated pest management • Energy efficiency in AFOLU operations
2. Cereal production (rainfed, and irrigated where relevant)	• Conservation agriculture principles • Reduced tillage, direct seeding, and residue management • Climate-resilient varieties and crops (drought and heat tolerance) • Timing of operations and risk points in the season • Mechanisation
3. Horticulture and orchard systems	• Pruning and canopy management for climate stress • Small water retention infrastructure • Seedling quality and nursery considerations • Post-harvest loss reductionFrost and heat protection measures
4. Technology adoption and demonstrations	• Demonstration plot design and management • Farmer field days and peer learning • Working with producer groups and cooperatives • Typical adoption barriers, and how to address them

Training module 3	
Topics	**Potential content (indicative)**
1. Safeguards	• Working effectively with women, youth, and vulnerable households • Avoiding elite capture in outreach and group work • Stakeholder engagement and communication approaches

		• Grievance and feedback channels
	2. Accessing the programme's financial mechanisms	• How extension support links to matching grants, No-Till Adoption Accelerators, and other support • Basic eligibility and documentation requirements • Supporting producers to prepare simple investment plans • Record keeping for monitoring and verification
	3. M&E	• Key data to capture on outreach and technology adoption • Tracking changes in practices and performance

Deliverables

- **KG:** Training sessions for 40 people (extension services and intermediaries) held
- **TJ:** Training sessions for 40 extension services and intermediaries held
- **UZ:** Training sessions for 40 extension services and intermediaries held

Key institutions involved

EE: MoWRAPI, CIIP, NCECC. The national EEs will cover all costs related to the organizations of the training events and hire national consultants/technical advisory partners to support the development of training materials.

GIZ will contract the University of Reading to develop the training materials, lead the training sessions and provide subsequent on-demand coaching.

Sub-activity 2.3.1.4 Implementation of E-PICSA in the selected municipalities (EE: MoWRAPI, CIIP, NCECC)

Description

This sub-activity involves implementing E-PICSA with farming communities in the selected municipalities, with an expected outreach of 36,000 farmers in total. Extension services trained in sub-activity 2.3.1.5 will review the local AFOLU adaptation plan developed in sub-activity 2.1.2 and identify any agricultural adaptation priorities. They will first mobilize farmers' communities and select participants that will receive support through E-PICSA. The selection criteria include:

- Farm located in the target municipality
- Smallholder farmer, including individual farmers and groups of farmers, cooperatives and associations made of smallholders (with legal status depending on the country)
- Commitment to actively participate in farm-based plan development and implementation
- Declared interest in adopting CRLE practices and technologies
- Minimum requirements of 50% women and youth participants

Secondly, the extension services will roll out the E-PICSA tools and modules. After identifying adaptation options for their production systems, an important part of the sub-activity will be to support beneficiaries prepare, refine, and implement simple investment plans that are aligned with the eligibility requirements of the programme's financial mechanisms. This includes supporting farmers and groups in specifying what is needed and when, and how they will implement it, as well as the basic documentation and record-keeping required to access matching grants or No-Till Adoption Accelerators support. Extension services will also support farmers in properly planning and designing no-cost measures. Lessons learned from the implementation and scaling of E-PICSA in other geographies will be leveraged.

Deliverables

- **KG:**
  - E-PICSA implemented in 60 LSGs
  - 12,000 farmers capacitated
- **TJ:**
  - E-PICSA implemented in 60 jamoats
  - 12,000 farmers capacitated
- **UZ:**
  - E-PICSA implemented in 60 sub-districts
  - 12,000 farmers capacitated

Key institutions

EE: MoWRAPI, CIIP, NCECC. The EEs will contract technical advisory partners in their respective countries.

involved	GIZ will contract the University of Reading to backstop the field implementation and provide on-demand technical support.

Sub-activity 2.3.1.5 Technical assistance for adoption of climate-resilient and low-emission land use practices and technologies in agriculture (EE: MoWRAPI, CIIP, NCECC)

Description	Sub-activity 2.3.1.5 will provide the technical support that connects (i) the climate-informed land use plans and investment plans developed under Activity 2.1.2, (ii) PICSA-enabled extension services established under Activity 2.3.1, and (iii) the financial mechanisms established under Activity 2.3.2. In practice, the sub-activity will support producers, farmer groups, cooperatives, and farmer associations selected in Sub-activity 2.3.1.4 to implement the CRLE measures they prioritised, whether these measures involve investments or not. The sub-activity will start by translating the approved investment plans into operational technical assistance packages for the priority CRLE measures. This will include defining the sequence of actions required before, during, and after the season, and identifying what can be implemented through farmer decision-making and practice change, and what necessitates investment and procurement. Technical assistance will be delivered through extension intermediaries trained under Activity 2.3.1, using E-PICSA tools and locally specific climate information products. The assistance will combine group-based sessions and individual follow-up, and will include practical support for technology adoption, including demonstrations, farmer field days, and peer learning approaches where these support adoption and reduce perceived risks.
Deliverables	• circa 100 need-based trainings/field days held at LSG level in the Kyrgyz Republic • circa 100 need-based trainings/field days held at jamoat level in Tajikistan • circa 100 need-based trainings/field days held at sub-district level in Uzbekistan
Key institutions involved	**EE:** MoWRAPI, CIIP, NCECC. National EEs will hire technical advisory partners (same as above).

Sub-activity 2.3.1.6 Investments in the adoption of CRLE practices and technologies in agriculture (EE: MoWRAPI, CIIP, NCECC)

Sub-activity 2.3.1.6 will channel investments to support scaling the adoption of the CRLE practices and technologies prioritised in the investment plans developed under Activity 2.1.2 and supported through PICSA-enabled extension. Investments will be targeted to the selected production systems, and will focus on enabling producers, producer associations, coops, etc to implement their investment plans. A list of indicative eligible measures for programme support for climate-resilient and low-emission agriculture is presented in the table below.

Table 53: Indicative programme support for climate-resilient and low-emission agriculture

Value chains	Key measures supported by the programme and impacts
Wheat	• No-till seeding: better water infiltration and retention • Cover crops: erosion control, improved soil fertility with use of legumes, enhanced soil organic matter • Crop rotation using drought-resistant oilseed crops and legumes: enhanced soil fertility, sustainable income • Improved plant nutrition and pest management: enhanced productivity, reduced GHG emissions
Fruits	• Use of drought/heat/flood/frost resilient root stocks and fruit cultivars: enhanced resilience against climate-induced challenges • Improved orchard management technologies (soil cover, improved pruning practices etc.): better resilience to late frost, reduced

	disease • Use of drip irrigation: improved water efficiency • Use of insect-proof nets/shade nets: enhanced resilience to extreme heat and prevention of sunburn, reduced impact from pest
Horticulture	• Use of climate resilient seeds and seedlings: enhanced resilience to heat, drought, frost and disease • Use of drip irrigation: improved water efficiency • Improved plant nutrition and pest management: enhanced productivity, reduced GHG emissions • Use of insect-proof nets/shade nets: enhanced resilience to extreme heat and prevention of sunburn, reduced pests
Seed potato	• Upgrading local seed multiplication: better suitability of the resulting seeds to the local climate • Use of sprinkler irrigation: improved water efficiency • Improved plant nutrition and pest management: enhanced productivity, reduced GHG emissions
Non-timber forest products	• Sustainable collection practices: increased productivity of trees and bushes • Improved drying, processing and storage technologies: reduced harvest loss under high moisture conditions, improved marketability

Support under this sub-activity will be delivered through the financial mechanisms established under activity 2.3.2, using the operational processes, eligibility rules, cost-sharing arrangements, and verification procedures defined there.

Access to finance will be accompanied by extension support (Sub-activity 2.3.1.5) to help producers implement investment plans, maintain basic records required for disbursement and verification, and ensure that supported technologies and practices are applied correctly and remain functional over time, including through basic O&M arrangements.

Deliverables

- **KG:** Investments in the adoption of CRLE practices and technologies in agriculture
- **TJ:** Investments in the adoption of CRLE practices and technologies in agriculture
- **UZ:** Investments in the adoption of CRLE practices and technologies in agriculture

Key institutions involved

EE: MoWRAPI, CIIP, NCECC.

Activity 2.3.2: Establishment of financial mechanism for enabling the adoption of CRLE practices in the agricultural sector

Description

The adoption of CRLE practices and technologies will be supported by the programme through differentiated financing instruments. This activity will establish an agricultural finance mechanism operating across the three programme countries to support the adoption of CRLE practices and technologies in priority agricultural value chains, planned under sub-activities 2.3.1.6 and 2.3.3.3. The mechanism will comprise two complementary financing components covering eligible investments in both rainfed and irrigated agriculture, with particularly strong demand anticipated from irrigated production systems. Under this activity, A Matching Grant Mechanism will be established in each country to provide matching grants to the most vulnerable smallholders, including those organised through producer groups, cooperatives, and community-based organisations. Differentiated beneficiary contribution requirements will be applied according to the type and financial capacity of the beneficiary, thereby improving the accessibility and affordability of eligible investments. In parallel, an EIB-backed intermediated loan programme will provide MSMEs with access to concessional loan financing through the EIB-backed credit programme, which will be operationalised under Activity 2.3.3. To facilitate access, particularly for micro and small enterprises, the programme will support the preparation and development of viable business plans that meet the programme's eligibility and

financing requirements. In the Kyrgyz Republic, these two financing components will be complemented by the No-Till Adoption Accelerators, dedicated asset-based revolving instruments targeting the adoption of no-till wheat production by smallholders in rainfed systems. Operating through eligible regulated microcredit organisations (MCOs), the Accelerators will facilitate access to inputs, machinery and tailored extension services. Indicative investments under the agricultural finance mechanism include no-till seeding, climate-resilient seeds and seedlings, water-efficient irrigation, orchard improvements, protective nets, and post-harvest technologies.

The agricultural finance mechanism, including the matching grants, the complementary EIB-backed intermediated loan programme, and the No-Till Adoption Accelerators in the Kyrgyz Republic, will be implemented in accordance with standard operational procedures. These procedures will define the respective target groups, eligibility and selection criteria, beneficiary contributions and financing ratios, eligible uses of funds, application and appraisal processes, selection and approval arrangements, environmental and social requirements, disbursement conditions, and monitoring and verification provisions. Under the Matching Grant Mechanism, applications will undergo eligibility verification, assessment of the proposed investment, and confirmation of the beneficiary's required matching contribution and applicable environmental and social risk category. Separate procedures for the Accelerators will cover the selection and capitalisation of microcredit organisations, aggregation of farmer demand, provision of inputs on repayable terms, equipment leasing, post-harvest repayment arrangements, extension support, monitoring, and reinvestment of repayments into subsequent financing cycles. The EIB-backed Concessional Credit Facility will be implemented in accordance with the arrangements, eligibility requirements and procedures established under Activity 2.3.3.

This activity will address bottlenecks for accessing capital in the countries while keeping concessionality at a minimum to avoid market distortions as much as possible.

The activity will be developed by two sub-activities:

- Sub-activity 2.3.2.1 Replicating and scaling No-Till Adoption Accelerators in the Kyrgyz Republic
- Sub-activity 2.3.2.2 Establishing matching grant mechanism for CRLE technology adoption and value chain development

Sub-activity 2.3.2.1: Replicating and scaling No-Till Adoption Accelerators in the Kyrgyz Republic (EE: GIZ)

This sub-activity will help replicate and scale GIZ's experience in establishing asset-based revolving schemes in the Kyrgyz Republic. In the Kyrgyz Republic, there is a specific Cabinet of Ministers resolution on regional funds' development that addresses the management of revolving schemes, a regulated microfinance and banking sector under the National Bank of the Kyrgyz Republic, and operational experience within the Ministry of Agriculture and ARIS, alongside established local structures such as pasture committees and water user associations that have managed revolving mechanisms at community level. This enabling environment and experience, particularly regulated community-level revolving mechanisms, licensed intermediaries with repayment enforcement capacity, and established producer-linked governance models, are missing in Tajikistan and Uzbekistan, which is why the No-Till Adoption Accelerators will only be implemented in the Kyrgyz Republic.
GIZ's specific experience includes an EU co-financed project, where it helped form producer groups and cooperatives and set up asset-based revolving scheme to improve access to inputs, machinery, and processing equipment, with

participants repaying into the fund to sustain its operations.[17] The asset based revolving scheme are managed by a licensed/regulated MCO/MCA (with proven experience in revolving scheme), using standard loan agreements, internal controls, reporting, and auditability.

Building on this approach, the sub-activity will support the establishment and operationalisation of No-Till Adoption Accelerators, revolving input and mechanisation scheme implemented through a non-profit micro credit organisation (MCO) and linked to Conservation Agriculture Teams (CATs), with grant resources used to capitalise the mechanism primarily through in-kind support.
Initial in-kind support is provided on the condition of 100% repayment by beneficiaries, so that repayments return to the No-Till Adoption Accelerators' pool and are reused for the next season. This will include the provision of proper seeds and blended fertilisers (NPK) to be managed by the MCO for onward supply to farmers, and the procurement of mechanisation equipment that is registered under the MCO's name and made available through medium-term leasing arrangements to established CATs, who subsequently deliver mechanised services to farmers at market cost.

In parallel, the sub-activity will contract an agricultural advisory service to support CAT and farmers and to establish local advisory capacity within each CAT, to ensure continuity beyond programme support. The advisory service and CATs will have a key role in collecting farmers' seasonal input needs and transmitting aggregated demand to the MCO, enabling coordinated procurement and supply, including bulk purchasing arrangements where feasible. Farmers will repay the MCO in cash for inputs received, and, where the MCO has available resources from its own funding sources, farmers may also access credit for mechanisation services. Repayment is typically made after harvest and includes a small fee to sustain the No-Till Adoption Accelerators. The mechanism also benefits farmers through aggregated demand and coordinated/bulk procurement, providing more reliable access to quality inputs compared to individual purchasing.

Description

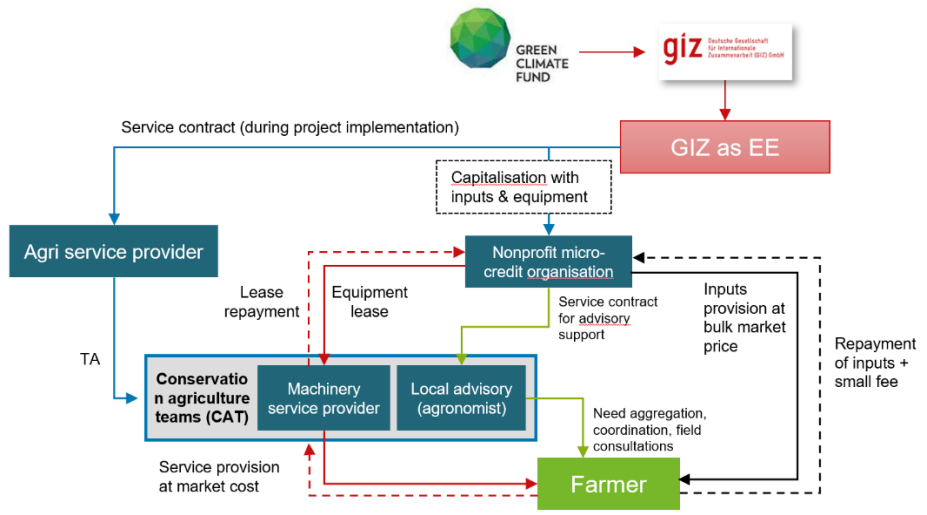
Repayment will be made formally to the MCO and recorded in its systems, while CATs will support repayment scheduling and follow-up to improve efficiency and reduce transaction costs. The CAT-based coordination improves repayment discipline and reduces the administrative burden and costs (e.g., aggregated orders, coordinated delivery, and organised repayment follow-up instead of many individual transactions). A markup/fee is charged to cover operational delivery costs rather than generate profit. These costs include farmer mobilisation, contract preparation and administration, monitoring, agronomic advisory support, repayment follow-up, banking charges, transport, office and printing costs, and taxes.

The approach is intended to continue after the end of grant support on a self-paid basis, with service pricing incorporating the advisory function, and with scale-up contingent not only on the availability of machinery and inputs but also on the development of capable service providers and functioning local advisory systems. The model will aim to simplify farmer participation over time by moving toward a more "one-stop-shop" service package, so farmers can access inputs, mechanisation services, and advisory support through a single coordinated arrangement, improving usability and scalability.
This mechanism was applied across multiple agricultural value chains (including wheat/barley, honey, maize, onions, cotton, berries/vegetables, etc). See below the approach utilised for operating the revolving schemes in the Kyrgyz Republic.

[17] Under GIZ's Green Economy project, at the end of 2023, agricultural machinery valued at KGS 8,346,429 (circa EUR 87,857), excluding VAT, was transferred to the microcredit agency Agrokredit Plus to establish a revolving scheme for zero-tillage promotion. The package included 2 Ozdoken Millennium 18 direct seeders, 1 YTO-95 tractor, 2 disc harrows, and 3 sprayers. The machinery was allocated to local machine-tractor stations (MTSs) on a repayable basis, without markup or interest, under leasing arrangements of 3 to 5 years, aligned with each asset's payback period.

There are currently 3 revolving schemes in the country that were supported by GIZ.

Figure 55: Operational modality of the No-Till Adoption Accelerators



Source: own illustration, 2025

The implementation of this sub-activity will follow a stepwise approach that is described below. The programme aims to support 3 No-Till Adoption Accelerators with 3 extension advisory service providers and establish 24 CATS. The 3 No-Till Adoption Accelerators will be supported with an in-kind contribution, and there will be 3 extension service provider that will be responsible for establishing 24 CATs and delivering technical assistance to them for a period of 3 years.

Table 54: Indicative steps for the operationalisation of the No-Till Adoption Accelerators

Step	Note	R&R
1. Partner selection and scheme set up	Identify and contract the implementing MCO and the agricultural advisory service. Agree on operational procedures, eligibility criteria, repayment modalities, basic reporting, and coordination arrangements with CATs and service providers.	GIZ
2. Capitalisation of the No-Till Adoption Accelerators (in kind)	Provide seed capital primarily as in-kind inputs to be managed by the MCO for onward provision to farmers under agreed conditions (seasonal inputs and mechanisation assets as in-kind capitalisation of No-Till Adoption Accelerators)	GIZ
3. Procurement and registration of mechanisation equipment	Procure mechanisation equipment and register the assets under the MCO's name to enable structured leasing and asset tracking (Previous examples included direct seeders, tractors, disc harrows, and sprayers, with asset-specific repayment periods of 3 to 5 years).	GIZ & MCO
4. Establish advisory support and local advisory capacity	Deliver technical assistance to farmers and CATs through a contracted advisory service and develop a "local advisor" capacity within each CAT to ensure continuation after programme support ends.	GIZ
5. Farmer engagement	Organise farmer participation largely	CAT

through CATs and operational planning	through CATs for mechanised operations and agree on the approach to scheduling and delivery of field operations (for example, fertiliser application, spraying, and other mechanised services).	
6. Demand aggregation and input planning	Collect and aggregate farmers' seasonal input needs (seeds, fertilisers, crop protection means, and related items) and transmit consolidated demand to the MCO to inform procurement and supply planning.	CAT
7. Input procurement and supply	Organise procurement and supply of inputs through coordination between the MCO and CATs, including bulk purchasing arrangements where feasible, and agreed purchase terms (for example, partial prepayment and partial credit).	CAT
8. Leasing of equipment to local service providers	Lease the procured equipment from the MCO to local service providers under medium-term agreements (typically 5 to 10 years, subject to capacity), enabling service provision to farmers at market cost. On the current operating funds, mechanisation assets were channelled through local machine-tractor stations/service providers and made available under concessional conditions, including without markup or interest and with repayment schedules linked to asset payback	MCO
9. Delivery of mechanisation services to farmers	Service providers deliver mechanised services to farmers, coordinated through CATs, in line with agreed production and advisory plans.	CAT
10. Farmer repayment for inputs and, where applicable, services	Farmers repay the MCO in cash for inputs received and may access credit for services where the MCO has its own resources available. Grant resources do not capitalise service loans. Mechanisation assets were channelled through local machine-tractor stations/service providers and made available under highly concessional conditions, including cases without markup or interest and with repayment schedules linked to asset payback	Farmers
11. Repayment coordination and records management	Repayments are made formally to the MCO and recorded in MCO systems, with CATs supporting repayment scheduling, follow-up, and coordination to reduce transaction costs.	Farmers
12. No-Till Adoption Accelerators and continuation beyond programme support	The MCO revolves repayments to finance subsequent cycles; post-project continuation is on a self-paid basis, with service pricing incorporating the advisory function and local advisory capacity maintained through CATs. The fee is a cost-recovery mechanism covering administration, advisory support, logistics, repayment follow-up, and taxes, rather than as a profit margin.	MCO/CAT/Farmer

As outlined above, the mark up is charged by the MCO No-Till Adoption Accelerator manager and is a cost-recovery mechanism to cover the operational costs of administering the No-Till Adoption Accelerator, including farmer mobilisation, contract administration, monitoring, agronomic advisory support, repayment follow-up, transport, banking charges, and applicable taxes, rather than to generate profit. The table below provides an illustrative example from the mark up in a seasonal revolving input (this are real figures provided by one of the MCOs currently operating under the GIZ Green Economy Programme).

Table 55. Mark up in existing asset-based revolving scheme

Item	Amount (KGS)	EUR	Note
Total procurement cost of inputs	5,562,805	58,556	Inputs procured for onward supply to farmers
Total resale value to farmers	6,003,600	63,196	Repayable after harvest
Total markup / fee generated	**440,795**	**4,640**	Charged by the revolving scheme manager on onward supply
Farmer mobilisation	50,000	526	5 days × 10,000
Contract preparation and administration	45,000	474	Actual costs
Monitoring	40,000	421	4 days × 10,000
Advisory service / agronomic support	105,000	1,105	Annual contract
Repayment follow-up / ensuring recoverability	50,000	526	Actual costs
Bank fees and cash settlement services	15,000	158	Actual costs
Transport costs	100,000	1,053	5,000 km × 20
Office supplies and printing	10,000	105	Contracts, registers, acts
Sales tax	8,816	93	2% of markup
Total operating costs covered by markup	**423,816**	**4,461**	
Residual retained in revolving scheme	**16,979**	**179**	Not treated as profit; retained for future cycles

Table 56: Preliminary eligibility criteria for a No-Till Adoption Accelerator

Actor	Eligibility criteria
MCO	• Established legally an MCO in the Kyrgyz Republic and registered as a non-profit organization • Active in the agriculture sector • Minimum 3 years track record in agricultural financing years track record
CAT	• Availability of sufficient rainfed land area in the target region. • Ownership or long-term access to a tractor ≥95 HP suitable for zero tillage. • Registered as Service Provider (cooperative, etc) • Minimum 3 years of experience in mechanization services, • Good reputation in the local community as a reliable machinery service provider. • Willingness to cooperate with advisory services and participate in monitoring (incl. GPS data collection).
Beneficiaries	• Availability of Rain fed land. • Willingness to adopt zero tillage / regenerative practices. • Commitment to participate in advisory support and monitoring activities. • Priority in selection will be given to female farmers, youth and persons with disabilities, as well as farmers from vulnerable or low-income households.

Deliverables

- 3 No-Till Adoption Accelerators established and operational
- 24 CATs established

Key

EE: GIZ will select the partner non-profit MCO through a competitive tender and

institutions involved	agree on the key aspects of operational procedures. EE will procure the in-kind outputs for the manager of the No-Till Adoption Accelerators. EE will contract a delivery partner/service provider for delivering technical support and establishing CATs. CAT: aggregates and organises farmers; organises bulk purchasing of key inputs. Beneficiaries: CATs, farmers.
Sub-activity 2.3.2.2: Establishing matching grant mechanism for CRLE technology adoption and value chain development (EE: MoWRAPI, CIIP, NCECC)	
Description	Under this sub-activity, the programme will support the establishment of mechanisms in the three countries to enable the adoption of technologies for CRLE agricultural practices. There is experience in the three countries with the use of matching grants in different sectors. For this GCF programme, matching grants would be applied as a targeted delivery instrument to unlock CRLE investments in agriculture with a clear climate rationale and measurable results and would be combined with technical assistance to support scale and sustainability. In the **Kyrgyz Republic**, matching grants are a well-established mechanism used under donor-funded and, in some cases, state-supported programmes to promote investments. The mechanism has been applied across SMEs, agro-value chains, rural infrastructure, and business sustainability, with ARIS administering small grant programmes and government Project Implementation Units delivering grant windows under larger operations such as World Bank Regional Economic Development projects, including in agriculture and tourism. Overall, the institutional basis for operating matching grants is in place through experienced implementing bodies, including ARIS, the Ministry of Agriculture's Project Implementation Units, and municipal administrations, and there is practical precedent for applying fiduciary, procurement, and environmental and social requirements under international partner frameworks, which make matching grants a relevant delivery scheme for supporting CRLE agricultural investments.
Description	In **Tajikistan**, matching grants have been used in selected donor-funded programmes as a mechanism to incentivise co-financing by beneficiaries for investments in sustainable land management. The basic institutional arrangements to operate matching grant mechanisms are in place in the country, including fiduciary and implementation capacity within the CIIP, and a clear technical mandate for the Committee for Environmental Protection. In Tajikistan, matching grants are particularly suited to the operating context, where smallholders and agri-SMEs face high climate and market risks, limited access to formal credit, and constrained cash flows, making repayment-based instruments less appropriate for CRLE technology adoption. In **Uzbekistan,** matching grants have also been used in donor-funded programmes as a means to incentivise technology adoption. The programme supported agricultural finance mechanisms (one per country) will target a set of beneficiary groups across the Kyrgyz Republic, Tajikistan, and Uzbekistan, with segmentation applied to establish eligibility, grant caps, and co-financing/matching requirements. Target groups will include: ● household producers, and individual or smallholder farmers, ● farmer groups, cooperatives, associations, and other community-based organisations, ● micro and small agri-enterprises and agribusiness SMEs operating in the pre-selected value chains (this segment is supported by the EIB

intermediated loan programme)
- suppliers, including entities that can procure, install, and maintain equipment, inputs, and services that farmers may not be best placed to source directly (this segment is supported by the EIB intermediated loan programme)
- women-owned and youth-owned enterprises

For the programme's matching grants, the required matching contribution may be financed, in whole or in part, by the beneficiary from own resources (cash subject to verification). MSMEs are expected to access to concessional loan financing through the EIB-backed credit programme, which will be operationalised under Activity 2.3.3 (there will be no grant finance or financial incentive provided under for MSMEs and other commercially oriented actors).

Segmentation

Segmentation will be used to ensure that the grant scheme is accessible to smaller and more vulnerable actors while ensuring that larger beneficiaries provide proportionally higher co-financing.

The mechanism will finance investments in the pre-selected value chains in the agricultural sector that support climate adaptation and resilience, and where relevant, generate mitigation co-benefits. Eligible investments will include climate-resilient production technologies and practices, efficient irrigation and water-saving technologies, soil conservation and land rehabilitation measures, small-scale agro-processing and value addition, and renewable energy and energy-efficient technologies supporting agricultural production, amongst others. Support to suppliers may include equipment and service delivery investments that enable farmers' uptake of climate-resilient practices and technologies, including the provision of certified seedlings, the procurement and servicing of specialised equipment, when these are directly linked to the targeted value chains and have a strong climate rationale.

The matching grants will use differentiated matching ratios by beneficiary segment, with higher concessionality for smaller actors.

The segmentation and associated matching ratios were determined based on global recommendations[18] , adjusted through benchmarking of past and ongoing matching grant mechanisms in the three target countries (see benchmark table in appendix), and then discussed iteratively and validated through stakeholder consultations, bilateral meetings with the EEs, and discussions with representatives of the Ministries of Agriculture.

The aim of having different segments is to have different tiers of concessionality depending on the beneficiary type and financial capacities. With smaller-scale, more vulnerable, or less commercially mature beneficiaries receiving more concessional support, and MSMEs that are more commercially oriented being able to access only the EIB intermediated loan programme.

An earlier iteration used lower concessionality for the small-scale beneficiary segments, but this was revised after consultations, as feedback highlighted that requiring a contribution above 20–30% for small holders would create affordability problems and would likely exclude many of the most vulnerable potential beneficiaries.

The beneficiary's matching contribution may be provided in cash, subject to verification and documentation. **Women and youth[19] will be priority target groups under the matching grant mechanisms in all three countries. This**

[18] IFAD's Decision-making guide for designing a standalone or integrated matching grant with supervised implementation, recommendations from World Bank experience as captured in *How Can Matching Grants in Agriculture Facilitate Access to Finance?*

[19] A person being maximum 35 years old at the time of the application.

will include both individual women and youth producers and producer groups, where eligible under the relevant country matching grant, and women-owned[20] or youth-owned[21] agri-MSMEs operating in the targeted value chains (MSMEs will be supported through technical assistance and the EIB loan programme). To strengthen their participation, the programme will undertake targeted outreach and mobilisation, provide tailored technical assistance and application support, and, where appropriate, apply adapted selection criteria in the appraisal/selection process. These measures are intended to reduce barriers to access for women and youth while maintaining the core technical, fiduciary, and E&S requirements of the mechanisms.

Table 57: Indicative segmentation and grant ceilings for the Kyrgyz Republic

Beneficiary segment	Maximum grant share	Minimum matching contribution	Maximum grant
Peasant farms or individual farmers	70%	30%	5,000
Farmer groups & agricultural cooperatives	60%	40%	40,000

Table 58: Indicative segmentation and grant ceilings Tajikistan

Beneficiary segment	Maximum grant share	Minimum matching contribution	Maximum grant
Individual / smallholder farmers	80%	20%	5,000
Farmer groups and CBOs	80%	20%	40,000

Table 59: Indicative segmentation Uzbekistan

Beneficiary segment	Maximum grant share	Minimum matching contribution	Maximum grant
Dehkan farms	70%	30%	5,000
Farms	60%	40%	25,000

Beneficiary definition

Table 60: Definition Kyrgyz Republic

Beneficiary segment	Maximum grant share
Peasant farms or individual farmers	Individual producer less than 5 ha
Farmer groups & agricultural cooperatives	An agricultural cooperative is a voluntary association of agricultural producers organized on a membership basis for the purpose of engaging in joint production or other economic activities based on the pooling of their monetary capital contributions, with the aim of meeting the economic and other needs of the cooperative's members.

Table 61: Definition Tajikistan

Beneficiary segment	Definition
Individual / smallholder farmers	Individual producer less than 5 ha

[20] Women-owned means an enterprise that is at least 51% owned by one or more women.
[21] Youth-owned means an enterprise in which the main owner is youth and/or in which youth hold a majority stake of 51% or more.

Farmer groups and CBOs	Organised group of individual farmers on a voluntary basis,

Table 62: Definition UZ

Beneficiary segment	Definition
Dehkan farms	Individual producer less than 1 ha
Farms	Individual producer less than 5 ha (as per definition - A farm is a business entity engaged in the production of agricultural products and other activities not prohibited by law, using land plots provided under lease)

Eligibility criteria

Beneficiaries must meet some common minimum eligibility criteria across the three countries and agree to specific conditions (detailed country criteria included below). Potential beneficiaries will need to (i) operate in the pre-selected agricultural value chains within the Kyrgyz Republic, Tajikistan, or Uzbekistan, (ii) submit a complete and eligible application under the relevant Call for Proposals, (iii) demonstrate capacity to provide the required matching contribution, (iv) comply with the environmental and social standards applicable to the programme, and (v) agree to monitoring and verification rules.[22]

Table 63: Indicative eligibility criteria - Kyrgyz Republic

Criteria	Specification
Eligible applicant status	Applicant must be a legally registered or otherwise legally recognized entity or natural person (citizen) in the Kyrgyz Republic and fall within an eligible beneficiary category defined in the Call for Proposals.
Registration, tax, and banking compliance	Applicant must hold the applicable registration and tax identification documents and maintain an active bank account.
Sector and geographic eligibility	Applicant must operate in the agriculture sector and within the eligible programme area and value chains defined under the programme.
Land-use eligibility	Applicant must provide acceptable evidence of legal access to the land, site, or productive assets relevant to the proposed investment, where applicable.
Eligible investment	The proposed investment must fall within the eligible expenditure categories and eligible value chains defined under the Matching Grant Mechanism and must not include expenditures or activities listed on the negative list.
Matching contribution	Applicant must declare their capacity to provide the required minimum matching contribution and Call for Proposals.
No double funding	Applicant must declare that the same investment is not being financed through another public subsidy, grant, or donor-funded programme.
Environmental and social compliance	The proposed investment must comply with the applicable environmental and social requirements of the programme and must not involve any activity prohibited under the relevant exclusion lists.
Application completeness and compliance	Applicant must submit a complete application package in accordance with the Call for Proposals and agree to comply with grant conditions, monitoring, reporting, verification, and inspection requirements.

[22] Simplified eligibility requirement for individual smallholder access may be developed during implementation if smallholders have challenges in meeting the full requirements. These will include at minimum, tax identification number and certificate from municipality confirming residence and land ownership.

Table 64: Indicative eligibility criteria Tajikistan

Criteria	Specification
Eligible applicant status	Applicant must be a legally registered or otherwise legally recognized entity or natural person in Tajikistan (citizen), as applicable to the relevant beneficiary segment defined in the Call for Proposals.
Registration, tax, and banking compliance	Applicant must meet the minimum registration, tax identification, and banking requirements applicable to the beneficiary segment and maintain an active bank account in accordance with programme requirements.
Sector and geographic eligibility	Applicant must operate in the agriculture sector and within the eligible programme area and value chains defined under the programme.
Land-use eligibility	Applicant must provide acceptable evidence of legal access to the land, site, or productive assets relevant to the proposed investment, where applicable.
Eligible investment	The proposed investment must fall within the eligible expenditure categories and eligible value chains defined under the programme and must not include expenditures or activities listed on the exclusion list.
Matching contribution	Applicant must declare their capacity to provide the required minimum matching contribution and Call for Proposals.
No double funding	Applicant must declare that the same investment is not being financed through another public subsidy, grant, or donor-funded programme.
Environmental and social compliance	The proposed investment must comply with the applicable environmental and social requirements of the programme and must not involve any activity prohibited under the relevant exclusion lists.
Application completeness and compliance	Applicant must submit a complete application package in accordance with the Call for Proposals and agree to comply with grant conditions, monitoring, reporting, verification, and inspection requirements.

Table 65: Indicative eligibility criteria Uzbekistan

Criteria	Specification
Eligible applicant status	Applicant must be a legally registered entity in the Republic of Uzbekistan and fall within an eligible beneficiary category defined in the Call for Proposals, such as Farmer, Dehkan, Cluster, or SME.
Registration, tax, and banking compliance	Applicant must hold a valid registration certificate, Tax Identification Number (TIN), and an active bank account in accordance with programme requirements.
Sector and geographic eligibility	Applicant must operate in the agriculture sector and within the eligible programme area and value chains defined under the Programme.
Land-use eligibility	Applicant must provide acceptable evidence of legal access to the land, site, or productive assets relevant to the proposed investment, where applicable.
Eligible investment	The proposed investment must fall within the eligible expenditure categories and eligible value chains defined under the Matching Grant Mechanism and must not include expenditures or activities listed on the negative list.
Matching contribution	Applicant must declare their capacity to provide the required minimum matching contribution and Call for Proposals.
No double funding	Applicant must declare and demonstrate that the same investment is not being financed through another public subsidy, grant, or donor-funded programme, including through agrosubsidiya.uz where applicable.
Environmental and social compliance	The proposed investment must comply with the applicable environmental and social requirements of the programme and must not involve any activity prohibited under the relevant exclusion lists.
Application completeness and	Applicant must submit a complete application package in accordance with the Call for Proposals and agree to comply

compliance	with grant conditions, monitoring, reporting, verification, and inspection requirements.

A list of eligible investments is listed in sub-activity 2.3.1.6.

A list of ineligible and prohibited expenditures is included in Table 66.

Table 66: Prohibited and ineligible expenditures

Ineligible expenditure	Note
Purchase of land	Not eligible
Purchase of buildings not directly linked to approved productive investment	Not eligible
Salaries, wages, and recurrent operating costs	Not eligible
Debt refinancing and loan repayment	Not eligible
General working capital, including seasonal operating expenses not linked to approved investment establishment	Not eligible
Vehicles, except where specifically justified and approved	Not eligible
Expenditures incurred before grant approval, unless explicitly authorised	Not eligible
Goods and activities on the IFC and programme exclusion list	Strictly prohibited
Taxes, duties, and fines	Not eligible
Second-hand equipment	Not eligible

All proposed investments will undergo E&S screening in line with the programme ESMP and following the IFC exclusion list. Programme specific exclusion list can be found in Appendix F. Activities that fall under prohibited/exclusion criteria cannot be financed.

The process for the disbursement of matching grants is summarised in the table below.

Table 67: Indicative process for disbursing matching grants

Step	Note	R&R
1. Design Call for Proposals	The programme prepares the Call for Proposals, including the definition of eligible beneficiary segments, eligible investments in the pre-selected value chains, grant ceilings, cost-sharing requirements, application forms, evaluation criteria, and timelines.	
2. Launch Call for Proposals	The approved Call for Proposals is published and disseminated through appropriate channels to reach eligible applicants in the target areas.	GMU EE
3. Outreach and application support	The programme provides targeted technical assistance to potential applicants to support application development, including outreach sessions, compliance with national environmental and programme standards	TA service providers
4. Submission of applications	Applicants submit complete application packages in line with the requirements, including a technical proposal, a budget, an implementation plan, and documentation for their matching contribution.	Potential beneficiaries
5. Administrative eligibility screening	Applications are screened for completeness, eligibility, and compliance with basic requirements under the Call. Ineligible or incomplete applications are rejected and participants are informed.	GMU EE

6. Technical assessment, including E&S screening	Eligible applications undergo technical appraisal of feasibility and relevance to the pre-selected value chains and include environmental and social screening.	TA service providers
7. Financial assessment and verification of co-financing	The financial appraisal assesses cost reasonableness, financial viability, and verifies the applicant's capacity to provide the required matching contribution from own resources (e.g., proof of funds, signed loan agreement, and/or evidence of disbursement).	GMU EE
8. Review, scoring, and recommendation	Applications are scored against pre-disclosed criteria, and consolidated for review, with recommendations prepared for decision.	GMU EE
9. Grant Selection Committee decision	The Grant Selection Committee (GSC) reviews submissions, confirms compliance with process requirements, and approves, conditionally approves, or rejects applications.	GSC (including GIZ)
10. Contracting	Successful applicants sign a Cooperation Agreement with the EE, specifying the approved investment plan, and budget, grant amount, cost-sharing ratio, milestones, disbursement conditions (purchase and provision of equipment and services, reporting requirements, and recovery provisions.	GMU EE
11. Transfer of equipment / service	the Executing Entity (EE) procures the approved services or equipment upon receipt of the final beneficiary's required own contribution and pays the supplier directly against a verified invoice. The procured services or equipment are delivered directly to the final beneficiary. Implementation, use of the procured items, and compliance with the agreed conditions are governed by the Cooperation Agreement between the EE and the final beneficiary.[23]	GMU EE
12. Implementation and supervision	Beneficiaries implement the investment, including technical support where relevant, and compliance with environmental and social requirements.	TA service provider
13. Monitoring, reporting, and control	Beneficiaries submit regular technical reports, and agree to be subject to on-site monitoring, spot checks, and compliance checks. The EE may suspend, reduce, or recover funds in cases of misuse, misreporting, or non-compliance with the contract.	GMU EE

Deliverables

- **KG:** 1 agricultural finance mechanism with a matching grant component established and operational
- **TJ:** 1 agricultural finance mechanism with a matching grant component established and operational
- **UZ:** 1 agricultural finance mechanism with a matching grant component established and operational

Key institutions involved

EE: MoWRAPI, CIIP, NCECC. EEs will establish grant selection committees with GIZ as a member) and adjust and adapt the operational manual and establish working modalities with the TA service provider.

Beneficiaries:

- household producers, and individual or smallholder farmers,
- farmer groups, cooperatives, associations, and other community-based organisations,
- women and youth- owned enterprises

[23] EEs will seek to identify suppliers that are also able to support beneficiaries with equipment maintenance following installation.

Activity 2.3.3 Investment in climate-resilient and low-emission agriculture and associated value-chain infrastructure	
Description	The activity will build on GIZ's experience in supporting value chain actors, clusters, and business associations. It will combine technical assistance with targeted value chain investments where public benefits can be expected. The focus will be on translating CRLE production and land use measures into viable business propositions, including on-farm value addition (e.g., small-scale processing, cold & improved storage, and quality upgrading) and off-farm services and enterprises that enable climate-resilient production, including in aggregation, logistics, and input and service provision. The support will be delivered through a combination of targeted business development, technical assistance, and practical financial literacy support tailored to small-scale value chain actors, including MSMEs. This will include strengthening investment planning, basic costing and cash flow management, and risk management. Where relevant to the selected value chains, the activity will also support actors to navigate compliance requirements that influence market access, such as quality standards and traceability, given that weak post-harvest infrastructure and limited cold storage remain key constraints across multiple value chains in the three countries. The activity will function as the programme's pipeline and investment facility, translating CRLE opportunities into investment-ready proposals and linking beneficiaries to market actors and participating LFIs under the EIB programme, as well as to the programme's grant-based mechanisms under activity 2.3.2 where applicable. Sub-activity 2.3.3.1 will generate investment-ready files and strengthen market linkage. Sub-activity 2.3.3.2 will finance eligible investments through the EIB intermediated on-lending programme via participating LFIs. Sub-activity 2.3.3.3 will finance eligible value chain and post-harvest investments through the activity 2.3.2 financial mechanisms (matching grants), including where an LFI loan under Sub-activity 2.3.3.2 is used to finance all or part of the beneficiary's matching contribution. The three sub-activities under 2.3.3 are: • Sub-activity 2.3.3.1: Development of investible business models and support for producer groups, cooperatives and MSMEs (EE: MoWRAPI, CIIP, NCECC) • Sub-activity 2.3.3.2: Operationalisation of EIB credit programme in KG, TJ, UZ (EE: Ministries of Finance) • Sub-activity 2.3.3.3: Value chain investments (EE: MoWRAPI, CIIP, NCECC)

Sub-activity 2.3.3.1: Development of investible business models and support for producer groups, cooperatives and micro and small enterprises (EE: MoWRAPI, CIIP, NCECC)	
Description	This sub-activity will provide business development and investment-readiness support for producer groups, cooperatives and micro and small enterprises in the pre-selected value chains, with the objective of generating (i) a structured pipeline of bankable investment proposals/files for the EIB intermediated credit programme (via eligible local financial institutions/participating financial intermediaries) and (ii) investment concepts suitable for financing through the programme's financial mechanisms. The sub-activity will explicitly strengthen market linkages as a it is a key element of potential programme bankability. Business plans will be developed based on demonstrated demand and viable routes to market, including through engagement with aggregators, processors, off-takers, and logistics/cold chain operators. Where relevant, the support beneficiaries to meet compliance requirements affecting market access (e.g. quality standards, and basic recordkeeping). With beneficiary consent, investment-ready files will be referred to participating

	LFIs under the EIB credit programme for screening and potential financing, using templates aligned with LFI appraisal requirements. Investment files will typically include a costed investment plan, cash-flow projections, basic risk analysis (including climate risks), evidence of route to market, and the documentation required by participating LFIs for initial screening The sub-activity will be implemented through targeted advisory services delivered via value chain consultants to be contracted by the programme, with a focus on strengthening financial literacy and planning among beneficiaries and beneficiary organisations. Support will cover cash flow logic, cost of production, investment sequencing, and basic risk management. The work will also include an assessment of the institutional and compliance requirements that impact bankability, including documentation practices.
Deliverables	• A simplified template for business models and investment plans aligned with the pre-selected value chains, including climate risk considerations. • A pipeline of 600 investment files developed with producer groups and MSMEs, suitable for screening by financial institutions and programme mechanisms.
Key institutions involved	EE: MoWRAPI, CIIP, NCECC. The national EEs will hire value chain consultants to support training on business plan development, financial literacy, and management.

Sub-activity 2.3.3.2: Operationalisation of EIB credit programme in KG, TJ, UZ (EE: Ministries of Finance)

Description

This sub-activity will operationalise an on-lending programme financed by the European Investment Bank (EIB) and intermediated through eligible local financial institutions (LFIs) in KG, TJ, and UZ to increase access to finance for MSMEs and other commercially oriented actors seeking to undertake climate-resilient and low-emission (CRLE) investments in the pre-selected agricultural value chains.[24] Participating LFIs will be responsible for borrower identification, credit appraisal, loan approval, loan contracting, and loan monitoring and collection, in accordance with their internal policies and applicable regulatory requirements. A preliminary list of common eligibility criteria for MSMEs is provided in Table 70 below. The programme will support the approval of these common eligibility criteria for CRLE investments, standard application templates, and coordination and reporting arrangements to ensure alignment with the programme's safeguards and results framework.

The sub-activity includes (i) onboarding and operational coordination with participating LFIs, (ii) adoption of common CRLE eligibility criteria, exclusions, and standard documentation templates for borrowers and LFIs, (iii) portfolio-level monitoring and reporting aligned with the programme safeguards and log-frame. Loan approval decisions and credit risk management will remain fully with participating LFIs. The indicative eligibility criteria for LFIs are included in the table below.

Table 68: Indicative eligibility criteria for LFIs

	Criterion	Note
1	**Institutional, regulatory and fiduciary soundness**	The LFI is a duly licensed and regulated financial institution in the relevant programme country, in good standing with the competent authorities, and able to demonstrate sound financial condition, governance, financial reporting, audit, and integrity control systems satisfactory to the EIB's due diligence requirements.

[24] At the time of writing, the following LFIs are intermediaries to the EIB in the target countries. Uzebkistan: QQB, SQB, Hamkorbank, Microcreditbank. Kyrgyz Republic: Demir Bank; OJSC Bank. There are no registered intermediaries in Tajikistan.

2	**Strategic fit with programme objective**	The LFI demonstrates strategic interest and institutional commitment to financing commercially oriented actors in the agriculture sector and related value chains, with the capacity and willingness to support investments aligned with the programme's climate-resilient and low-emission (CRLE) objective.
3	**Relevant lending experience**	The LFI demonstrates relevant experience and capacity to originate, appraise, disburse and monitor loans to Agri-MSMEs, Agri-SMEs, agricultural cooperatives, clusters, or other commercially oriented actors eligible under the programme, including, where relevant, investment finance for equipment, on-farm improvements, processing, storage, input supply, and other value-chain activities.
4	**Risk-management framework**	The LFI has sound credit-risk, operational-risk, liquidity-risk and concentration-risk policies, procedures and governance proportionate to its business model and the proposed facility, including capacity to assess and manage risks relevant to agricultural and agri-value-chain lending.
5	**Operational and implementation capacity**	The LFI has adequate staffing, underwriting systems, management information systems, delivery channels and reporting capacity to deploy, monitor and administer the facility and its sub-loans in accordance with programme requirements.
6	**Capacity to implement the programme's CRLE investment logic**	The LFI is able to identify, appraise and finance eligible investments aligned with the programme's CRLE objective, including climate-resilient and low-emission technologies and practices in agriculture and related value chains, in accordance with agreed eligibility criteria and use-of-proceeds requirements.
7	**Coordination with programme support mechanisms**	The LFI is able to work effectively with the programme's investment support architecture, including, as applicable, project-supported pipeline development, investment file preparation, technical assistance, beneficiary screening, and the operational arrangements for any post-investment capital incentive mechanism linked to eligible sub-loans.
8	**Environmental and social safeguards**	The LFI can apply the agreed environmental and social requirements, including screening against the EIB's applicable exclusion list, application of relevant E&S procedures, and escalation of higher-risk cases where required.
9	**Monitoring and reporting capacity**	The LFI has adequate systems and capacity to report on use of proceeds, sub-loan deployment, beneficiary categories, sector and value-chain allocation, and any programme-specific indicators required for monitoring implementation and results.
10	**Programme implementation proposal**	The LFI submits a credible proposal for participation in the intermediated EIB credit programme, including expected pipeline, target beneficiaries, indicative sub-loan volumes, deployment timetable, outreach approach, and implementation arrangements.

The table below includes the definitions of the indicative target segments for the EIB intermediated credit programme.

Table 69: MSME segmentation

Country	Item	Definition
Kyrgyz Republic	MSMEs: Micro	Up to 15 employees.
Kyrgyz Republic	MSMEs: Small	16–50 employees.
Kyrgyz Republic	MSMEs: Medium	51–200 employees.
Tajikistan	SMEs: Small	Annual gross income up to TJS 1,000,000 (Circa EUR 93,080); up to 30 employees, or up to 50 employees for agricultural producers.
Tajikistan	SMEs: Medium	Annual gross income of TJS 1,000,000–25,000,000 (circa EUR 93,080–2,327,000); 30–100 employees, or 50–200 employees for agricultural producers.
Uzbekistan	MSMEs: Micro	Annual revenue below SUM 1 billion (Circa EUR 73,000).
Uzbekistan	MSMEs: Small	Annual revenue from SUM 1 billion to less than SUM 10 billion (Circa EUR 73,000–730,000).
Uzbekistan	MSMEs: Medium	Annual revenue from SUM 10 billion to less than SUM 100 billion (Circa EUR 730,000–7,300,000).
Uzbekistan	Agricultural cluster	A vertically integrated enterprise that combines raw-material production, or contract farming with local farmers, processing, and marketing within a specifically designated geographic area.

Eligibility criteria

Beneficiary MSMEs must meet minimum eligibility criteria across the three countries. These criteria might be complemented during project implementation by additional ones required by the LFIs.

Table 70: Indicative MSME eligibility criteria

Criteria	Specification
Eligible applicant status	Applicant must be a legally registered entity within the respective countries (according the countries legal definition, including any potential change of this definition that may occur during project implementation) and fall within an eligible beneficiary category defined in Table 69 above.
Registration, tax, and banking compliance	Applicant must hold the applicable registration and tax identification documents and maintain an active bank account.
Sector and geographic eligibility	Applicant must operate in the agriculture sector and within the eligible programme area and value chains defined under the programme.
Eligible investment	The proposed investment must fall within the preliminary eligible expenditure categories within the eligible value chains defined in Table 71 and must not include expenditures or activities listed on the negative list.
Environmental and social compliance	The proposed investment must comply with the applicable environmental and social requirements of the programme and must not involve any activity prohibited under the relevant exclusion lists.
Application completeness and compliance	Applicant must submit a complete application package in accordance with the applicable template and agree to comply with monitoring, reporting, verification, and inspection requirements.

Deliverables

- **KG:** 1 loan programme set up for on-lending for CRLE investments (expected EUR 30 million)
- **TJ:** 1 loan programmes set up for on-lending for CRLE investments (expected EUR 30 million)
- **UZ:** 1 loan programmes set up for on-lending for CRLE investments (expected EUR 60 million)

Key institutions

EE: Ministries of Finance, who will then on-lend to participating financial institutions that have passed the EIB due diligence.

involved

Sub-activity 2.3.3.3: Value chain investments (EE: MoWRAPI, CIIP, NCECC)

Description

Under this sub-activity, the investments in post-harvest and value-addition business models developed under sub-activity 2.3.3.1 will be undertaken using the financial mechanism established in output activity 2.3.2 as well as the EIB intermediated credit line (for commercially oriented actors). The value chain consultants to be hired by the programme will accompany the programme to monitor implementation and ensure it is sound.

Indicative investments are included in the table below:

Table 71: Indicative investments in VC development

Value chain	Investments eligible for support
Fruit production	Post-harvesting and storage technologies: electric dryers, juice production units, other processing units, cooling units, storage units.
Horticulture	Post-harvesting and storage technologies: processing units, cooling units, storage units.

Deliverables

KG: Investments in VC development through the financial mechanisms established by the programme (EUR 2.25 million)
TJ: Investments in VC development through the financial mechanisms established by the programme (EUR 2.25 million)
UZ: Investments in VC development through the financial mechanisms established by the programme (EUR 2.25 million)

Key institutions involved

EE: MoWRAPI, NCECC, CIIP.

Beneficiaries: MSMEs, farmer groups, cooperatives, smallholder farmers.

7.3 Component 3 Regional cooperation for climate resilience strengthened

Component 3 focuses on the regional level. During the preparation of the funding proposal, including at bilateral meetings, consultation workshops and other multistakeholder meetings on climate change issues, the NDAs of the three target countries have repeatedly expressed interest in strong cross-border and regional[1] cooperation during the development and the implementation of the programme. Along these lines, Component 3 strengthens and deepens the existing regional cooperation systems concerned with climate change adaptation and mitigation within the context of the AFOLU sectors. It provides an innovative approach to the region through the development of foresight capacities, as well as the development of shared regional climate-informed development pathways for AFOLU. It contributes to a shared understanding of plausible futures and desirable pathways, as well as the exchange of information and knowledge on climate change issues in Central Asia, including the participation of different stakeholder groups from public and private sectors, civil society, academia, etc.

7.3.1 Output 3.1 Regional climate-informed development pathways for AFOLU and foresight capacities established

Output 3.1 will support building foresight capacities for AFOLU by strengthening foresight and planning capacities of decision makers working at regional and national levels, and by jointly developing regional climate-informed development pathways for the sector. Building on the convening capacities of CAREC, the political mandate of ICSD, and in coordination with other regional programmes under the Green Central Asia Initiative, the output will focus on strengthening foresight and embedding the resulting capacities and regional development pathways into national systems through the multisectoral AFOLU platforms strengthened or established under Activity 1.1.2. Activity 3.1.1 will support the selection of national and regional partner institutions, stocktaking and megatrend analysis, the co-development of a training package on strategic foresight, its institutionalization in partner organizations, the delivery of training sessions for mid- to high-level officials, and the strengthening of foresight capacities among young regional leaders through the CAREC Youth Leadership Program. Activity 3.1.2 will focus on the participatory development of plausible future scenarios and policy pathways towards resilient AFOLU

sectors in Central Asia, their validation at regional level, their downscaling into national policies and strategies, and their translation into regional investment priorities.

	Decision-makers in Central Asia are faced with complex and interconnected economic, environmental and social changes that are likely to accelerate in uncertain ways. The ability to anticipate and respond to rapidly changing conditions, including climate change, demographic and economic shifts, geopolitical pressures and increasing digitisation, while taking into account the demands of the region's growing population, will be crucial for sustainable development in the next decades. The increasing frequency of conflicts over resources, exacerbated by the impacts of climate change, illustrates the critical importance of regional cooperation. As do the high interconnectivities and interdependencies of the five countries of Central Asia, where policy decisions and actions in one country can have substantial implications for another. All of this contributes to a highly uncertain planning context, therefore prompting the need to jointly anticipate and prepare for different plausible futures and to think strategically about desirable, mutually beneficial visions for the region. The need to prepare for the unknown and plan for various plausible scenarios has become increasingly crucial. This can build on the momentum created by the countries in the region deepening their cooperation. To address the region's multiple, intertwined challenges, it is crucial for Central Asian stakeholders to incorporate strategic foresight and scenario planning into their strategic planning processes. Foresight can be described as any form of structured thinking about the future used to guide decision-making in the present. It entails the development of different plausible scenarios structured around "what if?" stories about the future. Developing foresight skills will enable decision makers to proactively anticipate key potential developments affecting the AFOLU sectors and facilitate the joint development of regional climate-resilient and low-emissions pathways for the sector in future.
Baseline	In Central Asia, there is a solid foundation of regional institutions, strategies (including the very relevant regional climate change adaptation strategy in Central Asia (RCCAS) or the Regional Medium-Term Strategy for Sand and Dust Storm Management in Central Asia), and recurring dialogue platforms, but pathway-building remains mostly programmatic and donor-driven rather than institutionalized. The region has longstanding legal and political architecture (over 29 environmental conventions and 20 treaties) and dedicated regional bodies, especially the International Fund for Saving the Aral Sea (IFAS) and its sub-bodies the Interstate Commission on Sustainable Development (ICSD) and the Interstate Commission for Water Coordination (ICWC), Regional Centre for Emergency Situations and Disaster Risk Reduction (CESDRR) providing mandates for transboundary resource dialogue. Nevertheless, IFAS structures are not a top national priority and meetings which rely heavily on project funding rarely generate transformative decisions. National AFOLU and climate policies remain poorly harmonized and there is no binding enforcement mechanism of regional decisions and plans, such as the Regional Environmental Plan for Sustainable Development (REP4SD). Disparities in capacity and resources across countries also constrain equitable participation and joint access to climate finance, while weak conflict-resolution mechanisms hinder long-term planning and data sharing. The Regional Environmental Centre for Central Asia (CAREC) is also a key body with regional mandate that strengthens cooperation through recurring forums (e.g., the annual Central Asia Climate Change Conference) and knowledge infrastructure, namely the Central Asia Climate Information Portal (CACIP), enabling shared data access and collective learning. Furthermore, the more

informally organised and member managed Regional Environmental Expert Network of Central Asia (Green CA) provide a platform for information exchange, technical discussion, co-learning cooperation.

Across Central Asia, strategic foresight and scenario planning capacities remain uneven and largely fragmented. Existing foresight-related work has primarily been undertaken through donor-supported initiatives, academic institutions, and selected policy units, with a strong focus on macro-economic development, water–energy linkages, and infrastructure planning. The systematic application of long-term climate scenarios to AFOLU-related policies, land-use planning, and investment prioritisation remains limited. Foresight approaches are not yet institutionalised within sectoral planning workflows, and standardised methodologies for translating scenarios into operational, climate-informed development pathways for agriculture, pastures, and forests are not routinely applied. This constrains the region's ability to anticipate climate risks, manage cross-border interdependencies, and align national planning processes with shared regional climate-resilient development pathways.

While efforts to introduce foresight practices have begun, for example, through EU-led water and climate foresight exercises held in May 2025, these initiatives have not sufficiently addressed the unique cross-sectoral dynamics of the Fergana Valley. The Valley's complex intersection of agriculture, tourism, and cross-border trade demands localized and sectoral integrated foresight approaches.

These elements create a suitable regional institutional environment, including shared priorities, venues to align, and tools, to co-develop climate-informed AFOLU development pathways and strengthen regional foresight capacities.

Activity 3.1.1 Strengthening regional foresight and planning capacities

This activity will enhance the strategic foresight and scenario planning capacities of key decision makers within the AFOLU sectors in the five countries, so that the foundations for more anticipatory strategic planning can be further developed in the context of increasing regional complexity and uncertainty. The activity will leverage the convening capacities of CAREC and the political mandate of ICSD to provide capacity building of decision-makers in the region, building primarily on existing strategic goals defined in REP4SD and the regional climate change adaptation strategy.

This work will be carried out in close coordination with other regional programmes under the Green Central Asia Initiative, such as the GIZ Green Central Asia, Phase II project and the Climate Risk Management in Central Asia programme.

Description

To ensure regional up-take and the sustainability of the capacities built under this activity, national and regional educational institutions and training centres will be involved throughout the process. They will co-develop the training material, actively participate in capacity development events and integrate it in their regular curricula.

Activity 3.1.1 includes three sub-activities:

- Sub-activity 3.1.1.1: Selection of national and regional partner institutions
- Sub-activity 3.1.1.2: Stock taking and megatrend analysis
- Sub-activity 3.1.1.3: Development of training modules on strategic foresight capacity
- Sub-activity 3.1.1.4: Institutionalization of the training package
- Sub-activity 3.1.1.5: Development of foresight capacities
- Sub-activity 3.1.1.6: Foresight capacity of young regional leaders

Sub-activity 3.1.1.1: Selection of national and regional partner institutions (EE: GIZ)	
Description	In this sub-activity, an open selection process will identify and select national and regional educational and training institutions. These will be closely involved in the implementation of this and the next activity (4.1.2) and will serve as key partners for institutionalizing the foresight material, knowledge and capacities generated during the programme. First, a description of the programme activity, expected results and inputs form the partner organizations will be shared with potential candidate organizations. A proposal template will be provided, detailing out the current capacities of these institutions, their specific track record in the topics, their interest in integrating modelling, scenario building and foresight into their curricula, among others. The final selection criteria will be specified during programme implementation and may include the following: • Existing curricula within the organization covering topics such as economic modelling, climate modelling, scenario planning, foresight. • Target audience: students, civil servants, other audiences. • Facilities: capacity to host activities such as workshop and trainings as part of the programme implementation. • Self-contribution: resources (human, financial and other) that organisations can contribute during programme implementation. The final selection will be carried out by a committee consisting of representatives from GIZ, CAREC, ICSD and representatives from the five countries. The sub-activity will aim to select at least one regional partner, and at least one national partner in each of the five countries. Examples of regional universities include the Green University (created by a resolution of the five environmental ministers in the region. Based in Tashkent, Uzbekistan), the Kazakh German University (Almaty, Kazakhstan) or the University of Central Asia (offices in Kazakhstan, the Kyrgyz Republic and Tajikistan). Examples of national institutions are the Kyrgyz Economic University or the State Academies of the five countries, which role is to provide continuous capacity development to civil servants.
Deliverables	• **Regional level:** one regional partner institution selected • **KG:** one national partner institution selected • **TJ:** one national partner institution selected • **UZ:** one national partner institution selected
Key institutions involved	EE: GIZ will enter into a financial agreement with CAREC who will lead the process of selecting partner organizations.
Sub-activity 3.1.1.2: Stock taking and megatrend analysis (EE: GIZ)	
Description	This sub-activity will take stock of regional trends, key drivers of change and impacts relevant for the AFOLU sectors in Central Asia. The activity will be implemented by an international service provider, in close cooperation with the organizations selected under Sub-activity 4.1.1.1. This will be a key preparatory step to shape-up the modules and implement the foresight capacity development measures in this activity and to ensuring grounding in regional realities. It will also inform the pathway development under 4.1.2. It will include the following sequenced elements: *Table 72: Steps for stock taking and mega trend analysis* **Step** | **Description** **1** | **Stocktaking of the effects of climate change in the region:**

		Based on the programme's climate risk assessment, as well as additional literature and data, a coherent picture of the effects of climate change on the AFOLU sectors in the target countries and regions will be synthesised. This will consist of: a. Historic climatic trends and their effects (in terms of droughts, etc.) on land use b. Current situation c. Projections of climate change in the region
	2	**Analysis of megatrends and drivers of change for the next 20 to 30 years**, including: a. Based on economic and environmental modelling, an overview of megatrends likely to have significant impact on the region will be made. b. Most important drivers of change in the region with regard to climate change and the AFOLU sectors will be analysed. This analysis will draw on a range of existing studies into resource use and environmental issues in the region. One example is an analysis of hotspots of changes in the region by the OSCE. Causal loop diagrams will be created showing how different key drivers of change in the region are interrelated and what kind of interactions take place.
	3	**Stocktaking of the current policy environment:** An update of the information gathered during feasibility will provide an overview of current policies, strategies and plans with regard to AFOLU at different administrative levels (regional, national and sub-national levels).
	4	**Stocktaking of previous and ongoing works in the region which can be associated or related to foresight:** An overview of previous strategic foresight and scenario planning work in Central Asia will be carried out to identify key achievements and gaps to date. Examples are initiatives by the Water and Energy Program of the World Bank (CAWEP) and by the GIZ Policy Advice for Climate-Resilient Economic Development (CRED).
Deliverables	1 report covering (1) megatrends and drivers of change, causal loop diagrams giving an overview of the key social-ecological system in Central Asia, (2) updated policy landscape including gaps in current policy environment and (3) previous work relevant for foresight in Central Asia.	
Key institutions involved	EE: GIZ will hire an international service provider to carry out the stocktake and megatrend analysis (possibly in consortium with the service provider hired in Sub-activity 3.1.1.3 to ensure alignment) Implementing partners: Partner organizations selected in Sub-activity 3.1.1.1. CAREC will be responsible for coordination between the selected service provider and the regional and national partner organizations. Beneficiaries: Decision makers and planning officers in sectoral ministries and institutions in the AFOLU sectors.	
Sub-activity 3.1.1.3: Development of a training package on strategic foresight capacity (EE: GIZ)		
Description	This sub-activity involves developing a training package for foresight capacity development of mid- to high-level officials in national and regional institutions. The target audience is typically a head of department within a ministry relevant to the AFOLU sectors or land planning, or from the ministries of economy and finance. To ensure the thorough adaptation of global best practices to the regional context from the outset, as well as their institutionalisation, the modules will be co-developed by an international service provider and the selected regional and national partners. As described in the table below, theoretical modules will be supported by interactive, hands-on case study work. The modules will be developed through an iterative process, with draft versions being discussed and tested with the region before being implemented during the training sessions under Sub-activity 3.1.1.5.	

Table 73: Preliminary content for foresight training

Proposed training structure	Proposed key activities and skills development
Module 1 **Introduction to approaches under Strategic foresight and scenarios for climate change adaptation in the AFOLU sectors**	• Introduction on modelling, participatory approach, forecasting etc. • Deepened understanding of policy and institutional landscape
Module 2 **Regional trends, multi-sectoral linkages (including beyond the AFOLU sectors) and climate risk analysis**	• Systems perspective and multisectoral linkages that underpin decision making • Understanding megatrends in Central Asia relevant to AFOLU • Clarification on climate hazards, risks and vulnerabilities
Module 3 **Strategic foresight and scenarios Approaches Part A – Vision, establishing climate-resilient development criteria in the AFOLU sectors**	• Introduction to foresight methods and key steps developing plausible futures, understanding key barriers and key levers • Steps to building climate-informed development pathways
Module 4 **Strategic foresight and scenarios Approaches Part B – Developing climate resilient development pathways with rapid scenario narratives and trade-offs**	• Understanding of scenarios methods using climate change related scenario examples • Determining the framing and scope for developing regional scenarios • Development of narratives for future scenarios to understand potential future risks, trade-offs and barriers to achieving climate-resilient and low-emissions development
Module 5 **Strategic foresight and scenarios Approaches Part C – Process of validating climate resilient development pathways for the agriculture sector**	• Addressing risks and opportunities associated with scenarios • Assessing scenarios based on key policy objectives • Clarifying elements and trade-offs for climate resilience • Detail of plausible pathways for climate-resilient and low-emissions development in the AFOLU sectors to support policy and investment prioritization
Module 6 **Applying tools, developing skill sets, actions and approaches to apply Strategic foresight and scenarios approaches in Central Asia**	• Review of key Strategic foresight and scenarios approaches and processes for application in the national and regional context • Training graduation

Further, this sub-activity will format and design the training modules above into an user-friendly training package for scenario-guided policymaking, strategic planning, regional prioritization, investment planning, and the use of foresight approaches in the context of climate change impacts on the AFOLU sectors in the region. This package will compile all the above modules in digital format, and in hard copy format where relevant, and offer an interactive navigation system to guide users through the content and materials. It will be designed in such a way to facilitate its institutionalization into various partner organizations, such as those selected in Sub-activity 3.1.1.1.

Deliverables	Training package on strategic foresight co-developed with regional and national partner organizations.
Key institutions involved	EE: GIZ will hire a service provider to co-develop the training package, including content and design/form

	Implementing partners: Partner organizations selected in Sub-activity 4.1.1.1 will co-develop the training package. CAREC will be responsible for coordination between the selected service provider and the regional and national partner organizations, and for all organizational issues.
Sub-activity 3.1.1.4: Institutionalization of the training package (EE: GIZ)	
Description	This sub-activity will cover two tasks. Firstly, it will provide training of trainers for the regional and national partner organizations. This ToT will be provided to the teaching staff of the respective organizations, including to those who did not directly participate in content development. After they passed the ToT, these staff will have the capacities to fully implement the modules in their respective teaching programs and university curricula. Secondly, the sub-activity will provide technical assistance to support the partner organizations fully institutionalizing the different modules of the training package into their regular teaching programs and curricula. This will included tailored support based on the specific needs and demands from each of these organizations.
Deliverables	Training package institutionalized in three regional or national institutions.
Key institutions involved	EE: GIZ will hire an international service provider to implement the ToT (same as 3.1.1.4) and support institutionalizing the training package into partner institutions. Implementing partners: CAREC will be responsible for coordination between the selected service provider and the regional and national partner organizations, and for all organizational issues. Beneficiaries: Partner organizations selected in Sub-activity 3.1.1.1.
Sub-activity 3.1.1.5: Development of foresight capacities (EE: GIZ)	
Description	This sub-activity focuses on implementing the training package. Training will be implemented for mid- to high-level government officials (e.g., head of department) from Ministries and other institutions in the AFOLU sectors, as well as other key line Ministries such as the Ministries of economy and finance. It will also involve regional decision makers from IFAS and its sub-bodies, particularly from the ICSD secretariat. Finally, environmental experts, CSO representatives, lecturers, and business unions with high potential to mobilize these tools will also be involved. As a result of these trainings, the participants will be able to apply foresight and scenario approaches to policy formulation, investment planning, prioritization, etc. To ensure a high level of motivation among the participants, they will be selected based on a competitive process. The training courses will be hosted on the premises of the selected regional and national partners, with their direct involvement in teaching sessions. Following the training, a job mentorship program and peer-to-peer learning will be established to ensure training outcomes are put into use.
Deliverables	2 training sessions with 30 participants each from five countries carried out.
Key institutions involved	EE: GIZ will hire a service provider to carry out the trainings (same service provider as in Sub-activity 3.1.1.4). Implementing partners: Partner organizations selected in Sub-activity 3.1.1.1 will be directly involved in the teaching sessions. CAREC will be responsible for all organizations issues. Beneficiaries: Decision makers and policy makers from Ministries and other institutions in the AFOLU sectors, Ministries of economy and

	finance, Regional organizations, Managers and key experts from civil society organizations and business unions.
Sub-activity 3.1.1.6: Foresight capacity development of young leaders (EE: GIZ)	
Description	This sub-activity will expand capacity development in foresight for young leaders in the region. To achieve this, it will build on the CAREC Youth Leadership Program, which has been held annually for the past 15 years. The program brings together young leaders (under 35 years old) from across the region who are selected through a rigorous, transparent process based on their motivation and abilities. Many participants pursue careers in state organizations, including high-level positions, where they can apply their foresight skills. The sub-activity will co-finance two editions of the youth leadership program, which will focus on foresight capacities. CAREC has signed a memorandum of understanding (MoU) with the Green University to formalize the leadership program, and the programme will further pursue this integration to strengthen sustainability.
Deliverables	2 editions of the Youth Leadership Program with a focus on foresight supported, each involving 5 participants from each of the 5 countries (50 people in total).
Key institutions involved	EE: GIZ Implementing partners: CAREC will be responsible for all organizations issues, including the selection of participants, in coordination with the Green University. Beneficiaries: Young leaders.
Activity 3.1.2: Creation of regional climate-informed development pathways for AFOLU	
Description	This activity will focus on jointly developing development pathways for the AFOLU sectors based on strategic foresight and scenario planning. It will target the participation of high-level officials (deputy ministers or head of agencies, cabinet members, members of the parliament etc.) and their direct subordinates, including those who were trained under Activity 4.1.1. It will also target regional decision makers from IFAS and its sub-bodies, key experts and CSO representatives, and business unions representatives. It aims to support these decision-makers in designing multi-stakeholder narratives of plausible futures, future scenarios and climate-informed development pathways, which can then be used to prioritize regional land use and climate-related policies, strategic plans and investments, such as the RCCAS and REP4SD. These can then be downscaled into national AFOLU and climate-related strategies and plans. The development pathways created under this activity will be downscaled into national contexts using as entry points the multistakeholder and multiscale platforms established or strengthened under Activity 1.1.2. Activity 3.1.2 consists of the one sub-activity: • Sub-activity 3.1.2.1: Development of climate-informed development pathways for AFOLU
Sub-activity 3.1.2.1: Scenario-based pathways development (EE: GIZ)	
Description	This sub-activity will support the participatory creation of plausible future scenarios for the AFOLU sectors in the region. These scenarios will be tested for robustness before being finalized as robust pathway(s). This sub-activity will include the following sequenced elements: *Table 74: Steps for scenario-based pathways development*

Step	Description
1	An extensive participatory process with stakeholders representing state organizations, regional organizations, civil society, private sector and

		academia will result in identifying the most **important drivers of change** with regard to these futures, taking into account environmental (including climate change), economic, social, political, technological and cultural drivers. The drivers that will be deemed both impactful and uncertain will be tagged as "structuring drivers" and be then used as axes to design four essentially different plausible future scenarios, each with different opportunities and threats. Narratives for each of the four future scenarios will be developed and quantified as far as possible.
	2	From these scenarios, **policy pathways towards a resilient AFOLU sectors in Central Asia will be developed**, following a two-step approach: a.Decision-makers participating in the exercise will determine, based on the designed narratives, as well as existing strategies and plans, country NDCs, and beyond these documents, their vision of a desirable future for the AFOLU sectors in the face of accelerating climate change. b.They will identify key entry points and define the sequence of steps that need to be taken to reach the desired future state. This will subsequently be translated into a policy and investment pathways with direct links to existing regional and national, and desirable but missing, policies and plans.
	3	**Robustness-testing of policy pathways:** In this final step, the robustness of the policy pathways developed will be tested by assessing whether they can be successful across a range of different future scenarios, each offering different challenges and opportunities. Non-robust pathways will be discussed again and strengthened.
	4	**Validation of the regional development pathways:** The developed pathways will be validated during a high-level regional event.
	5	**Downscaling of policy pathways at national level:** The pathways will be presented and discussed at the level of the multisectoral AFOLU platforms strengthened/established under Activity 1.1.2, to be further downscaled and embedded into national systems (policies, strategies, etc.).
	6	**Translation of the pathways into regional investment priorities:** In this last step, the development pathways will be translated into regional investment priorities and included into the regional platform's investment roadmap established under Activity 3.3.1.
Deliverables	• 1 set of four different plausible scenarios about the future of the AFOLU sectors in Central Asia • 1 set of policy pathways towards a resilient AFOLU sectors in Central Asia	
Key institutions involved	EE: GIZ will hire an international service provider to provide expertise throughout (same service provider as in Sub-activity 3.1.1.4). Implementing partners: CAREC will be responsible for all organizations issues and will hire national consultants to facilitate the process and mobilize stakeholders. Beneficiaries: Decision makers and policy makers from Ministries and other institutions in the AFOLU sectors, Ministries of economy and finance, regional organizations, managers and key experts from civil society organizations and business unions.	

7.3.2 Output 3.2 Mechanisms for regional knowledge management, exchange, and information sharing strengthened

Output 3.2 will support knowledge generation and peer-learning by expanding knowledge sharing processes at regional level and strengthening regional knowledge sharing on climate change and AFOLU. Building on the expertise of regional actors such as CAREC, ICSD and the regional expert network GreenCA, as well as on the Central Asia Climate Information Portal (CACIP), the output will focus on stakeholder groups that are engaged in the other components and that generally lack structured representation at the regional level, including the private sector, national and subnational land use planning institutions, public and private financial institutions, ministries of finance, and national entities responsible for implementing actions under the three conventions. Activity 3.2.1 will support regional and bilateral exchange and learning through knowledge and exchange events tailored to the

needs of these groups, while also promoting the sustainability of these exchanges through collaboration with CAREC and ICSD and through efforts to secure regional financing sources. Activity 3.2.2 will strengthen CACIP by establishing a climate resilience toolbox for the AFOLU sectors, improving the user interface through a more integrated and user-tailored entry point, and promoting uptake of the portal's tools, data and resources through practical training sessions and coaching for regional experts

Baseline	Despite several regional institutions and strategic documents and plans laying out shared priorities, platforms to align, and tools li the Central Asia climate information platform (CACIP), regional coordination remains uneven, with limited structured representation for several stakeholder groups, such as value-chain and business actors, land-use planning institutions at national and subnational level, and public and private financial institutions. Where engagement occurs, it is often project-based and fragmented, reducing continuity and the ability to scale proven practices. There are only few structured opportunities for local actors to exchange in transboundary landscapes on topics they are directly concerned with, such as land use planning or restoration. Technical knowledge and advisory capacity exist, including through regional expert networks such as GreenCA or the Regional Forum on Agriculture Advisory Services, but lessons and innovations are not consistently translated into planning decisions, investment pipelines, or bankable interventions. Climate products needed by AFOLU users are not accessible or interoperable, partly due to inconsistent protocols and limited peer learning across countries. Hands-on and cross-cutting tools for enhancing adaptation to climate change in the AFOLU sectors are missing.
Activity 3.2.1 Enhanced regional knowledge exchange and information sharing through sustainable mechanisms	
Description	This activity will build engagement, promote regional and bilateral exchange and learning between the stakeholder groups that the programme will engage with in the other components, and that are generally underserved and lack structured representation at the regional level. This includes the private sector (value chain actors, business unions etc.), national and subnational institutions responsible for land use planning, public and private financial institutions, ministries of finance, and national entities responsible for implementing actions under the three conventions. It will also build around the tools used in the other components and scale experiences and best practices within the selected transboundary landscapes that the programme will work in. This activity will leverage the expertise and existing (informal) exchange mechanisms of regional experts from the regional expert network GreenCA who already provide advisory services on climate-resilient, low-emission practices and technologies in the AFOLU sectors to national governments, the private sector and development projects. Activity 3.2.1 consists of two sub-activities: • Sub-activity 3.2.1.1: Knowledge and exchange events • Sub-activity 3.2.1.2: Enhance sustainability of knowledge exchange
Sub-activity 3.2.1.1: Knowledge and exchange events (EE: GIZ)	
Description	To ensure that the knowledge and exchange events supported by this sub-activity are demand-driven and address the needs of the four selected groups of stakeholders, this sub-activity will begin with a rapid gap analysis to identify the most pressing needs in each country. The topics mentioned during the feasibility study are listed below: • National and subnational institutions responsible for land use planning o Practices and procedures for integrating climate information into land use planning o Monitoring and updating of land use plans o Complementarities between land use plans across borders

	○ Scaling experiences of best practices within the selected transboundary landscapes • Private sector (value chain actors, business unions etc.) ○ Climate resilient practices in agricultural production ○ Climate resilience in value chains ○ Cross-border trade as a means to improve climate resilience in agricultural value chains • Public and private financial institutions, ministries of finance ○ Implementation of ESS and integration of climate risks considerations into bank lending practices ○ Development of green financial products and services for the AFOLU sectors ○ Promotion of public and private green investments • National entities active across the three Rio Conventions. ○ Synergies between regional strategies on adaptation to climate change, combating sand and dust storms, and droughts ○ Entry points for resource mobilization and cross-cutting investments The events will be prepared in close cooperation with the participant and with support from national consultants to ensure interactive and fit-to-purpose content and formats. The events will mix various formats, including round tables and workshop formats, combined. To ensure regional anchoring, some of these events will be embedded into other regional meetings through co-financing, such as the CACCC or ICSD meetings.
Deliverables	9 knowledge and exchange events for the selected groups
Key institutions involved	EE: GIZ. Implementing partner: CAREC as conveners and responsible for all practical and organizational matters. CAREC will hire national consultants (5 countries) to support the preparation of the technical and knowledge materials for the different target audience, and to provide content and moderation during the events. Beneficiaries: Representatives from the private sector (value chain actors, business unions etc.), national and subnational institutions responsible for land use planning, public and private financial institutions, ministries of finance, and national entities responsible for implementing actions under the three conventions.
Sub-activity 3.2.1.2: Enhance sustainability of knowledge exchange (EE: GIZ)	
Description	This sub-activity will drive collaborative work in coordination with CAREC and ICSD to enhance the sustainability of knowledge exchange. The CACCC which is annually held by CAREC will be a first platform for sustainability. Options to enhance regular ICSD meetings through thematic exchanges and side events on climate change adaptation for the selected groups will also be supported High-level dialogue will be initiated with all five countries to identify and secure regional financing sources for these events, and to connect them with the investment roadmap established under Activity 3.3.1.
Deliverables	Strategy for secured financing for exchange events involving the selected groups
Key institutions involved	EE: GIZ. Implementing partner: CAREC as conveners and responsible for all practical and organizational matters. CAREC will hire national consultants (5 countries) to support the preparation of the technical and knowledge materials for the different target audience, and to provide content and moderation during the events. Beneficiaries: Representatives from the private sector (value chain actors, business unions etc.), national and subnational institutions responsible for land use planning,

	public and private financial institutions, ministries of finance, and national entities responsible for implementing actions under the three conventions.
Activity 3.2.2: Development of a climate resilience toolbox	
Description	CAREC established the Central Asia Climate Information Portal (CACIP) in 2021. Over the past few years, it has evolved into a modular platform and become a key regional hub for climate knowledge. Its growing user base is driven by its growing information content. In 2025, the portal published over 1,500 news items and more than 150 analytical publications, as well as over 300 events in Russian and English to the integrated events calendar. Traffic data shows an increase from 10,000 users in 2023 to over 70,000 users in 2025, indicating growing interest in the platform. Content research by users is equally divided between Russian and English, indicating significant interest in the platform's content beyond Central Asia. This activity will strengthen CACIP further by adding critical climate resilience content to the AFOLU sectors and improving the user experience with an advanced, user-tailored search system across all modules included in the portal, including those developed by other donors. Finally, uptake by a wide range of regional experts will be facilitated through capacity development events. This activity will consist of two sub-activities: • Sub-activity 3.2.2.1: Strengthen content and user interface of the Central Asia Climate Information Portal • Sub-activity 3.2.2.3: Strengthen regional expert pools on CACIP resources
Sub-activity 3.2.2.1: Strengthen content and user interface of the Central Asia Climate Information Portal (EE: GIZ)	
Description	This sub-activity will further populate CACIP with a climate resilience toolbox that will include critical data and tools for planning and using land to enable broad access to climate adaptation options in the AFOLU sectors. Specifically, the programme will create, within CACIP, an integrated toolbox that will combine and link to existing useful resources for land planners and users, including E-PICSA, CRISP, MRV systems, CET, the foresight training package developed by the programme, and other resources such as, the climate risk sourcebook, practices from the WOCAT database, and the green economic modelling tool of GIZ. This sub-activity will improve the user interface to provide access to all resources through one entry point. In this regard, the activity will complement existing efforts and provide better visibility for climate-related content that other donors, such as the World Bank, add to the platform as standalone products. The interface will include a decision tree tailored to different user profiles. This decision tree will lead user groups through structured questions and will produce a sort-listed set of suitable materials, links, and tools. The programme will also support curation of information to ensure that resources will be clearly organized and easy to use. Moderation functions will be established so that linked content and user guidance will remain consistent and reliable across the portal. The programme will explore the use of AI to support navigation and to guide users toward relevant materials.
Deliverables	• 1 climate resilience toolbox established as a new module under CACIP • 1 new CACIP interface improving user experience
Key institutions involved	EE: GIZ. Implementing partner: CAREC as CACIP content manager and host will oversee all technical issues under this sub-activity. CAREC will hire a web-development service provider to develop the toolbox and improve the user interface.

	Beneficiaries: CACIP users.
Sub-activity 3.2.2.2: Strengthen regional expert pools on CACIP resources (EE: GIZ)	
Description	This sub-activity will promote the adoption of tools, data, and other resources provided through CACIP by offering practical training sessions for regional experts. The training courses will cover various topics, in line with the different tools added by the programme to CACIP, and to its new interactive interface. They will focus on different groups of experts, including experts on climate matters and land use experts (divided by topic: agriculture, forestry, pasture, etc.). One training course will be organized at the regional level on topics relevant across countries. One example is the use of the E-PICSA tool to promote climate change adaptation in agriculture. The remaining training courses (1 in each of the five countries) will be implemented at the national level, gathering relevant experts from each of the five countries. National consultants, who will carry out the training, will be available to coach participants beyond the training for a maximum number of days per person.
Deliverables	• Circa 150 regional experts capacitated on using CACIP resources • 1 coaching program for the trained experts in place
Key institutions involved	EE: GIZ. Implementing partner: CAREC as conveners and responsible for all practical and organizational matters. CAREC will hire national consultants to support the trainings, and to provide content and moderation during the events. Beneficiaries: Regional experts.

7.3.3 Output 3.3 Regional climate investment platform established

Output 3.3 will support the establishment of a permanent regional climate investment platform to attract and channel climate finance for adaptation and mitigation in the AFOLU sectors in Central Asia, while also promoting wider, multi-country engagement, cooperation between direct access entities (DAE) and aligning investments and efforts across climate, biodiversity, and land agendas. Programme support will include creating the platform, strengthening its governance and resource mobilization capacities, and ensuring its sustainability beyond the programme lifetime. While the initial capitalisation of the fund will be programme-based, the strong resource mobilisation and governance capacities built with programme support and reinforced by the current context of strengthened regional cooperation on climate adaptation initiatives are expected to pave the way for long-term regional resource mobilisation and sustainability from public and private sector funds. The platform's sustainability will also be ensured by establishing a robust governance structure, securing buy-in from countries, building capacity for resource mobilisation and hosting it within a suitable regional institution with proven sustainability. Institutional ownership will be sustained over time through general oversight by a steering committee composed of country representatives and non-governmental partners, including civil society organisations, academic representatives, and experts. The platform management team will be responsible for future capitalisation, with active support and proactivity from the countries involved, based on the investment roadmap developed with programme support.
Activity 3.3.1 will focus on the formal creation of the regional climate investment platform by defining its general mandate, governance structures, resources and role vis-à-vis other regional structures, building the capacities of its secretariat staff through trainings and coaching, and developing an investment roadmap to prioritize and align funding opportunities, collaborative proposals, carbon credit systems and private sector engagement. Activity 3.3.2 will support the implementation of climate adaptation actions in transboundary landscapes in the AFOLU sectors through the establishment of a funding mechanism under the regional investment platform, the development of climate adaptation action plans with selected institutions, the provision of technical assistance for implementation, the allocation of investment grants for adaptation actions, and the promotion of monitoring and regional learning on the results of coordinated investments.

Baseline	Several joint documents, such as the REP4SD and the RCCACS constitute an important foundation for driving regional cooperation and enhancing climate adaptation in the region. Nevertheless, important funding gaps at the national level remain as outlined in the countries' NDCs (see section 5.2 on barriers). Countries are actively mobilising domestic and international public and private financial resources to address this funding gap. Although several regional strategies and projects already exist, they have often resulted in country-specific implementation packages with limited cross-border cooperation and an inadequate demonstration of the added value of regional approaches. Regional projects relating to climate change also exist, but they lack a platform for extensive regional consultations at the project design stage and rarely manage to show the added value of a regional approach versus country-level interventions. In this context, this activity will support the establishment of a regional investment platform equipped with an investment roadmap to attract international funding for climate change adaptation and mitigation in the AFOLU sectors by eliminating inefficiencies, providing harmonised standards and procedures, and setting clear targets, while also encouraging wider, multi-country engagement. This platform will also play a leading role in aligning investments and efforts across climate, biodiversity, and land agendas at the regional level. Programme support will include creating the platform, strengthening its governance and resource mobilization capacities, and ensuring its sustainability beyond the programme lifetime. A host with well-established and recognised management and convening capacities will host the platform. There is no national structure with a regional mandate that could fulfil this role effectively. Various projects and programs focused on enhancing adaptation and mitigation in the AFOLU sectors have been implemented in Central Asia. Despite being regional projects and supporting a continuous regional dialogue on these issues, most of these efforts resulted in country-specific implementation packages with limited on-the-ground cross-border cooperation. In this context, the programme will provide seed funding and technical assistance to promote cross-border adaptation actions in the AFOLU sectors under Activity 3.3.2.

Activity 3.3.1 Creation of a regional climate investment platform

Description	Activity 3.3.1 entails the formal creation of the regional climate investment platform. This includes to define with the countries in the region the platform's general mandate, governance structures, resources and role vis-à-vis other regional structures. Further, the activity will provide the newly established regional investment platform with technical support, making it a central vehicle for attracting and channelling climate finance in the region and allocating grant funding to cross-border projects. Activity 3.3.1 consists of four sub-activities: • Sub-activity 3.3.1.1: Definition of the platforms' structure and role • Sub-activity 3.3.1.2: Formal establishment of the regional climate investment platform • Sub-activity 3.3.1.3: Institutional and staff capacity building • Sub-activity 3.3.1.4: Creation of an investment roadmap

Sub-activity 3.3.1.1: Definition of the platforms' structure and role (EE: GIZ)

Description	Considering that there is no regional readiness process ongoing, this sub-activity will involve the broad engagement of regional institutions and national stakeholders in order to define the platform's general mandate, governance structures, resources, and role in relation to other regional structures. At the national level, these consultations will involve the NDAs of the respective

	countries, the DAEs, and CSOs active in the land use sector and representing the interests of vulnerable groups, such as women and youth. CSO representatives should account for at least 30% of the stakeholders consulted during the process. CAREC will develop an initial draft structure with expert support and present it to the countries via an online workshop. The document will then undergo a thorough review by the institutions listed above in the three countries, followed by several feedback loops and rounds of online discussions. Final discussions and endorsement will then take place during a regional workshop. Importantly, an independent cross-country steering committee will be created, with representation from all five countries, with ICSD playing a central role alongside CAREC and GIZ. Additional members from academia, CSOs and independent experts are also potential members of this steering committee.
Deliverables	1 status and structure of the platform defined
Key institutions involved	EE: GIZ. Implementing partner: CAREC will be responsible to hire consultants to draft the platform's status, and to carry out all consultations required with the countries.
Sub-activity 3.3.1.2: Formal establishment of the regional climate investment platform (EE: GIZ)	
Description	This sub-activity entails the formal establishment of the platform the selected regional institution. This will include an official establishment ceremony and the completion of the required registration and administrative processes with the competent authorities in the respective countries.
Deliverables	1 regional climate investment platform formally established
Key institutions involved	EE: GIZ Implementing partner: the selected regional host organisation identified during sub-activity 3.3.1.1 will be responsible for all organizations issues.
Sub-activity 3.3.1.3: Institutional and staff capacity building (EE: GIZ)	
Description	This sub-activity will support institutional and staff capacity building of the newly created investment platform through targeted trainings and coaching. It will be need-based and the exact training topics will be determined based on the composition of the team of the platform's secretariat and on the status established under Sub-activity 3.3.1.1.
Deliverables	• Staff of the platform's secretariat capacitated to fulfil their main functions • 1 coaching program for continuous support of the platform's secretariat staff implemented
Key institutions involved	EE: GIZ. Implementing partner: the selected regional host organisation will be responsible for all organizational issues and hire consultants based on the identified needs. Beneficiaries: Climate investment platform's secretariat staff.
Sub-activity 3.3.1.4: Creation of an investment roadmap (EE: GIZ)	
Description	This sub-activity will support the development of an investment roadmap for the regional climate investment platform. The roadmap will build upon the regional development pathways developed under Sub-activity 3.1.2.1. It will prioritize and align funding opportunities with geographical needs, outline options for attracting public and private funding to the platform, opportunities for collaborative proposals between two or more countries in the region, as well as for carbon credit systems and private sector engagement. The ultimate objective is to ensure sustainable financing for climate adaptation in the AFOLU sectors in Central Asia.

	Throughout the roadmap development process, the programme will provide technical assistance through expertise and convening events for members of the platform's steering committee and key regional stakeholders.
Deliverables	1 investment roadmap available EE: GIZ
Key institutions involved	Implementing partner: CAREC will be the main implementing partner of the sub-activity responsible for all organizations issues. CAREC will hire consultants to provide technical and legal expertise during the development of the roadmap.

Activity 3.3.2: Support the implementation of adaptation actions in transboundary landscapes in the AFOLU sectors

Description	As part of the regional platform's investment roadmap, developed under Activity 3.3.1, this activity will support establishing a sustainable funding mechanism to promote joint climate adaptation actions in the AFOLU sectors in transboundary landscapes across the three target countries. This fund will be capitalized with a EUR 3 million grant window to provide targeted seed funding to stimulate joint adaptation action in transboundary AFOLU landscapes and demonstrate viable regional investment models. Not only is this fund expected to contribute significantly to the programme's impact, it is also intended to demonstrate that cross-border adaptation projects can be practically implemented and generate significant impact, thereby encouraging countries to support this structure beyond the programme lifespan. These adaptation actions will require joint planning and implementation by entities from at least two countries (but possibly more) in a specific transboundary landscape. It will be structured in five sub-activities: • Sub-activity 3.3.2.1: Establishment of a funding mechanism under the regional investment platform • Sub-activity 3.3.2.2: Development of investment proposals in transboundary landscapes • Sub-activity: 2.3.2.3: Technical assistance for climate adaptation in transboundary landscapes • Sub-activity 3.3.2.4: Investments in adaptation actions in transboundary landscapes • Sub-activity 3.3.2.5: Monitoring and regional learning

Sub-activity 3.3.2.1: Establishment of a funding mechanism under the regional investment platform (EE: GIZ)

Description	This sub-activity will provide technical assistance to equip the funding mechanism with all rules and documents required for its operations: • Governance structure • Operational manuals describing procedures for grant announcement, the selection of beneficiaries, disbursement mechanisms • Monitoring and evaluation • Environmental and Social Impact Assessment procedures and Environmental and Social Management System The resulting funding mechanism will be formally endorsed by the platform's steering committee.
Deliverables	1 funding mechanism established EE: GIZ.
Key institutions involved	Implementing partner: the selected host institution will be the main implementing partner of the sub-activity responsible for all organizations issues. The host will hire consultants to provide technical and legal expertise during the development of the funding mechanism's rules and documents.

Sub-activity 3.3.2.2: Development of climate adaptation action plans in transboundary landscapes (EE: GIZ)	
Description	The first step of this sub-activity will consist in an information campaign for relevant entities about the funding mechanism available for adaptation actions in the AFOLU sectors in transboundary landscapes. CAREC will implement this information campaign through its national offices. The preliminary list of legal entities that will be targeted by this sub-activity and further eligible for grants is as follows: • National institutions in the AFOLU sectors • Sub-national and devolved institutions in the AFOLU sectors: District administrations, local administrations • Protected areas, such as national parks, nature reserves etc. • SMEs active in the target land use systems • Business unions • Civil society organizations such as NGOs, associations, in association with public institutions As a result of this first step, interested entities will submit an expression of interest to get further support in the development of a joint adaptation action plan. Secondly, this sub-activity will provide technical assistance to entities interested in cooperating with one another to develop a climate adaptation action plan for a specific transboundary landscape. This assistance will support the development of the action plan based on an assessment of climate vulnerabilities and adaptation priorities in the selected transboundary landscapes. This will be implemented through several rounds of consultations and technical advisement on relevant topics. Technical assistance will also strengthen the technical and governance capacities of the selected institutions. The plans will align with the priorities of REP4SD and other regional strategies and action plans, as well as with the regional development pathways developed under Sub-activity 3.1.2.1. They will also build on the priorities already defined in the existing plans or priorities of the selected institutions. The plans will identify capacity development needs and the actions required to reduce vulnerabilities and improve resilience. These actions will include land restoration, sustainable management of natural resources, innovations in the AFOLU sectors, and biodiversity conservation in the selected landscapes. They will be additional to the actions supported under Component 2. Each action will be assigned a cost, and a funding source will be identified, including contributions from the selected institutions and programme investments. Finally, the plans will outline the expected benefits of the proposed actions in terms of adaptation and/or mitigation from programme activities and describe how these impacts will be monitored and evaluated.
Deliverables	Circa 10 climate adaptation action plans developed in transboundary landscapes EE: GIZ.
Key institutions involved	Implementing partner: The selected host institution will be the main implementing partner of the sub-activity responsible for all organizations issues. It will carry-out stakeholder mobilization and provide technical assistance through its national offices with, where required, support from national consultants. Beneficiaries: Selected institutions in transboundary landscapes.

Sub-activity: 3.3.2.3: Technical assistance for climate adaptation in transboundary landscapes (EE: GIZ)	
Description	Within this sub-activity, the programme will provide technical assistance to the selected institutions for the implementation of the climate adaptation plans developed in the previous sub-activity. This assistance will be provided by CAREC country offices and additional national experts as needed through regular visits and targeted training sessions. Support will extend to activities that benefit from programme investments (Sub-activity 3.3.2.4) and to activities that can be implemented through beneficiary financing or without further investments.
Deliverables	Need-based support visits and on-site trainings/consultations carried out in the selected transboundary landscapes EE: GIZ
Key institutions involved	Implementing partner: The selected host institution will be the main implementing partner of the sub-activity responsible for all organizations issues. It will carry out stakeholder mobilization and provide technical assistance through its national offices with, where required, support from national consultants. Beneficiaries: Selected institutions in transboundary landscapes.

Sub-activity 3.3.2.4: Investments in adaptation actions in transboundary landscapes (EE: GIZ)

Description

Under this sub-activity, the programme will provide investment grants in transboundary landscapes through the EUR 3 million grant window based on the climate adaptation action plans developed in the previous sub-activity to stimulate joint adaptation action in transboundary AFOLU landscapes and demonstrate viable regional investment models. The following investment categories have been identified as relevant during the feasibility study:

Table 75: Preliminary list of eligible investments for transboundary climate adaptation actions

General objective	Items and categories of items eligible for project funding	Rationale
Restoration of degraded ecosystems	• Planting material (seeds and seedlings from local species) • Fencing material • Small machinery • Equipment for tree nurseries • Equipment and construction material for efficient water retention and distribution	• Active and passive restoration of degraded forests • Active and passive restoration of degraded pastures
Cross-border biodiversity conservation	• Development of climate-informed protected area management plan • Equipment and hardware	• Promote biodiversity corridors across borders • Promote climate-resilient management of protected areas • Biodiversity monitoring
Capacity development	• Thematic training for the selected entities in one country, or in two or more countries together	• Enhanced and sustainable capacities for climate adaptation in transboundary landscapes
Knowledge exchange and peer learning	• Exchange visits • Knowledge sharing events	• Direct exchange between institutions and stakeholders in a shared landscape. • Linked with regional exchanges promoted

			under Sub-activity 3.2.1.1.
	Innovative approaches, e.g., monitoring	• Technical assistance and equipment to be defined on a case-by-case basis	• Support monitoring innovations in the AFOLU sectors

Deliverables	Circa 10 investment grants of EUR 100,000-300,000 allocated to the implementation of climate adaptation plans in transboundary landscapes (total budget EUR 3,000,000)
Key institutions involved	EE: GIZ. Beneficiaries: Selected institutions and land users in transboundary landscapes.

Sub-activity 3.3.2.5: Monitoring and regional learning (EE: GIZ)	
Description	The results of the investments provided under Sub-Activity 3.3.2.5 will be documented through the monitoring system established on the climate investment platform. In Sub-Activity 3.3.2.5, these results will be promoted during specific regional learning events including field visits and regional thematic exchanges, to communicate the benefits of coordinated investments in climate adaptation for the AFOLU sectors in transboundary landscapes.
Deliverables	3 learning events on the results of the climate adaptation plans implemented in transboundary landscapes.
Key institutions involved	EE: GIZ. Beneficiaries: Selected institutions and land users in transboundary landscapes.

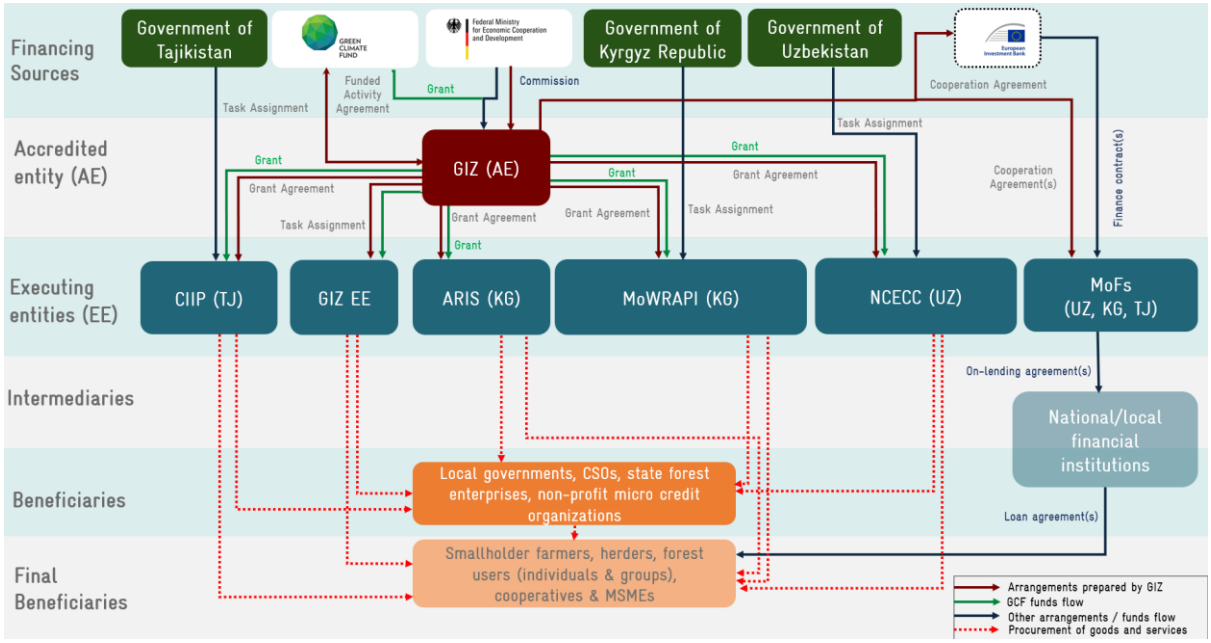
8. Programme implementation

In its capacity as AE, GIZ will assume the responsibility for overall management, implementation, and oversight of the project, as defined in the amended and re-stated Accreditation Master Agreement between GCF and GIZ. GIZ will administer programme proceeds on behalf of the GCF and will provide oversight guidance, and quality assurance of the involved Executing Entities (EE) through its relevant head office units as well as accompanying monitoring and ensure regular reporting. GIZ as AE will enter into the following legal arrangements:

- The commission by the German Federal Ministry for Economic Cooperation and Development (BMZ) to implement the GCF programme.
- The Funded Activity Agreement (FAA) between GCF and GIZ as basis for the transfer of GCF proceeds to GIZ.
- Four grant agreements (i.e., subsidiary agreements) with the respective Executing Entities based on GIZ's standard operating procedures for grant agreements; also, to contractually secure government co-financing contributions.
- Cooperation agreements with the Ministries of Finance in Tajikistan, Kyrgyz Republic, and Uzbekistan, acting as Executing Entities to contractually ensure the implementation of the EIB co-finance.
- Cooperation agreement with EIB to contractually secure the envisioned co-financing contribution.

Additionally, there will be an internal task assignment from GIZ AE to GIZ EE for the implementation of the programme.

Figure 56: Institutional arrangements and flow of funds



Source: own illustration, 2025

8.1 Role of GIZ

GIZ has been operating in Central Asia since the early 1990s based on Development Cooperation Framework Agreements and currently employs around 400 staff members, with approximately 350 being national staff. GIZ's technical assistance in the green sector encompasses ecosystem, land management, sustainable agriculture, transboundary climate risk management, and support for the green economy and private sector development.

In its capacity as an EE, GIZ will lead, and provide overall management of the Technical Assistance (TA) to the Programme at national and subnational levels. It will be responsible for:

- Managing the programme budget assigned to GIZ as EE.
- Monitoring and evaluating implementation.
- Liaising with the GIZ Country Offices in Uzbekistan, Kyrgyz Republic and Tajikistan regarding budget and finances, monitoring and reporting, staff and contracts, and procurement.
- Reporting to the German Embassy and BMZ regarding Germany's financial contributions to the programme, as well as the overall progress of programme implementation.
- Coordinating programme implementation with the other EEs, co-financing partners, counterparts, and other relevant donors, and projects operating in the same technical and/or geographical area, as applicable.
- Coordinating with, and reporting to, line ministries involved in the programme, as well as the NDAs.
- Liaising with and reporting to the Programme Steering Committees (PSCs).
- Supporting the establishment and management of the Programme Management Units (PMUs).
- Concluding further grants as required (e.g. with GGGI, University of Reading).

8.2 Other executing entities

Besides GIZ, the following EEs have been tentatively identified for the implementation of the proposed programme:

- In the Kyrgyz Republic, the EE will be the Community Development and Investment Agency of the Kyrgyz Republic (ARIS), the Ministry of Water Resources, Agriculture and Processing Industry of the Kyrgyz Republic (MoWRAPI), and the Ministry of Finance.
- ARIS was established by presidential Decree to attract investments to overcome poverty, develop and support private entrepreneurship, strengthen the activities of local self-government

bodies and strengthen local communities and community organisations. ARIS works with rural populations, supporting projects aimed at improving infrastructure and social services to the population, supporting rural and urban businesses, and improving interaction between local communities and government agencies. It is a Direct Access Entity (DAE) to the GCF since March 2024 and currently acts as an EE for the project “Carbon Sequestration through Climate Investment in Forests and Rangelands in Kyrgyz Republic (CS-FOR)” (FP116). MoWRAPI through its agricultural project implementation unit (APIU) is responsible for the management of investments from multilateral banks in the agricultural and broadly in the land use sector. This unit holds extensive experience in managing investments from the World Bank (WB) and IFAD, among others. The Ministry of Finance of the Kyrgyz Republic is the central authority for managing public finances in the Kyrgyz Republic, responsible for budget policy and forecasting, budget execution, treasury services, public debt management, accounting and reporting, public procurement policy, internal audit and control, and non-tax revenue; within its structure, the Central Treasury provides treasury services, while the Public Procurement Department and the Internal Audit Service perform specialized procurement and internal audit functions. The Budget Code designates the MoF as the sole agent of the Cabinet of Ministers for external borrowing and public debt management, authorizing it to raise funds from international organizations, banks, and foreign states and to issue government securities and other instruments, while also regulating guarantees, borrowing, and debt servicing. The MoF operates a Project Implementation Unit (PIU) or network of autonomous groups to deliver operational, financial, and legal support for IFI- and donor-funded public investment projects

- In Tajikistan, the Centre for Implementation of Investment Projects under the Government of the Republic of Tajikistan (CIIP) and the Ministry of Finance will be the EEs. The CIIP is responsible for the development and implementation of climate investment and environmental programs in Tajikistan. It implements projects financed by the WB, GEF and the Adaptation Fund, among others. The CIIP is accredited as a DAE since July 2024. The Ministry of Finance of the Republic of Tajikistan is the central executive body of state authority responsible for ensuring the implementation of unified state policy and regulatory frameworks in the areas of public finance, budget and taxation, accounting and financial reporting, financial markets, securities and state treasury assets. The Ministry coordinates the activities of executive government bodies related to compliance with financial legislation, ensuring the accurate, complete and timely collection of taxes, duties and other mandatory payments to the state budget and state funds, as well as the effective management of public finances.
- In Uzbekistan, the National Committee on Environment and Climate Change of the Republic of Uzbekistan (NCECC) and the Ministry of Economy and Finance will be the EEs. The NCECC is a government institution responsible for environmental protection, climate change adaptation and mitigation, and sustainable natural resource management. It oversees the implementation of projects in the environmental sector, funded by various donors and multilateral banks, including the GCF, the WB, FAO and ADB. The Ministry of Economy and Finance of the Republic of Uzbekistan serves as the central government authority responsible for national macroeconomic policy, public finance management, and fiscal oversight, ensuring that projects are consistent with national development priorities and fiscal policies. Additionally, the Ministry of Economy and Finance plays a significant role by coordinating green economic initiatives and managing international GHG emission trading.
- Capacity assessments of the Executing Entities have been conducted, reviewing their track record, policy frameworks, financial management systems (prohibited practices), environmental and social management approaches (E&S+gender), as well as staffing arrangements.
    - ARIS demonstrates relatively strong practical experience with donor requirements, while targeted support to further formalize internal procedures could enhance consistency and strengthen risk management practices.
    - MoWRAPI broadly meets core legal, operational, and fiduciary requirements, demonstrating solid implementation capacity and overall readiness, with only minimal targeted support needed to further strengthen institutional capacities.
    - CIIP has a relatively well-developed formal framework and implementation capacity, with some gaps in consistent application and (digital) monitoring that would benefit from targeted support.

- NCECC has strong technical expertise in its core mandate but would benefit from targeted support to further align its institutional systems with relevant international ESS standards.
- The Ministry of and Finance of the Kyrgyz Republic host a specialized unit (or network of autonomous groups) created specifically to provide operational, financial, and legal support for projects financed by international financial institutions and donors, including the World Bank, ADB, and projects which are considered as public investments.
- The Ministry of Finance of the Republic of Tajikistan has experience in coordinating and managing externally financed development projects implemented in cooperation with international development partners. Through established project implementation arrangements, including dedicated Project Implementation Units (PIUs), the Ministry has supported the implementation of loan- and grant-financed projects involving project coordination, financial management, procurement, monitoring, reporting and coordination with relevant government institutions. These arrangements have enabled the Ministry to oversee the implementation of complex development operations while ensuring compliance with government procedures and development partner requirements.
- The Ministry of Economy and Finance of the Republic of Uzbekistan has extensive experience with the implementation of regional and bilateral development projects of partners such as the World Bank, ADB, EIB and others. It directs these projects through dedicated Project Implementation Unit (PIUs).

- The programme budget provides for the recruitment of dedicated environmental and social safeguards, gender, and procurement specialists, and includes targeted technical assistance for targeted support to further strengthen institutional capacities and procedures, ensuring effective implementation, particularly in the operationalization of measures at the local level.
- The Ministries of Finance in the Kyrgyz Republic, Tajikistan and Uzbekistan will serve as EEs to provide concessional loan finance from the EIB co-financing contribution to domestic public and private financial institutions.

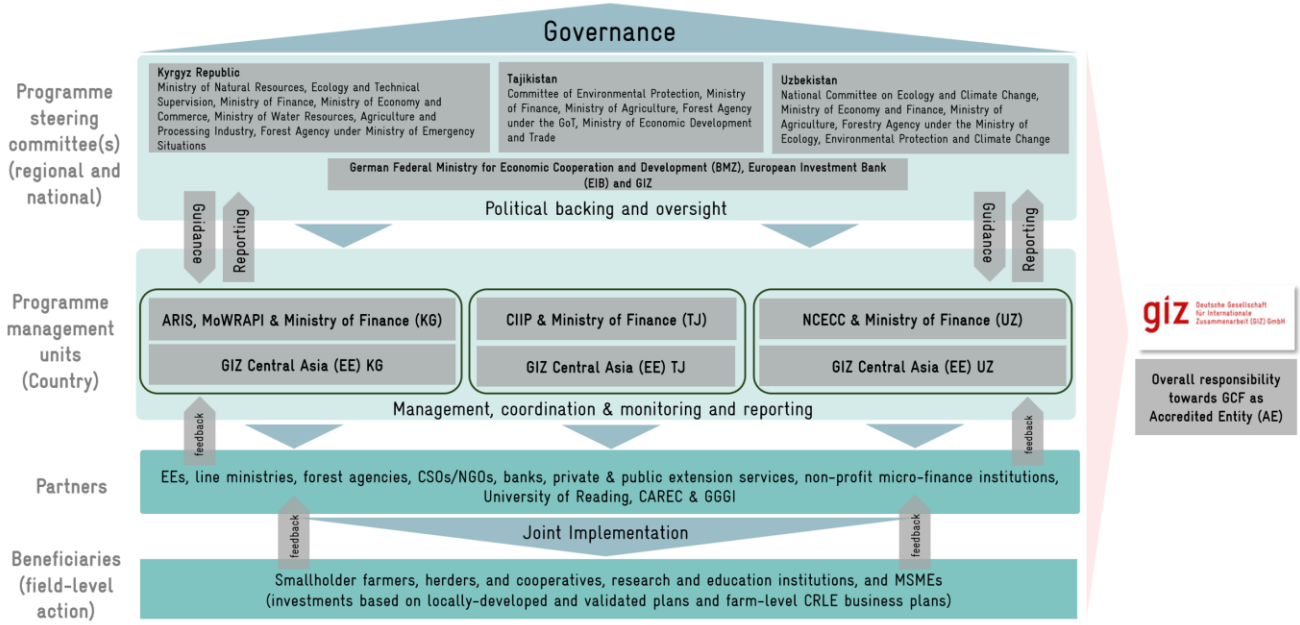
8.3 Programme governance

As shown in Figure 57, programme steering will be managed through three complementary bodies: the regional and national Programme Steering Committees as well as the Programme Management Units.

The regional Steering Committee will serve as the programme's overarching governance body, comprising representatives of the same core institutions participating in the National Steering Committees of each participating country. The regional Steering Committee will provide strategic guidance and oversight for the overall programme, take joint decisions on regional priorities, and play a central role in guiding the implementation of all regional relevant measures, especially under Component 3 (Regional Cooperation), including cross-border activities and associated resource allocation. Each participating country will establish a national Steering Committee to provide strategic guidance and oversight for the implementation of the country-specific programme packages. The national Steering Committee will oversee national planning, implementation, and country-level resource allocation, ensuring alignment with national priorities and effective coordination among national and sub-national stakeholders.

Its members include the National Committee on Ecology and Climate Change of Uzbekistan, Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic, the Committee of Environmental Protection of Tajikistan, the three key national ministries/institutions overseeing the programme, as well as BMZ, EIB and GIZ in its capacity as the AE. Conversely, the Programme Management Units (PMUs) in each country will focus on programme coordination, operational planning, and adaptive and financial management. This PMUs include the national EE(s), and GIZ Central Asia. Finally, programme implementation will be carried out by the technical teams of the respective EEs, along with their implementation partners.

Figure 57: Proposed governance structure



Source: Own illustration, 2025

The programme will engage a diverse array of national and subnational partners ranging from public sector, through private sector to civil society organizations. Government partners will play an important role in creating an enabling environment at all levels. Private sector will be instrumental in leveraging financing and scaling CRLE land uses. Research and education will drive knowledge creation and exchange, while civil society organisations will contribute to community mobilisation, business development, and on-the-ground implementation.

9. Justification for GCF funding request

GCF resources are critical for bridging the climate finance gap for meeting the climate commitments of the Kyrgyz Republic, Tajikistan, and Uzbekistan, particularly in the AFOLU sectors. The Kyrgyz Republic estimates the funding needed to implement its third NDC at USD 23 billion, with a gap of USD 9.3 billion. Tajikistan's NDC indicates that at least 7% of GDP is required for financing climate change activities from 2020 to 2030, translating into at least USD 1 billion per year by 2030, with circa 50% related to land use, including agriculture, irrigation, and biodiversity-related measures. Uzbekistan's NDC 3.0 estimates an investment gap of USD 9.5 billion for mitigation until 2030, and an adaptation funding deficit of USD 7.2 billion until 2030. These gaps constrain the ability to finance climate-resilient and low-emission land use transitions at the scale necessary, including in transboundary landscapes where coordinated action is particularly relevant.

While the three countries are increasingly prioritising climate action, domestic public resources remain limited, and climate finance flows into the AFOLU sectors are scarce relative to needs, short-term, and often project-based. A key barrier is the disconnect between planning and financing, where climate and land priorities are not systematically translated into investment projects, and climate considerations are not systematically reflected in land allocation, forest and pasture management, or agricultural support measures. This increases transaction costs and reduces the bankability of interventions. In addition, private sector engagement in AFOLU climate investment remains limited, hampered by high interest rates, weak risk-sharing mechanisms, and a limited focus on systemic resilience. The potential of blended finance and carbon markets remains untapped, partly due to evolving regulatory frameworks, limited institutional capacity, and data and MRV constraints.

In this context, GCF funding addresses different market failures, specifically, underinvestment in public goods, imperfect information and weak data accessibility for decision making, coordination failures across institutions and levels, and risk-return mismatch that disincentivizes private capital from financing CRLE adoption by smallholders and MSMEs. The programme uses GCF funding to build the enabling conditions and implementation and delivery mechanisms to make sustained investments in

CRLE, and not to substitute viable commercial finance. The three countries face constrained fiscal space, despite moderate debt-to-GDP ratios (KGZ 45.5 %, TJK 43.8 %, and UZB 36.3 %). This limits the capacity to take on additional debt for climate action in the AFOLU sectors, particularly for investments that generate public benefits, have long payback periods, or depend on smallholder adoption. This generates the case for concessional finance, and for requesting a GCF contribution as grant to support the generation of public goods and the development of targeted mechanisms that can leverage additional finance from the private sector. The proposed financing package matches the economic and financial profile of each activity and aims to ensure coherence through a sequenced approach focused on setting the enabling environment, supporting adoption of CRLE measures, and longer-term finance mobilisation.

Grant financing for public goods and enabling conditions. Most activities under components 1 and 2 of the programme generate public goods rather than direct financial reflows and are not suited to debt financing. This includes institutionalising climate informed planning and coordination (Output 1.1), improving climate and land information for decision making, and strengthening the enabling environment for climate aligned public finance through CPEIR and related analyses, including identification and repurposing of harmful subsidies into incentives for CRLE practices (Output 1.2), and investments in forest and pasture restorations which are managed by the state or collectively by user groups (Output 2.2). These interventions address critical barriers, but do not produce revenue streams.

Targeted grant-based mechanisms for adoption of CRLE measures. To implement climate-informed plans at scale, the programme operationalises two financing mechanisms under activity 2.3.2, selected to reflect country contexts and to apply concessionality only to the minimum required through segmentation of beneficiary groups and avoiding market distortions. The No-Till Adoption Accelerators are applied only in the Kyrgyz Republic, given local enabling environment and implementation experience with such models. Matching grants are applied in all three countries and will provide a scalable instrument for enabling CRLE in-vestments where smallholders and MSMEs face high climate and market risks, investments with long repayment periods, and limited access to suitable financing. Matching grants are also aligned with existing administrative experience in each country, including established implementing bodies and precedent for applying fiduciary, procurement, and environmental and social requirements.

These mechanisms are designed to link directly to local prioritisation and investment planning, and to be combined with technical assistance and verification requirements, and segmentation by beneficiary group. This reduces potential risks of misuse and elite capture, while supporting climate additionality, and ensuring that concessionality is reflective of needs, with lower grant shares for larger actors.

The programme strengthens the bankability of CRLE investments by coupling finance with value chain development (Output 2.3), so that adoption can be sustained beyond the programme life by market incentives, reduced post-harvest losses, stronger organisation amongst producers, and improved access to services. In parallel, the programme addresses supply side barriers by strengthening the capacity of domestic financial institutions to identify and man-age climate risks in AFOLU lending, and to better understand the financial profiles of CRLE production models. It also supports the establishment of climate-resilient agriculture financing facilities in the Kyrgyz Republic and Tajikistan, building on tested experience in the region, and expanding pathways to mobilise additional capital into CRLE value chains through the establishment of CSA financing facilities and the issuance of green bonds (Output 1.3).

The programme applies the principle of minimum concessionality. First, concessional grant re-sources are concentrated on activities that are non-revenue generating but critical for enabling the transition to a low-carbon and climate resilient development pathway, including public planning systems, coordination, data and climate products, and policy action to align incentives and budget allocations with climate objectives. Grant resources are al-so used for those investments that do not generate financial reflows in the short to medium term, specifically pasture and forest restoration. Second, for investments with revenue generating potential, concessionality is reduced through the use of matching contributions and clear eligibility criteria. In the matching grant mechanism, segmentation is used so that smaller and more vulnerable actors can participate, while larger beneficiaries provide proportionally higher own contributions. This will ensure that the primary beneficiaries of concessionality are those that face challenges in accessing finance to invest in CRLE measures, particularly smallholders, community-based organisations, and micro and small agri-enterprises, including women-led and youth-led enterprises. Third, the No-till Adoption Accelerator model in the Kyrgyz Republic is designed to sustain a repayment cycle, so that the initial in kind programme contribution continues to generate benefits beyond the programme period, reducing the need for recurring public funds.

Additional reasons justifying the use of a grant via GCF involvement:

- Financial limitations of the governmental structures: The target countries in Central Asia are currently in a transition phase and struggle to develop their economies. They face limited financial resources for competing development priorities, and high levels of poverty. Thus, the governments are constrained in their capacity to invest in climate change adaptation measures.
- Technological and knowledge barriers: Access to appropriate technologies, expertise, and knowledge for implementing effective climate change adaptation measures can be limited in countries in Central Asia. Support from the GCF can help bridge these gaps by providing resources for technology transfer, capacity building, and knowledge sharing.
- Transboundary and cross-border nature of challenges: The countries in Central Asia share common challenges related to climate change risks and resulting impacts, particularly within the natural resource-dependent sectors. Given the transboundary and cross-border nature of these challenges, regional cooperation and collaboration are crucial. The GCF can play a role in fostering regional cooperation by supporting projects that promote dialogue, knowledge exchange and joint adaptation measures in pilot areas.
- Limited access to international financial markets: The target countries are facing challenges in accessing affordable financing from international financial markets due to factors such as creditworthiness, limited collateral, and high perceived risks. This makes them heavily reliant on external support, including climate finance mechanisms like the GCF.
- Debt burden and fiscal constraints: The target countries already have significant foreign debt burdens (UZB: 30%, KGZ: 68%, TJK: 43% of the GDP in 2020/21) which is limiting their capacity to invest in climate change adaptation. The GCF can provide grants, reducing the financial strain and ensuring that climate change adaptation efforts do not exacerbate existing debt burdens.
- The absence of alternative sources of financing underscores the need for GCF grant support. By supporting the target countries via a regional approach through the provision of financial resources, technical assistance, and capacity building, the GCF can help enhance their joint resilience to climate change, reduce poverty, protect vulnerable populations, and promote sustainable economic and social development in the face of climate change.

10. Impact potential

10.1 Mitigation benefits

The aggregated ex-ante mitigation impact for the programme intervention (component 2) across the three countries is estimated at -277,642 tCO2e by mid-term (3.5 years), -1,271,826 tCO2e by the end of implementation (7 years), and **-6,953,950 tCO2e** over the 20-year mitigation lifetime.

The programme targets 78,929 ha of agricultural land and 860,425 ha of restoration activities, for a total direct implementation area of 939,354 ha. The intervention package combines: (i) improved agricultural land management in croplands and perennial systems (e.g., conservation agriculture in rainfed cereals, seed potato production, horticulture, improved orchard management and establishment and management of new orchards), and (ii) land restoration measures in grasslands and forests (sustainable pasture use and pasture restoration, afforestation/reforestation on degraded open land, and forest restoration), with mitigation driven primarily by increased soil organic carbon (SOC) and biomass growth.

Mitigation impacts have been quantified ex-ante using FAO EX-ACT (Excel v9.4.2) (FAO, 2022) and will be updated annually using monitored activity data. EX-ACT applies a scenario-based approach comparing a “with-project” scenario against a “without-project” baseline, reporting the carbon balance as the difference in total emissions and removals. The tool separates impacts into an implementation phase and a capitalization phase to reflect continued effects after implementation. The EX-ACT assessments are presented in annex 13a.

In alignment with GCF guidance in support of decision B33/12 (GCF, 2024), EX-ACT was complemented by established methodologies to set boundaries, define baselines, demonstrate additionality, address leakage and structure MRV: Verra VM0042 v2.2 (Verra, 2025) for agricultural activities and CDM AR-ACM0003 v2.0 (CDM, 2013a) for afforestation/reforestation and enhancement

of forest carbon stocks, including use of the CDM combined tool for baseline and additionality determination (CDM, 2007).

Key assumptions included: (i) the baseline scenario generally reflects continuation of pre-programme practices (consistent with VM0042 baseline logic); (ii) the accounting covers CO_2, CH_4 and N_2O and uses IPCC AR5 Global Warming Potentials consistent with national inventories (iii) EX-ACT is set up for 7 years of implementation plus 13 years of capitalization (20-year total horizon) and reporting follows GCF formats for annual ex-post and cumulative values, as well as ex-ante mid-term (3.5 years), final (7 years) and lifetime targets; agriculture activities apply a 7-year mitigation lifetime, while afforestation, reforestation and restoration apply a 20-year lifetime; and (iv) assumptions are aligned with national reporting by applying country-specific emission factors from National Inventory (Kyrgyz Republic, 2025b; Republic of Tajikistan et al., 2024; Republic of Uzbekistan et al., 2024) and forestry parameters from the Second National Forest Inventory of The Kyrgyz Republic (Unique land use, et al., 2022) as it provides the most comprehensive forestry data. Leakage is considered where relevant (e.g., additional manure sourced from outside programme areas; potential grazing displacement).

The proposed MRV system, further described in annex 13a, will measure baseline parameters at the start of implementation and monitor key activity and emissions-driver data annually. Results will be disclosed through the Annual Performance Report, supported by archiving of EX-ACT model files and datasets and GIS layers.

The summary of mitigation impacts at the programme level from the different activities is included in Table 76, results for the Kyrgyz Republic in Table 77, results for Tajikistan in Table 78, and results for Uzbekistan are included in Table 79.

Table 76: Total Ex-ante GHG programme results per activity at mid-term, end of implementation and programme lifespan

Activity			Mitigation potential (tCO2e)		
Description	Area (ha)	Lifespan	Mid-term (3.5 years)	Implementation (7 years)	Lifespan
Conservation agriculture in rainfed cereal production	29,495	7	-11,480	-29,929	-29,929
Seed potato production in highland areas	939	7	-447	-1,895	-1,895
Horticulture	21,358	7	-872	-4,069	-4,069
Orchards in unproductive rainfed land	73	7	-319	-1,487	-1,487
Improved orchard management technologies	27,065	7	-16,276	-75,955	-75,955
Sustainable and climate resilient use of pastures	641,457	20	-131,267	-612,580	-3,617,141
Pasture restoration	160,801	20	-65,827	-307,194	-1,813,906
Afforestation and Reforestation on Degraded open land	2,380	20	-1,706	-7,963	-47,021
Forest Restoration	55,786	20	-49,447	-230,754	-1,362,548
TOTAL	**939,354**	**20**	**-277,642**	**-1,271,826**	**-6,953,950**

Table 77: Ex-ante GHG programme results per activity at mid-term, end of implementation and programme lifespan in The Kyrgyz Republic

Activity			Mitigation potential (tCO2e)		
Description	Area (ha)	Lifespan	Mid-term (3.5 years)	Implementation (7 years)	Lifespan
Conservation agriculture in rainfed cereal production	15,897	7	-9,101	-18,826	-18,826
Seed potato production in highland areas	324	7	-104	-296	-296
Horticulture	3,711	7	276	1,288	1,288
Orchards in unproductive rainfed land	73	7	-319	-1,487	-1,487
Improved orchard management technologies	1,381	7	80	372	372
Sustainable and climate resilient use of pastures	336,491	20	-74,606	-348,163	-2,055,820
Pasture restoration	84,385	20	-37,419	-174,624	-1,031,112
Afforestation and Reforestation on Degraded open land	1,000	20	-717	-3,346	-19,757
Forest Restoration	36,448	20	-32,306	-150,762	-890,215
TOTAL	**479,710**	**20**	**-154,217**	**-695,844**	**-4,015,852**

Table 78: Ex-ante GHG programme results per activity at mid-term, end of implementation and programme lifespan in Tajikistan

Activity			Mitigation potential (tCO2e)		
Description	Area (ha)	Lifespan	Mid-term (3.5 years)	Implementation (7 years)	Lifespan
Conservation agriculture in rainfed cereal production	13,598	7	-2,379	-11,103	-11,103
Seed potato production in highland areas	320	7	-348	-1,624	-1,624
Horticulture	4,489	7	501	2,339	2,339
Improved orchard management technologies	16,712	7	0	0	0
Sustainable and climate resilient use of pastures	206,141	20	-45,705	-213,291	-1,259,434
Pasture restoration	51,710	20	-22,930	-107,007	-631,851
Afforestation and Reforestation on Degraded open land	1,100	20	-789	-3,680	-21,732
Forest Restoration	1,300	20	-1,152	-5,377	-31,752
TOTAL	**295,370**	**20**	**-72,802**	**-339,744**	**-1,955,157**

Table 79: Ex-ante GHG programme results per activity at mid-term, end of implementation and programme lifespan in Uzbekistan

Activity			Mitigation potential (tCO2e)		
Description	Area (ha)	Lifespan	Mid-term (3.5 years)	Implementation (7 years)	Lifespan
Conservation agriculture in rainfed cereal production	-	7	0	0	0
Seed potato production in highland areas	295	7	5	25	25
Horticulture	13,158	7	-1,649	-7,696	-7,696
Improved orchard management technologies	8,972	7	-16,356	-76,327	-76,327
Sustainable and climate resilient use of pastures	98,825	20	-10,956	-51,126	-301,887
Pasture restoration	24,706	20	-5,478	-25,563	-150,943
Afforestation and Reforestation on Degraded open land	280	20	-201	-937	-5,532
Forest Restoration	18,038	20	-15,989	-74,615	-440,582
TOTAL	**164,274**	**20**	**-50,622**	**-236,238**	**-982,941**

10.2 Adaptation benefits

Additional details on assumptions and the methodological approach to obtain the number of people and areas with adaptation benefits as presented in this section are provided in Annex 2d.

The programme will contribute to ARA 1 Most vulnerable people and communities and ARA 4 Ecosystems and ecosystem services.

With respect to ARA 1, the programme is expected to enhance the climate resilience of 1,046,062 people (Core indicator 2) through direct support for measures and capacity building for the adoption of climate-resilient and low-emission practices and technologies in agriculture, and the restoration and climate-resilient management of rangeland and forests. This corresponds to 13.2% of the total population in the target districts. The number of direct beneficiaries was obtained by multiplying the expected area of different land use systems which will be brought under improved low-emission and/or climate-resilient management practice by the average smallholder farm size in that specific land use system (for agriculture) or the estimated average number of pasture users per municipality (for pasture) or the number of forest users per SFE (for forests), and by the average household size in rural areas (KG 4.5, TJ 5.9 and UZ 5.0). The male/female disaggregation was obtained by multiplying the total beneficiary number by the national sex ratio (# males per 100 females: KG 96, TJ 96.7, UZ 101.8).

In addition, the programme is also expected to enhance the climate resilience of 1,480,919 people indirectly (Core 2), by strengthening their knowledge of climate change risk and risk reduction practices, and by establishing an enabling investment for scaling climate-resilient and low-emission practices and technologies in the AFOLU sectors. This corresponds to 20.3% of the total population in the target districts. This number of indirect beneficiaries was obtained by subtracting the number of direct beneficiaries from the total number of land users in the selected districts (exact values in TJ and UZ and estimations in KG based on rural population figures).

The table below summarises the distribution of direct and indirect beneficiaries per country

Table 80: Number of direct and indirect beneficiaries disaggregated by gender (Core 2)

Total direct and indirect beneficiaries reached	Total	Males	Females
Total direct beneficiaries	**1,046,062**	**518,147**	**527,915**
KG	280,389	137,334	143,055
TJ	423,266	208,082	215,184
UZ	342,407	172,731	169,676
Total indirect beneficiaries	**1,480,919**	**736,403**	**744,516**
KG	425,782	208,440	217,342
TJ	332,183	163,165	169,018
UZ	722,954	364,798	358,156

It is also expected that the programme will reach 192,197 beneficiaries adopting improved and/or new climate- resilient livelihood options (Supplementary indicator 2.1). This figure was obtained by multiplying the expected area of different land use systems which will be brought under improved low-emission and/or climate-resilient management practice by the average smallholder farm size in that specific land use system (for agriculture) or the estimated average number of pasture users per municipality (for pasture) or the number of forest users per SFE (for forests). Numbers for male/female beneficiaries were obtained by multiplying the total beneficiary number by an estimated ratio for land user households where males are more active (75%) and those where women are more active (25%).

Table 81: Number of beneficiaries adopting improved and/or new climate-resilient livelihood options (Supplementary 2.1)

Beneficiaries adopting improved and/or new climate-resilient livelihood options	Total	Males	Females
Total direct beneficiaries	**192,197**	**144,148**	**48,049**
KG	59,455	44,591	14,864
TJ	68,918	51,688	17,229
UZ	63,824	47,868	15,956

As for ARA4, the programme is expected to bring 939,354 hectares of forest, pasture and agricultural land under improved, low-emission, climate-resilient management practices (Core indicator 4). This will be achieved through programme support to implement CRLE practices and technologies on approximately 86% of pasture, 6% of forests and 7.5% of agricultural land, reflecting the general distribution of land use types in the target regions.

The programme is also expected to bring under restoration and/or improved ecosystems 2,999,956 hectares of terrestrial-forest and terrestrial-non-forest areas (Supplementary indicator 4.1), with 78% of this area corresponding to pasture, 21% to forests.

The table below summarizes the expected areas benefiting from enhanced adaptation.

Table 82: Area brought under improved and CRLE practices, and under restoration and/or improved ecosystems

		Total	Forests	Pasture
Core Indicator 4	**Total**	**939,354**	**58,166**	**802,259**
	KG	479,710	37,448	420,876
	TJ	295,370	2,400	257,851
	UZ	164,274	18,318	123,532
Supplementary Indicator 4.1	**Total**	**2,963,656**	**627,130**	**2,336,526**
	KG	1,709,800	378,691	1,331,109
	TJ	660,802	68,052	592,750
	UZ	593,054	180,387	412,667

Various adaptation benefits are expected across the different activities implemented in the target regions in Component 2. Table 83 below provides, for key programme activities implemented at the local level, an overview of the area of forest, pasture and agricultural land that will be brought under improved, low-emission, climate-resilient management practices (Core 4), as well as the number of direct beneficiaries, following the definition described above under Core indicator 2, along descriptive adaptation benefits.

Table 83: Expected adaptation benefits from key programme activities

		Area (ha)	Total beneficiaries	Males	Females	Adaptation benefits
Forests	**Total**	**58,166**	**215,098**	**106,424**	**108,674**	• Improved forest structure and biodiverse forest ecosystems • Increased production of NTFPs • Greater diversity of NTFPs available for collection by vulnerable communities
Activity 2.2.1: Scale land restoration practices in degraded forests in transboundary landscapes **Activity 3.3.2: Support the implementation adaptation actions in transboundary landscapes in the AFOLU sector**	KG	37,448	83,270	40,785	42,485	
	TJ	2,400	67,188	33,030	34,157	
	UZ	18,318	64,640	32,608	32,032	
Rangeland	**Total**	**802,259**	**297,074**	**146,945**	**150,129**	• Improved pasture productivity and reduced degradation of pastureland • Reduced erosion and stabilization of slopes • Improved biodiversity of pasture ecosystems
Activity 2.2.2: Scale land restoration practices in degraded rangelands in transboundary landscapes **Activity 3.3.2: Support the implementation adaptation actions in transboundary landscapes in the AFOLU sector**	KG	420,876	101,483	49,706	51,777	
	TJ	257,851	111,202	54,668	56,534	
	UZ	123,532	84,389	42,571	41,818	
Agricultural land	**Total**	**78,929**	**533,890**	**264,778**	**269,112**	• Enhanced water infiltration and reduced evaporative losses, soil fertility and protection (no-till wheat) • Facilitated timely planting and optimum use of the planting window (no-till wheat) • Enhanced resilience against drought, heat, frost, and pest related losses (fruit orchards, horticulture, seed potato) • Improved overall water efficiency (no-till wheat, fruit orchards, horticulture, seed potato)
Activity 2.3.1: Scale the adoption of locally relevant CRLE land use practices and technologies in agriculture in transboundary landscapes **Activity 2.3.2: Establishment of financial mechanisms for enabling the adoption of CRLE practices in the agricultural sector**	KG	21,386	95,636	46,843	48,793	
	TJ	35,119	244,876	120,384	124,493	
	UZ	22,424	193,378	97,551	95,826	

11. Sustainable development potential

Table 84: Programme's contribution to SDGs

SDG	Programme's contribution to SDG
Goal 1 No poverty *Targets 1.5*	‣ The programme will generate poverty reduction co-benefits by increasing the resilience of rural livelihoods to climate shocks, land degradation, and ecosystem degradation. ‣ Expected co-benefits include more stable incomes, reduced livelihood vulnerability, improved resilience of poor and climate-sensitive communities, and stronger long-term livelihood security in rural areas of the Kyrgyz Republic, Tajikistan, and Uzbekistan.
Goal 2 Zero hunger *Targets 2.1, 2.3, 2.4,*	‣ The programme will generate food security co-benefits through more resilient and sustainable agricultural and pastoral systems. ‣ Expected benefits include more stable food production, improved productivity, enhanced soil health and water retention, and strengthened resilience of smallholder and pastoral livelihoods that depend on climate-sensitive natural resources.
Goal 5 Gender equality *Targets 5.5*	‣ The programme will support gender equality by strengthening women's participation in decision-making, improving women's access to economic opportunities, and supporting women-owned MSMEs. ‣ Additional benefits include greater inclusion of women in local planning and governance processes, improved business and financial capacities, and more equitable access to the benefits generated through climate-resilient land and value chain investments.
Goal 8 Decent work and economic growth *Targets 8.3, 8.5*	‣ Expected benefits include job creation, income generation, improved market access, enhanced bankability of producers and MSMEs, stronger local service and input markets, and increased mobilisation of finance for climate-resilient land and ecosystem investments.
Goal 13 Climate action *Targets 13.1, 13.2*	‣ Expected benefits include enhanced adaptive capacity, reduced vulnerability of productive landscapes and rural communities, and stronger integration of climate into land planning and management.
Goal 15 Life on land *Targets 15.1, 15.3, 15.5*	‣ Expected co-benefits include restoration of degraded land, reduced soil erosion, improved vegetation cover, strengthened biodiversity, reduced desertification risks, and improved ecosystem resilience across agricultural, pasture, and forest landscapes.

11.1 Sustainable development goals alignment

The programme will generate sustainable development co-benefits that directly support climate resilient development pathways in the AFOLU sectors, while contributing to multiple SDGs, including SDG1: No Poverty SDG 2: Zero Hunger, SDG 8: Decent Work and Economic Growth, SDG 13: Climate Action, and SDG 15: Life on Land, across the Kyrgyz Republic, Tajikistan, and Uzbekistan. By addressing climate change, land degradation, and biodiversity loss in a more integrated manner, it will reduce inefficiencies associated with siloed interventions, and enable more coherent, cost-effective delivery at landscape scale (Output 1.1, 3.2 and 3.3). Coordinated land restoration can generate implementation efficiency gains of up to 24 % compared to parallel efforts, underscoring the development rationale for an integrated approach (Output 1.1, 2.1 and 2.2).

The proposed programme interventions are expected to generate significant environmental co-benefits across agricultural, pasture, and forest ecosystems in the target countries. The interventions proposed by the programme in agriculture have several environmental co-benefits, including improved soil organic matter and water retention, enhanced irrigation efficiency, restoration of degraded landscapes, reduced soil erosion (Mirzabaev, 2018), reduced desertification risks, and increased carbon sequestration in agricultural soils (World Bank, 2019a). Programme interventions in pasture and forestland also bring significant environmental co-benefits as measures help restore vegetation cover, reduce soil erosion, enhance biodiversity, and improve watershed protection (Mirzabaev, 2018) while

helping to restore biodiversity (UNECE & FAO, 2018), increasing carbon sequestration ecosystem resilience (Sidle et al., 2023).

The programme's interventions will also deliver substantial social co-benefits by strengthening rural livelihoods, food security, and community resilience. Land-based climate interventions such as climate-resilient agriculture, pasture restoration, reforestation, and improved forest management can generate substantial social co-benefits for rural communities in Central Asia, where livelihoods are highly dependent on natural resources. Climate-resilient agricultural practices can enhance food security, stabilise agricultural production, and increase household incomes by reducing vulnerability to drought and climate variability. These practices are particularly important for smallholder farmers who rely on rainfed or water-constrained systems (World Bank, 2019a). Similarly, pasture restoration and improved rangeland management can increase the productivity and sustainability of grazing systems, supporting livelihoods that remain critical to rural economies across the region. Restored pastures improve forage availability, reduce degradation caused by overgrazing, and can help reduce conflicts over grazing resources while strengthening community-based pasture management approaches.

Reforestation, forest landscape restoration, and improved forest management also provide important social co-benefits by creating rural employment opportunities, diversifying livelihoods, and strengthening local governance of natural resources. Restoration activities such as tree planting, nursery development, and watershed protection can generate jobs and income in rural areas, while restored forests support livelihoods through the sustainable use of timber and NTFPs such as nuts and fruits (UNECE & FAO, 2018). In mountain regions of Central Asia, forest restoration can also reduce disaster risks thereby improving the safety and resilience of rural communities. Across these interventions, participatory approaches to land and forest management can strengthen community institutions, knowledge sharing, and inclusive decision-making, contributing to long-term rural development and resilience to climate shocks.

The programme will generate significant economic co-benefits by strengthening rural productivity, market access, and investment in CRLE value chains: The programme will support economic development by strengthening farm and MSME productivity and profitability by CRLE investments with finance and market development. This will contribute to income growth and poverty reduction in rural areas where there is higher prevalence of poverty in the region. Value chain strengthening will improve market access, and increase bankability for producers and MSMEs, helping sustain CRLE adoption beyond grant support. Beyond improved access to finance and markets, the programme is expected to generate additional economic externalities such as job creation, poverty alleviation through more stable yields and incomes, stronger local service/input markets for CRLE technologies, and increased mobilisation of private capital for CRLE investments.

11.2 Gender co-benefits

The programme will support the active participation of women in decision-making of programme activities (e.g. participatory land use planning) by guaranteeing their participation in participatory processes and interventions to be carried out by the programme. The programme will also seek to empower women-owned and/or led MSMEs through its targeted technical assistance for on-farm and off-farm business models, business skills, financial literacy, and the development of climate-resilient value chains. For more details please refer to the gender assessment and action plan.

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Appendix A

Relevant Baseline Projects and programmes in the Sector

Project name	Funding and implementing entity	Timeframe	Budget	Project objective and components	Linkage/relevance for GCF programme
Kyrgyz Republic					
Enhancing Groundwater Management Approaches	Asian Development Bank (ADB)	2024–2025	USD 1,884,170	- Reinvigorate on-farm groundwater management approaches - Improve service efficiency of Water Resources Service (WRS) - Construct and upgrade boreholes - Install solar stations at WRS pumping stations in Aravan, Nookat, Leilek, and Panfilov - Introduce climate-smart agricultural (CSA) technologies and practices	- Learn from CSA implementation in Aravan, Nookat, Leilek - Possible upscaling of technologies and practices
Climate-Resilient Agricultural Value Chain Development Project	ADB	2023–2028	USD 40 million	- Address remaining poverty and reduce inequalities - Accelerate progress in gender equality - Build climate and disaster resilience, enhance environmental sustainability - Promote rural development and food security - Strengthen governance and institutional capacity - Foster regional cooperation and integration	- Potential upscaling of financial products for horticulture value chains targeting climate-resilient practices
Resilient and Inclusive Agricultural Development in CAREC Countries	ADB	12/2023–11/2026	USD 3 million	- Tackle climate change and enhance disaster resilience - Promote rural development and food security - Strengthen governance and institutional capacity - Foster regional cooperation and integration	- Coordinate regional interventions addressing climate change issues
Supporting Regional Actions to Address Climate Change under CAREC	ADB	09/2023–12/2026	USD 750,000	- Provide technical assistance to CAREC countries for strategic climate action - Mainstream regional approach in operational clusters toward Paris Agreement NDCs - Strengthen thematic and sectoral responses to climate change	- Complementarity in regional foresight capacities and climate finance awareness
Conservation of Useful and Rare Tree Species	Asian Forest Cooperation Organization (AFoCO)	2023–12/2025	USD 1.2 million	- Prepare technical documents and guidelines for improved seed storage - Design and operationalize seed storage facility (capacity 25 tons) - Conduct national and regional capacity building and research - Train local forestry workers - Develop short-term breeding program including selection of trees and genetic testing	- Use of native seeds for forest restoration activities

Project name	Funding and implementing entity	Timeframe	Budget	Project objective and components	Linkage/relevance for GCF programme
Agroforestry Carbon Removal Units Project	AFoCO /Rabobank	2023–2027	USD 20 million	- Implement climate-resilient agroforestry investments for income diversification - Build capacity to mainstream climate adaptation at policy and community levels - Enable climate-smart agroforestry and reforestation initiatives with multi-species systems	- Learn from CSA technologies and practices - Potential replication of carbon finance mechanisms
Climate Services and Diversification of Climate-Sensitive Livelihoods	GCF / WFP	2021–2024	USD 8.6 million + USD 1.5 million (gov.)	- Provide climate services to vulnerable rural communities - Strengthen livelihoods through diversification - Build community resilience - Enhance climate action capacity using a multi-sectoral approach	- Learn from PICSA climate-informed planning tool - Possible replication and upscaling - Clarify interventions in overlapping areas (Batken) - Clarify main partners and coordination
Rural Communities' Disaster Risks and Climate Change Resilience (Phase 2)	Switzerland, World Food Programme Contribution to the WFP CSP 2023-2027, with earmarking on DRR/CC pillar	01/01/2023–31/12/2027	CHF 9,000,000	- Strengthen communities' ability to cope with climate shocks - Improve resilience of local food systems	- Low relevance for GCF
UNDP Biodiversity Finance Initiative (Phase II)	Germany / IKI, EU, Switzerland Goverment / UNDP	2019–2025	USD 915,949	- Implement national resource mobilization strategies for biodiversity financing - Establish Biodiversity Conservation Trust Fund - Reform harmful agricultural subsidies - Improve financing for protected areas and forestry	- Builds on improved financing framework for state forest enterprises
Strengthening Understanding and Awareness on Climate Change	OSCE	2022–2025	EUR 120,000	- Raise climate change awareness in communities - Organize Eco-Films Festival and regional screenings - Build knowledge and skills of university students and youth - Coordinate with relevant ministries and NGOs	- Builds upon awareness raising activities for decision makers
Agricultural Value Chains Financing Phase 2	EU / EIB / KfW / APIF	2025–2030	EUR 37 million	- Establish best agricultural practices - Introduce technologies for processing and distribution - Implement international certification systems - Strengthen capacities of selected food testing laboratories - Channel EIB/KfW loans through partner banks - Provide training for business planning and credit applications	- Coordinate value chain development activities - Promote climate-resilient land uses - Coordinate access to finance for land users - Coordinate partnerships with financial institutions

Project name	Funding and implementing entity	Timeframe	Budget	Project objective and components	Linkage/relevance for GCF programme
Strengthen Kyrgyz Hydromet Capacity	World Bank(WB)	TBD	USD 5 million	- Complete and expand modernization of national observation network - Strengthen institutional and human capacity - Operate modern hydrometeorological systems - Expand user-targeted service delivery (forecasting, early warning, information dissemination)	- Complementary support for climate-informed land use planning
Climate Resilient Water Services	WB	2022–2027	USD 100 million	- Increase access to climate-resilient water services - Strengthen institutional capacities for climate-resilient water management - Support MNREST on water and soil quality monitoring	- Complementary to climate-informed land use planning
National Community Initiatives Project	WB / ARIS	2023–2029	USD 27 million	- Improve access to climate-resilient local social infrastructure - Increase livelihood opportunities for women and youth	- Coordinate WB social investments with climate-informed planning
Resilient Agri-Food Clusters Development Project	WB / MoWRAPI, MoF	2023–2029	USD 30 million	- Increase productivity and climate resilience of agri-food clusters - Respond to crises or emergencies	- Coordinate value chain development activities
SME Finance Facility for Central Asia – Phase 2	EU / EBRD	01/2018–12/2028	EUR 49,510,000 (EU contribution EUR 7,850,000)	- Support SMEs via finance and business advice - Provide technical assistance and business expertise - Improve competitiveness and management	- Learn from financial mechanisms used to support SMEs
Tajikistan					
Community-Based Agricultural Support Project (CBASP)	IFAD	2017–2024	USD 40.64 million	- Stimulate inclusive economic growth and poverty reduction - Improve access to productive infrastructure and services - Support private mechanized service providers	- Target 225 villages in Khatlon, Soghd, and DRS regions
Building Climate Resilience of Vulnerable and Food Insecure Communities	GCF / WFP	2018–2024	USD 10 million (GCF 9.3 million)	- Provide climate information services - Strengthen livelihoods via diversification - Build adaptive capacity in mountainous regions - Support food security, water management, agriculture, and forestry	- Target Rasht valley, - Khatlon, - GBAO - Complementarity with NAP and GCF projects
Enhancing Climate Resilience in the Pyanj River Basin	ADB	12/11/2021–31/12/2024	TBD	- Integrated natural resources management - Identify climate-exposed areas - Prioritize climate adaptation interventions - Conduct upstream climate analysis	- Focus on rural livelihoods, especially women and marginalized groups
Conservation and Sustainable	UNDP	15/08/2023–15/08/2028	USD 3,139,726	- Integrated sustainable management of biodiversity and land resources	- Khatlon region focus

Project name	Funding and implementing entity	Timeframe	Budget	Project objective and components	Linkage/relevance for GCF programme
Management of High-Value Arid Ecosystems				- Ensure effective functioning of protected areas - Improve knowledge management	
Enabling an Effective NAP Process	UNDP	07/2021–05/2025	USD 2,746,016	- Establish institutional arrangements for National Adaptation Plans - Build capacity to implement adaptation planning	- Tajikistan-wide relevance
Enhancing Resilient Rural Development through Adapted Land Use and Disaster Risk Mitigation	KfW / NSIF	12/19/2022–12/2027	EUR 20 million	- Reduce disaster damages in rural areas - Strengthen resilience to climate change - Improve sustainable rural development prospects	- Khovaling, - Muminabad, - Kulob, - Rasht, - Panjakent
National Water Resources Management (NWRM)	Helvetas / ACTED	12/2022–11/2026	CHF 4,900,000	- Improve livelihoods via integrated water resources management - Enhance irrigation and DRR interventions	- Tajik Syr Darya Basin
Integrated Natural Resources Management in Zerafshan Valley (INVEST)	European Commission / Aga Khan Development Network	08/01/2022-07/2027	TBD	- Promote climate-resilient farming practices - Integrated natural resource management - Improve nutrition in target households - Improve water and sanitation access	- Ayni, - Panjakent, - Kuhistoni Mastchoh
Tajikistan Ecosystem Restoration and Resilient Agriculture (TERRA) Project	GEF	Approval 12/ 2024: Implementation Q2 2025	USD 9,000,000	- Apply integrated landscape management - Restore degraded grassland ecosystems - Generate environmental and socio-economic benefits	- Khatlon Province, 11 districts
Project on Restoration and Income Generation for Local People	Korea Forest Service	04/2023–08/ 2027	TBD	- Restore forests - Boost local community income via pistachio production - Build capacity in forestry	- Kubodiyon - Shartuz
Sustainable Renewables Risk Mitigation Initiative (SRMI) Phase 2	GCF / IBRD	2023–2035	USD 1.1 billion (GCF 160 million)	- Support energy transition - Increase access to sustainable electricity - Attract private sector investment	- Multi-country, including Tajikistan

Project name	Funding and implementing entity	Timeframe	Budget	Project objective and components	Linkage/relevance for GCF programme
Enhancing Agriculture Resiliency	IDA	06/2021–06/2027	USD 50 million	- Improve seed breeding systems - Build and restore agricultural infrastructure - Strengthen institutional and technical capacity	- Tajikistan
Climate, Energy, and Water Security in Central Asia	FCDO	2024–2029	GBP 19.5 million	- Strengthen regional cooperation on water and energy - Provide support for climate mitigation and adaptation interventions	- Tajikistan and wider CARs
Strengthening Resilience of Agriculture Sector	World Bank	2021–2027	USD 58 million	- Strengthen seed, seedling, and planting material systems - Support investments in agri-logistical centers - Strengthen public capacity for crisis prevention and management - Project management and coordination	- Tajikistan
Agriculture Land Management (“Feed the Future”)	USAID	2020–2025	USD 36,300,151	- Reduce food shortages - Develop sustainable agricultural production in small farms	- Tajikistan
Uzbekistan					
Regional Mechanisms for Low-Carbon, Climate-Resilient Energy-Water-Land Nexus	OECD / IKI	2024–2028	EUR 13,661,781	- Mainstream Nexus principles in planning - Expand evidence base on Nexus benefits - Design financing mechanism to promote Nexus investments - Develop tools for decision-makers - Organize regional political and technical dialogues	- Kazakhstan, - Kyrgyzstan, - Tajikistan, - Turkmenistan, - Uzbekistan
Resilient Food Systems through Climate Services for Agriculture	IFAD	2024–2029	USD 10 million	- Develop near real-time farm advisory system - Improve decision-making and planning for agriculture - Reach last-mile farmers - Learning and knowledge management	- Regions: Andijan, Jizzakh, Namangan, Sirdarya, Surkhandarya, Tashkent, Fergana, Khorezm

Appendix B

Relevant financial products and services in the prioritised countries

This appendix presents a mapping of financial products relevant to agricultural finance in the Kyrgyz Republic, Tajikistan, and Uzbekistan. The mapping outlines products by banks, microfinance institutions, and other financial service providers in the market across different sub-sectors and borrower types.

Table 85: Relevant financial products in the Kyrgyz Republic

Banks	Type of product	Sub sector	Type of beneficiary	Type of funding	Loan tenor	Interest rate	Grace period	loan amount	Collateral of requirements
Kyrgyz Investment Credit Bank	fixed assets	horticulture	small farm/dekhan farm	IFI credit line	from 3 up to 60 months	27% - 32%	up to 6 months	USD 30, 000-USD 50, 000	real estate, movable /immovable property, insurance police, co signer
Demir bank	fixed assets	horticulture	medium size farm	IFI credit line	up to 60 months	20% - national currency; 12% in USD	up to 6 months	more than USD 30,0 000	real estate
Bailyk Finance MFI	fixed assets	horticulture	small farm/dekhan farm	IFI credit line	up to 18 months	23,85% - 28,07% in national currency	up to 6 months	up to USD 30,000	real estate, movable /immovable property, insurance police, co signer
FINCA	fixed assets	horticulture	small farm/dekhan farm	Bank own funds	3-60 months	23% in national currency	8 months	up to USD 30,000	co-signer, movable and immovable property
FINCA	working capital	horticulture	small farm/dekhan farm	Bank own funds	up to 60 months	23USD in national currency		up to USD 30,000	co-signer, movable and immovable property
FINCA	fixed assets	horticulture	medium size farm	IFI credit line	3-60 months	23-31% in national currency; 13-22% in USD	8 months	up to USD 100,000	co-signer, movable and immovable property
FINCA	working capital	horticulture	medium size farm	IFI credit line	3-60 months	23-31% in national currency; 13-22% in USD		up to USD 100,000	co-signer, movable and immovable property
	fixed assets	horticulture	small farm/dekhan farm	Government program	up to 24 months	10% in national currency	3 months	up to USD 30,000	up to USD 3000 without collateral; flexible collateral requirements
Bai Tushum	leasing services	horticulture	medium size farm	Government program	up to 60 months	12% in national currency		USD 100,000-USD 300,000	leased equipment

Table 86: Relevant financial products in Tajikistan

Banks	Type of product	Sub sector	Type of beneficiary	Type of funding	Loan tenor	Interest rate	Grace period	loan amount	Collateral of requirements
Arvand	fixed assets	horticulture	small farm/dekhan farm	IFI credit line	up to 60 months	28%in national currency;17%in USD	up to 12 months	up to USD 100,000	movable or immovable property
Eskhata	fixed assets	horticulture	small farm/dekhan farm	IFI credit line	up to 60 months	12% in USD	up to 24 months depending on the project	up to USD 100,000	movable or immovable property
Eskhata	fixed assets	cotton production	small farm/dekhan farm	IFI credit line	up to 60 months	12% in USD	up to 24 months depending on the project	up to USD 100,000	movable or immovable property
Eskhata	fixed assets	meat production	small farm/dekhan farm	IFI credit line	up to 60 months	12% in USD	up to 24 months depending on the project	up to USD 100,000	movable or immovable property
Imon International	fixed assets	horticulture	small farm/dekhan farm	IFI credit line	from 2- 60 months	26% in national currency	up to 6 months	up to USD 100,000	movable or immovable property
HUMO	fixed assets	horticulture	small farm/dekhan farm	IFI credit line	up to 36 months	20% in national currency	up to 12 months	up to USD 100,000	collateral free

Table 87: Relevant financial products in Uzbekistan

Banks	Type of product	Sub sector	Type of beneficiary	Type of funding	Loan tenor	Interest rate	Grace period	loan amount	Collateral of requirements
Asaka Bank	fixed assets	horticulture	small farm/dekhan farm	IFI credit line	36 months	21% in national currency; 12% in foreign currency	10 months	up to USD 300,000	real estate, liquid equipment, vehicles, cash pledge, insurance policy, and surety
Asaka Bank	fixed assets	horticulture	medium size farm	IFI credit line	60 months	27% in national currency, 14% in foreign currency	12 months	USD 500,000-USD 1,000,000	real estate, liquid equipment, vehicles, cash pledge, insurance policy, and surety
Hamkorbank	working capital	horticulture	medium size farm	IFI credit line	up to 18 months	Up to 28%		USD 100,000-USD 300,000	real estate, liquid equipment, vehicles, cash pledge, insurance policy, and surety
Hamkorbank	fixed assets	horticulture	medium size farm	IFI credit line	60 months	"In national currency - 23.99% In foreign currency - 10% "	12 months	USD 300,000-USD 500,000	real estate
Uzpromstroybank	fixed assets	horticulture	medium size farm	Bank own funds	60 months	24% in national currency, 12% in foreign currency	12 months	USD 100,000-USD 300,000	real estate, liquid equipment, vehicles, cash pledge, insurance policy, and surety

Banks	Type of product	Sub sector	Type of beneficiary	Type of funding	Loan tenor	Interest rate	Grace period	loan amount	Collateral of requirements
Uzpromstroybank	fixed assets	horticulture	small farm/dekhan farm	Bank own funds	60 months	17% in national currency	12 months	up to USD 100,000	real estate, liquid equipment, vehicles, cash pledge, insurance policy, and surety
Agrobank	fixed assets	horticulture	medium size farm	Bank own funds	60 months	21%	no	up to USD 100,000	real estate, liquid equipment, vehicles, cash pledge, insurance policy, and surety
National Bank of Uzbekistan	fixed assets	horticulture	medium size farm	Bank own funds	18 months	22,5% in national currency	12 months	USD 300,000-USD 500,000	real estate, liquid equipment, vehicles, cash pledge, insurance policy, and surety
National Bank of Uzbekistan	fixed assets	horticulture	medium size farm	Government program	18 months	14USD in national currency %	12 months	USD 50,000-USD 100,000	real estate, liquid equipment, vehicles, cash pledge, insurance policy, and surety
Ipoteka bank	fixed assets	horticulture	small farm/dekhan farm	Government program	60 months	18% in national currency	6 months	USD 100,000-USD 300,000	real estate, liquid equipment, vehicles, cash pledge, insurance policy, and surety

Banks	Type of product	Sub sector	Type of beneficiary	Type of funding	Loan tenor	Interest rate	Grace period	loan amount	Collateral of requirements
Ipoteka bank	fixed assets	horticulture	medium size farm	IFI credit line	120 months	19% in national currency ;6,5% in foreign currency	36 months	USD 300,000-USD 500,000	real estate, liquid equipment, vehicles, cash pledge, insurance policy, and surety
Ipoteka bank	working capital	horticulture	medium size farm	IFI credit line	24 months	19% in national currency ;9% in foreign currency		USD 100,000-USD 300,000	real estate, liquid equipment, vehicles, cash pledge, insurance policy, and surety

Appendix C

Other effective area-based conservation measures

Other effective area-based conservation measures (OECMs) are defined as geographically defined areas other than protected areas that are governed and managed in ways that achieve positive and sustained long-term outcomes for in situ biodiversity conservation, alongside associated ecosystem functions and (where relevant) cultural or socio-economic values (MacKinnon, 2019). In practice, countries may have area-based measures that function as OECMs (or could be screened as candidate OECMs), even where these are not yet recorded in global reporting systems or publicly visible in the World Database on OECMs (WD-OECM).

Kyrgyz Republic

In Kyrgyz Republic, several area-based measures implemented under a landscape approach in Western Tian Shan illustrate the type of governance and management that can align with OECM criteria, particularly buffer zones, “buffer-quiet” zones and ecological corridors situated outside core protected areas and intended to maintain habitat connectivity and reduce pressure from resource use (Bellamy, 2019). The UNDP-GEF Western Tian Shan project explicitly pursued the identification of key biodiversity areas (KBAs), buffer zones and corridors, paired with sustainable forest and pasture management and integration into spatial planning, as part of strengthening ecosystem resilience and connectivity at landscape scale (Bellamy, 2019).

A concrete example is the ongoing establishment of the Chatkal Ecological Corridor (64,105 ha) and the “Kabak” buffer ”quiet" zone (25.971 ha) in the Chatkal Range, which are being developed through scientific assessments, mapping of land users, consultations with local communities, and signed agreements on compliance with corridor/zone regimes involving local administrations and relevant users, including hunting enterprises (UNDP Kyrgyzstan, 2023). Progress has been made, but a legal document is still to be issued for the eco-corridor/buffer zone, which is an important consideration for whether long-term conservation outcomes can be considered “secured” (a key screening issue for OECM recognition). In parallel, the project aimed to identify and agree on at least 50,000 ha of buffer-quiet zones and corridors around new state nature parks, with inventories and management planning in areas outside protected areas, indicating an intention to put in place defined boundaries and management regimes beyond core SPNAs (Bellamy, 2019).

Separately from the Western Tian Shan cluster, Kyrgyz Republic announced a large ecological corridor of around 800,000 ha designed to connect existing conservation areas, address grazing pressure and climate-related habitat shifts, and allow certain compatible uses under restrictions (UNEP, 2025). While this corridor is described as part of the national “special protected natural areas” framework (meaning it may not qualify as “other than a protected area” depending on the national classification), it remains relevant as an example of area-based connectivity measures with defined management regimes that can be discussed in the OECM section and screened for alignment with OECM criteria.

Kyrgyz Republic thus appears to have a suite of corridor buffer/quite-zone instruments that can be described as OECM-relevant measures/candidates, with relatively strong documentation of governance, boundary delineation work, and intended biodiversity outcomes. However, at least some measures are still described as undergoing completion of legal formalization, which affects whether they can be considered secured form long-term outcomes (UNDP Kyrgyzstan, 2023).

Tajikistan

At the time of writing, Tajikistan has no OECMs reported in WD-OECM, and the Aichi Target 11 country dossier notes that there are currently no potential OECM examples identified for the country (UNDP & SCBD, 2021). The dossier highlights “opportunities for action” including recognizing and reporting OECMs to WD-OECM, and also points to policy directions such as creating buffer zones and introducing concepts such as corridors and ecological networks into national legislation (UNDP & SCBD, 2021). If implemented through clearly delineated areas with durable governance outcomes, such measures could form a basis for future OECM identification and reporting (MacKinnon, 2019; UNDP & SCBD, 2021).

The Community Conservation Resilience Initiative (CCRI) summary for Tajikistan highlights that local communities can play a significant role in conserving local ecosystems through traditional knowledge and cultural norms, including customary restrictions and practices to protect key ecosystem features such as springs and thermal (GFC, 2018) The summary also points to governance and resource-access conflicts and the need for improved local capacity and advisory services, which are relevant when

assessing whether governance arrangements are sufficiently durable and legitimate for OECM recognition (GFC, 2018; MacKinnon, 2019).
Priority directions for strengthening the enabling environment include measures that improve connectivity and integration (e.g., establishing buffer zones, and incorporating corridors/ecological networks into legislation and planning), alongside systematic approaches to documenting biodiversity attributes, governance and management arrangements, and monitoring baselines for candidate areas (UNDP & SCBD, 2021).

Uzbekistan

No areas in Uzbekistan are currently recorded as OECMS in the available global datasets (UNEP-WCMC, 2025). Nevertheless, several area-based instruments and programs outside core protected areas pursue biodiversity-relevant outcomes and may provide a basis for identifying potential OECM candidates in the future, subject to confirmation of their legal status, spatial boundaries, and long-term arrangements against the CBD OECM definition and screening criteria.
A first relevant instrument is the establishment of protection zones around protected areas. In March 2025, a Cabinet of Ministers resolution (No. 142) introduced protection zones for the Chatkal State Biosphere Reserve and the Aktau-Tamdy Reserve, including specified forestry units (Cabinet of Ministers of the Republic of Uzbekistan, 2025). The stated purpose of these zones is to limit or prevent negative impacts from economic activities and to support conservation objectives in adjacent protected areas. Such zones can contribute to biodiversity conservation beyond protected area boundaries, particularly where they are geographically defined, consistently enforced and linked to clear ecological objectives (e.g., reducing disturbance, maintaining habitat integrity and supporting connectivity). Whether these zones can be considered as OECMs would require verification of whether they are treated as part of the protected area system or as a distinct category, and whether their management regime can be expected to deliver sustained biodiversity outcomes over the long term (MacKinnon, 2019).
A second relevant entry point is emerging integrated landscape management and restoration programming. Under the UNDP/IUCN/GEF “EcoLand” initiative, Uzbekistan aims to improve landscape management across approximately 1.3 million ha, combining biodiversity conservation with restoration and sustainable land use in mixed forest-rangeland-agricultural landscapes (UNDP Uzbekistan, 2025a). The programme includes pilot districts in Surkhandarya Region (Boysun and Sherabad) and emphasizes multi-stakeholder governance and interventions that can reduce pressure on high conservation value ecosystems while improving land productivity (UNDP Uzbekistan, 2025a). While this programme is not an OECM designation, it provides an operational framework through which spatially explicit, locally governed conservation measures outside protected areas could be identified and assessed as potential OECM candidates (e.g., community- or forestry-managed areas with enduring biodiversity outcomes).
Overall, Uzbekistan’s current OECM baseline can be described as having no formally recorded OECMs, alongside the presence of buffer/protection zone mechanisms and landscape restoration governance approaches that could, with further documentation and screening, support the future identification of OECM candidates, including in Surkhandarya.

Appendix D

ESS Exclusion List (Standard Appendix)

The programme must not involve, support, finance, or be associated with any of the following activities, including those falling under the IFC Exclusion list:

- Forms of forced labour, or harmful or exploitative forms of child labour.
- Activities deemed illegal under host country laws or regulations, international conventions and agreements, or subject to international phase-out bans.
- Production of or trade in products containing PCBs.
- Purchase, production of or trade in pharmaceuticals, pesticides, herbicides, or other hazardous substances subject to international phase-outs or bans, including under the Rotterdam Convention and Stockholm Convention.
- Production of or trade in ozone-depleting substances subject to international phase-out under the Montreal Protocol.
- Trade in wildlife or wildlife products regulated under the CITES Convention.
- Transboundary movement of waste prohibited under international law, including under the Basel Convention, except for non-hazardous waste destined for recycling.
- Activities prohibited by host country legislation or international conventions relating to the protection of biodiversity resources or cultural heritage.
- Production of, trade in, or use of unbonded asbestos fibres or asbestos-containing products.
- Weapons and munitions.
- Sex work and related infrastructure and services.
- Gambling and related equipment.
- Tobacco production, processing, and distribution.
- Alcohol production, processing, and distribution involving hard liquor.
- Production of or trade in radioactive materials, excluding certain medical and measurement equipment where the radioactive source is trivial or adequately shielded.
- Investments in the search, extraction, production, distribution, processing, or promotion of fossil fuels, including coal, oil, natural gas, and peat.
- Activities that increase the use of fossil fuels and/or prolong the technical or economic lifetime of heat and power production using fossil fuels, except for limited back-up generation, household cooking purposes, or processes where feasible alternatives do not exist.
- Biofuel projects meeting any of the following conditions:
    - Based on feedstock grown on land with high carbon content or biodiversity value, including rainforests, wetlands, peat lands, grasslands, reserves, protected lands, or lands with high conservation value.
    - Using feedstock for liquid biofuels where higher climate or development benefits would occur if the feedstock were used unprocessed, such as direct combustion in a co-generation plant.
    - Using solid biomass fuels from forests, whether planted or natural, with a carbon cycle incompatible with the Paris Agreement.
    - First-generation biofuel projects with a production area over 75 hectares.
- Commercial logging operations, or the purchase of logging equipment for use in primary forests or old-growth forests.
- Production of or trade in wood or other forestry products other than from sustainably managed forests

Appendix E

Projects using matching grants in the region

Country	Example	Implementing entity	Beneficiary type	Grant amount / program size	Grant share	Beneficiary contribution	Contribution type
KG	ARIS Small Grants Programme (PRED-2, Batken)	ARIS / PRED-2	Small enterprises with up to 15 employees; individual entrepreneurs	Stage 1: up to $8,000; Stage 2: up to $20,000	Stage 1: up to 80%; Stage 2: up’0p to 50%	Stage 1: minimum 20%; Stage 2: minimum 50%	Own contribution; for socially vulnerable applicants with social passport, co-financing not required
KG	USAID KATA / AgroHorizon	USAID-supported project	Machinery Service Providers	Not specified	cost-share 30%	70% cost-share	NA
TJ	RESILAND CA+	World Bank CIIP	Common Interest Groups (CIGs), farmer groups	Up to $10,000 per CIG	95% if cash match; 90% if in-kind match	5% cash or 10% in-kind	Cash or in-kind
TJ	CASP+ Window 1	IFAD / GCF - CIIP	Vulnerable households	Up to $8,000	90%	10%	Cash/in kind
TJ	CASP+ Window 2	IFAD / GCF - CIIP	Commercialisation / agribusiness Common Interest Groups	Average $30,000	80%	20%	Cash
TJ	CAMP4ASB Additional Financing	CIIP	Water User Assoc.; Pasture User Unions	Up to $200,000	90%	At least 10%	Cash or in-kind
TJ	World Bank Agriculture Commercialization Project – Matching Grant Program	World Bank / IDA with PFIs	Start-ups, youth, women, PWD, entrepreneurial groups		Up to 50%	50% repayable share	Loan-financed beneficiary portion
UZ	ADB Precision Agriculture for Resilient Commercial Horticulture Sector Project	Ministry of Agriculture / ISCAD / PIU / FCU	Producer groups of dehkan farmers; selected agribusinesses		80%	20%	In-kind
UZ	World Bank MUNIS – RCP grants	Agency for Innovative Development, Ministry of Higher Education, Science and Innovations	Researchers; industrial consortia	$75,000–$150,000 per grant	Up to 90%	At least 10%	Private-source co-financing

UZ	World Bank MUNIS – Innovation Capabilities Program (ICP)	Agency for Innovative Development, Ministry of Higher Education, Science and Innovations	SMEs	$10 million program; $50,000 per project	50%	50%	Own funds

Appendix F

Conflict-related and contextual risk assessment for Central Asia (summary)

The below table is an extract from GIZ´s internal conflict-related and contextual risk assessment, which was completed in July 2026 for GIZ Central Asia. This assessment is required within the context of BMZ-related commissioning processes in order to assess the broader conflict- and fragility-related risk context, identify generic needs and action options for peaceful and inclusive development, and look at more specific risks that may affect BMZ commissioning.

Please note that it was not explicitly produced for this regional programme and hence contains information not relevant to its geographical scope (e.g. regarding GBAO and Karakalpakstan) or thematic scope. Nonetheless, this information was left in the document in order to provide overall context.

Principal factors for conflict	Needs for peaceful and, inclusive development	Action options for positive impacts on / contribution to the identified needs for peaceful and inclusive development	Assessment and management of external risks
The Central Asian states Kyrgyzstan, Tajikistan and Uzbekistan are all relatively young states with a significant legacy from the Soviet Union. The countries possess complex dynamics due to their multiethnic composition, challenges associated with governance and transparency, and environmental problems. The countries are predominantly governed by long-reigning presidents who employ repressive systems of rule. Furthermore, being in the vicinity of Afghanistan, the states are impacted by the spillover effects of ongoing conflict, including security threats, refugee influx, and illicit activities such as drug trafficking and arms smuggling. These factors further compound the already existing challenges within the region. Another issue is the reinforced nationalist traditionalism, paired with Islamic customs not native to the region, but recently imported from the Middle East (veiling of women, or imams educated in Wahhabist Islam, for instance).[25] The region has seen one relatively recent full-scale war (the Tajik Civil War) and a very recent armed conflict between two of the countries (Kyrgyz and Tajik border conflict of 2021-2022), as well as several violent uprisings and crackdowns.	The states require support in all efforts to create or improve democratic practices, good governance, and support to social cohesion. Such support should include: ● Electoral support and allowing for independent monitoring of elections. ● Improving conditions for civil society to operate in each of the countries, including removal of legal obstacles and laws particularly targeting foreign-funded Non-	an organisation working in all five Central Asian states with one focus on cross-border protected areas, there are several entry points to positively impact on / contribute to the identified needs for peaceful and inclusive development at local, national, and regional levels. The following suggestions are provided: ● Organise/facilita te high and	**<u>Outbreak of domestic conflict:</u>** Risk concerns personal safety of the staff of GIZ, in the case that the staff will be located in the affected area. <u>Mitigation measures</u>: If a renewed conflict erupts into active fighting, leaving the affected area should be of first priority. Evacuation should be ensured for all staff in cooperation with the nearest German Embassy or Consulate. If a conflict is ongoing, with few outbreaks of regular violence (such as the

[25] See, for instance: Nasritdinov, Emil; Myrzabaev, Mametbek**,** Saudi Influence in Kyrgyzstan: Beyond Mosques, Schools, and Foundations, in: Wahhabism and the World: Understanding Saudi Arabia's Global Influence on Islam (2022)

CONFLICT PROFILE The region has several latent conflicts on national and international level. The **national conflicts** are mainly related to minorities, a lack of freedoms, and over natural resources. Of these can be mentioned: **Kyrgyzstan:** Kyrgyzstan is the only country in the former Soviet Union to have had three revolutions: 2005, 2010 and 2020. In 2005, Askar Akayev was ousted after widespread discontent, nepotism and prevention of political pluralism, and was followed by an election deemed as unfair by the OSCE/ODIHR.[26] In 2010, president Kurmanbek Bakiyev was ousted, also due to nepotism and repressed political pluralism.[27] In 2020, following the COVID-19 pandemic poorly handled by the authorities, followed by massively flawed elections, mass protests and riots erupted. President Sooronbay Jeenbekov resigned, and incumbent president Sadyr Japarov came to power.[28] All revolutions were violent, both on the side of protesters and from the side of the state. **Tajikistan**: The Gorno-Badakhshan Autonomous Oblast (GBAO) has been experiencing a reinforced crackdown from the authorities due to different disputes, with significant consequences for the fundamental freedoms of citizens.[29] Many people were injured and some killed in several incidents that periodically happened between November 2021 and May 2022, with the Tajik state using excessive violence against the local population.[30] Tensions arose after the killing of a Pamiri man during an arrest; however, it should be noted that this happened against the backdrop of years of continued repression of the Pamiri people in the authoritarian state. The situation is part of a long-running repressive campaign initiated by the Tajik authorities, resulting in periodic outbreaks of violence and crackdowns on rights.[31]Recently, the leader of GBAO was killed in a fatal car accident together with his family, adding to the political uncertainty in GBAO.[32] **Uzbekistan**: The Karakalpak ethnic minority in Uzbekistan has a conflict with the Uzbek state, which has used heavy means of repression to control the region. In the summer of 2022, Karakalpakstan experienced excessive violence from the Uzbek state following protests in the region against constitutional amendments which would strip Karakalpakstan of its autonomy. At least 21 people were killed and over 270 injured.[33] **International conflicts** are mainly related to the distribution of natural resources:	Governmental Organisations (NGOs). ● Providing know-how for states to improve their governance, through education and practice with in-country state agency partners. ● Improving conditions for freedom of expression, particularly through abolishing laws targeting freedom of expression and ceasing to put pressure on journalists and bloggers, allowing for peaceful protests and fostering an inclusive environment for dissenting opinions. ● Improving conditions for social cohesion, possibly through the educational system and support for country-wide campaigning. It is important to provide support to **Kyrgyzstan** in promoting rule of law and cease pressure on	technical level regional exchange between countries to foster a regional dialogue on natural resources ● Encourage the rejoining of Kyrgyzstan in IFAS and for the time being involve them in the implementation of REP4SD and meetings of the ICSD. ● Prioritise inclusive participation and engagement of various stakeholders, including local communities, civil society organisations, and	situation in the Pamirs of Tajikistan), activities could go as planned, but it is not recommended to travel with partners or foreign delegations in conflict areas. **<u>Outbreak of violence on the Kyrgyz-Tajik border:</u>** While the border has been fully demarcated, taking into account the usage of land of local citizens, the situation remains potentially volatile. The conflicts have resulted in numerous civilian and military deaths over the years, significant losses of property and assets, and many thousand IDPs. This risk concerns the safety of staff, which could be affected in the case they will be on duty travel in the vicinity of the Kyrgyz-Tajik border. <u>Mitigation measures:</u> Always follow the news in the respective countries, as to be aware of potential outbreaks of violence. If such

[26] Ivanov, Yevgeny: Revolutions in Kyrgyzstan, in Goldstone, Jack A ; Korotayev, Andrey; Grinin, Leonid: Handbook of Revolutions in the 21st Century, Springer Books (2022), pp. 522-523.

[27] Ibid., pp. 528-529

[28] Ibid., pp. 537-539

[29] IPHR et al.: NGOs call on the Tajikistani authorities to respect international law in Gorno-Badakhshan Autonomous Region (GBAO) (2022)

[30] Ibid.

[31] See, for instance: The Diplomat: Tajikistan's Pamirs: A Perfect Political Storm on the Roof of the World (2023),

[32] Fergananews: The head of the Gorno-Badakhshan Autonomous Oblast has died - his car fell into a river (2026)

[33] Ibid.

The **2021-2022 conflict at the Tajik-Kyrgyz border** was originally related to water and land resources. In recent years, clashes over land and water disputes have increased in frequency, leaving hundreds of military personnel as well as dozens of civilians wounded or dead. In April 2021, a water dispute[34] on the contentious border in the Batken region led to some of the worst clashes in years, when more than 55 people were killed and over 270 injured in 2022.[35] Despite a May 2021 ceasefire,[36] the border conflict continued with regular clashes occurring between January[37] and March 2022[38]. During these events, government authorities did not provide official information on the conflict and obstructed access to information for independent media outlets. Authorities, moreover, tried to interfere in the editorial policy of media outlets reporting on the conflict, thus leading to the spread of false information on social media and to increasing tensions. September 2022 saw the sharpest escalation of the border conflict between Tajikistan and Kyrgyzstan to date related to the use of agricultural land and resources.[39] As a result of the hostilities, which took place at the largely non-demarcated border between Kyrgyzstan and Tajikistan in September 2022, dozens of people were killed, hundreds injured[40] and thousands forced to be evacuated from their homes.[41] Widespread damage to both public and residential buildings was also reported. Kyrgyzstan's Ministry of Foreign Affairs described the events at the border as ''a pre-meditated military aggression'' by Tajikistan against Kyrgyzstan[42] and stated that the latter ''acted exclusively from a defensive position''.[43] Tajikistan's Ministry of Foreign Affairs accused Kyrgyzstan of starting the violence[44], and claimed that the Kyrgyz had fired first.[45] The Khudjand Declaration in 2025 formally ended the dispute,[46] and the border between the two countries in now demarcated.	independent media and civil society. **Tajikistan**: Tajikistan should also be assisted in promoting rule of law and cease pressure on independent media and civil society. **Uzbekistan**: Efforts should be made to facilitate dialogue and foster a less repressive environment where Karakalpak voices can be heard and exercise power and agency in their home region. An independent commission with foreign participation should be set up to investigate the violent incidents in Karakalpakstan. **On the Kyrgyz-Tajik border,** both states should be supported in conducting	marginalised groups, in decision-making processes related to NRM. This approach ensures their voices are heard, their rights are respected, and their perspectives are considered in projects´ design and implementation. • Prioritise environmental protection and sustainable resource management practices. By	an outbreak occurs, all duty travel should be cancelled.

[34] BBC: Deadly fighting on Kyrgyzstan-Tajikistan border kills at least 31 (2021)

[35] VOA: Kyrgyzstan, Tajikistan Hold Talks to End Border Fighting (2022)

[36] BBC: Kyrgyzstan-Tajikistan: Images of destruction after border clashes (2021)

[37] Al Jazeera: Two civilians killed as guards clash at Kyrgyz-Tajik border (2022)

[38] RFE/RL: Kyrgyzstan, Tajikistan Hold New Talks After Shooting At Border Leaves One Dead (2022)

[39] Eurasianet: Kyrgyzstan, Tajikistan border clash resumes and spreads (2022)

[40] BBC: Kyrgyzstan-Tajikistan border clashes claim nearly 100 lives (2022)

[41] Eurasianet: Kyrgyzstan, Tajikistan reach demilitarization deal, sparking anger among border residents (2022)

[42] IPHR: Kyrgyzstan: Mass arrests of activists, restrictive draft laws and widening campaign against ''false'' information (2022)

[43] Embassy of the Kyrgyz Republic in the Republic of Tajikistan: Statement by the Ministry of Foreign Affairs of the Kyrgyz Republic on the events on the Kyrgyz-Tajik border (2022)

[44] IPHR: Tajikistan: Escalating tensions & crackdown on human rights defenders & journalists (2022)

[45] Ministry of Foreign Affairs of the Republic of Tajikistan: INFORMATION by the Ministry of Foreign Affairs of the Republic of Tajikistan on the events on the Tajik-Kyrgyz border on September 14-18, 2022 (2022)

[46] UN: Secretary-General Welcomes 'Historic' Border Agreement between Kyrgyzstan, Tajikistan (2025) and Special Eurasia: Tajikistan, Uzbekistan and Kyrgyzstan's Leaders Signed a Historical Agreement in Khujand (2025)

There is another latent conflict looming in Central Asia after the **Taliban in Afghanistan** started the **Qosh Teppa Canal Project,** which is set to divert large amounts of water from the Amu Darya river to irrigate Afghan farmland.[47] This water is already heavily used by Tajikistan, Turkmenistan and Uzbekistan, and it is already at capacity, with devastating consequences for the Amu Darya's inflow into the Aral Sea.[48] This means that the irrigation project can have consequences for water distribution in Central Asia and be a reason for violent conflict erupting.[49] In 2025 in Uzbekistan, the Minister for Water Resources expressed openly that the construction of the canal is a potential source of violent conflict between the two states, but that Uzbekistan recognises Afghanistan's right to the water: "*To be honest, the Afghans are our relatives. They also have the right to take water from the Amu Darya. Now they're writing online: they're building Koshtepa, this and that is happening... Should we take up arms and go to war? No. We're building relationships, maintaining dialogue, maintaining family ties. We'll gradually explain to them that they need to take their share of the water. Then there will be documents, negotiations, working visits—all of this will be discussed.*"[50] The Uzbek approach is thus non-confrontational, and there are no official positions from Tajikistan and Kyrgyzstan. The Qosh Teppa Canal is scheduled to be completed in 2028.[51] **The Central Asia region faces climate change and security risks**, particularly in remote areas on the Afghan border, densely populated areas, high mountain areas, and in particular areas with transboundary water ecosystems.[52] Climate change impacts include rising temperatures, increasing water scarcity, and frequent extreme weather events, which pose threats to human, food, and industrial security, and can have adverse impact on national economies.[53] **Examples:** For instance, ongoing desertification near the **Aral Sea** and the Amu Darya river delta area[54] is a significant threat to the Karakalpaks living in this area. The environmental degradation has already caused a loss of livelihoods and will continue to do so over the coming years, adding to the already challenging and fragile state of affairs in the region. Although there have been significant efforts to facilitate cross-border dialogue and the establishment of regional cooperative mechanisms.	reconciliation activities with local citizens. Such efforts could be additionally strengthened by facilitating an environment for cross-border trade. A softer approach fostering understanding across similarities rather than differences would, in this case, be applicable. An international commission should be set up to investigate war-crimes (according to the Geneva Convention) by each side of the conflict. The Tajik and Kyrgyz state should each support the work of the Commission and allow for an independent investigation. Facilitation of multilateral dialogue between the **Central Asian states and Afghanistan**, with the aim of reaching a compromise agreement on the Qosh Teppa Canal and the Amu Darya River. Environmental	promoting eco-friendly approaches, such as conservation, ecosystem restoration, and sustainable livelihoods, projects can support the long-term viability of natural resources while ensuring the rights of local communities and future generations are upheld. • Stay informed via different formal and informal news sources on current developments to ensure to take necessary measures in due time	**<u>The Qosh Teppa Canal and a potential conflict with Afghanistan</u>** There is a small risk of outbreak of violence between the countries and the Taliban, due to a potential sharp decline of water reaching the downstream area, following the future completion of the Qosh Teppa Canal Project. Such violence would presumably affect the border areas near the canal inflow, as well as the direct border between the regions. Violence could be instigated by hateful rhetoric against Afghanistan in the media, and a general economic decline/ environmental degradation that is publicly attributed to be the fault of

[47] Eurasianet: Uzbekistan pursues dialogue with Afghanistan on fraught canal project (2023)

[48] The Diplomat: What Afghanistan's Qosh Tepa Canal Means for Central Asia (2023)

[49] Carnegie Russia Eurasia Center: Afghanistan's Qosh Tepa Canal Could Trigger a Central Asian Water Crisis (2025)

[50] Gazeta.uz: "Should we take up arms and go to war?" The minister for Water Resources on the construction of the Qosh Teppa Canal in Afghanistan (2025)

[51] Ibid.

[52] CACF: Project Office for Central Asia on Climate Change and Green Energy: What Are the Risks of Climate Change for Central Asia? (2026)

[53] Ibid.

[54] Ibid.

Similarly, the World Bank co-financed **Rogun Dam** in Tajikistan was the subject of decades of diplomatic rows and threats between upstream Tajikistan and neighbouring downstream Uzbekistan.[55] The dam provides a welcome solution to Tajikistan's severe electricity shortages, whereas Uzbekistan has stated that the construction of the dam would have severe consequences for the essential water supply for the irrigation network, which the agricultural sector relies upon. Uzbekistan has softened its opposition to the dam in recent years, and the dam is also envisioned to accommodate some of its electricity supply needs in the future.[56] Regional efforts for dealing with natural resources are dealt with by the International Fund for Saving the Aral Sea (IFAS), created in 1993 by all Central Asian states to address the issues in the Aral Sea basin. Under IFAS, the Interstate Commission for Water Coordination (ICWC) was created in accordance with the Agreement "On Cooperation in Joint Management and Regulation of the Use and Protection of Water Resources of Interstate Water Sources" dated February 18, 1992 as well as the Interstate Commission on Sustainable Development (ICSD) in accordance with the «Agreement on joint actions to solve the problems of the Aral Sea and the Aral Sea region, environmental recovery and ensuring the socio-economic development of the Aral region» of March 26, 1993. Regional Environmental Programme for Sustainable Development (REP4SD) in Central Asia is the key specific work programme for the ICSD activities and their implementation. The current suspension of participation in IFAS by the Kyrgyz Republic is hampering regional efforts to save the Aral Sea as well as to regional discussions on NRM.	concerns and consequences of the project should also be evaluated. Karakalpaks should be involved in the dialogue. In addition to supporting Central Asian states in addressing climate change related risks, there is a need to support regional dialogue and understanding as well as joint coordinated measures to address the risks of climate change. It is important to engage with the existing structure of the IFAS and its subordinate structures and collaborate with all Central Asian states, including Kyrgyzstan, in order to represent their interests and ensure comprehensive regional efforts despite their suspended participation.		Afghanistan and the Qosh Teppa Canal Project. Such an outbreak of violence would affect the safety of staff and also carry significant risks for the realisation of projects´ objectives. <u>Mitigation measures:</u> GIZ staff should constantly monitor the security situation together with the German Embassy in each of the countries, to assess the likelihood of an outbreak of violence in advance, and take necessary measures for protection and evacuation, if necessary.

The below table provides a summary of the programme-specific context and recommended measures.

[55] Climate Diplomacy: Rogun Dam conflict between Tajikistan and Uzbekistan (no date)
[56] World Bank: Rogun Hydropower Plant Project (HPP), FAQ (2024) and Central Asia Program, George Washington University: The New President's Men: Motivations Behind the Change of Stance of Uzbekistan Concerning the Construction of the Rogun Dam (2020)

Identification of possible unintended negative impacts, mitigation measures, avoidance of negative impacts						
Possible unintended negative impacts	Likelihood	Extent of damage	Risk assessment without mitigation measures	Mitigation measures	Effectiveness of mitigation measures	Final risk assessment with mitigation measures
Thematic field: Conflict profile						
UNINTENDED NEGATIVE RESULT 1 **(Risk category: B)** **Conflict eruption or spillover** The volatility in the region, particularly in relation to transboundary resource management, which can and historically has entailed competition for resources, there are risks to localized tensions related to transboundary water resource management, and the region remains exposed to broader geopolitical and security risks, including potential spillover effects from instability in neighbouring Afghanistan (southern Uzbekistan and parts of Surkhandarya region and southern Tajikistan areas). Such dynamics can affect regional cooperation mechanisms, cross-border coordination, institutional engagement, and operational continuity in certain project areas, adding risks to the safety of staff and the success of project outcomes.	MediumH	High	Medium	Broader regional geopolitical and security risks, incl. possible spillover effects from instability in neighbouring Afghanistan, are considered through the regional conflict and context review undertaken by the GIZ Central Asia team and through the ESS1 screening. Particular attention has been given to southern Tajikistan and the Surkhandarya Region of Uzbekistan, as well as to potential implications for regional cooperation, institutional engagement, mobility and operational continuity. The assessment did not identify evidence that developments in Afghanistan currently constitute a material project-level environmental or social risk in the proposed intervention areas. Stakeholders also did not report that the wider regional security situation was presently constraining the activities envisaged under the project. Similarly, while transboundary water management remains an important regional policy and coordination issue, stakeholders indicated that it is addressed primarily through established intergovernmental and sectoral mechanisms rather than through active conflict in the project areas. The following contingency arrangements are reflected in the project's risk management arrangements: - Context monitoring: GIZ EE will monitor relevant political, security and institutional developments and communicate material changes to PMU and GCF Oversight Unit. - Periodic reassessment: Geopolitical and security risks will be reviewed through the GIZ Risk Management Office in the region as well as the project's risk register and dialogues. Additional assessments will be undertaken if the context changes materially. - Flexible regional coordination: Regional a/o local meetings, technical exchanges and coordination activities may be rescheduled, moved to safer locations or conducted virtually if travel or cross-border engagement becomes temporarily impracticable. - Continuity through national structures: Where regional a/o local exchanges are disrupted, implementation may continue through the respective national and local implementation structures, insofar as conditions permit, while regional a/o local (field level) activities are temporarily adapted or deferred.	Medium	Medium

				- Alternative communication channels: Multiple institutional focal points and remote communication arrangements will be maintained to reduce dependence on individual travel routes, border crossings or coordination channels. - Flexible sequencing and geographic prioritisation: Activities may be resequenced, temporarily relocated or postponed in locations affected by increased security or access risks. - Safety-based suspension: Field activities will not proceed where the security of communities, project personnel or implementation partners cannot be reasonably assured. - Escalation and decision-making: Material changes in the regional a/o local security environment will be escalated to the project's management and governance bodies, which will determine whether additional mitigation, budget reallocations or changes to implementation modalities are required. These measures are intended to protect personnel, partners, and beneficiaries while preserving the continuity of country-level implementation and regional knowledge exchange to the greatest extent feasible.		