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KEY POINTS

- The Central Asia Regional Economic Cooperation (CAREC) countries remain vulnerable due to their heavy dependence on extractive industries, conventional energy, and resource-based agriculture, leaving the region exposed to market volatility, climate risks, and environmental degradation.
- Despite growing awareness and significant progress in some countries, green finance development across the region remains nascent, mainly due to a bank-dominated finance sector, shallow capital markets, weak policy and regulatory frameworks, fragmented institutional responsibilities, limited technical capacity, a narrow pipeline of bankable green projects, and the absence of a regional green taxonomy.
- The CAREC countries must introduce fiscal and financial incentives to mobilize private investment; expand inclusive financing mechanisms for small and medium-sized enterprises and rural communities; introduce monitoring, reporting, and verification systems to sustain investor confidence; and deepen regional cooperation to align policies and strengthen engagement with development partners in scaling up green finance for climate-resilient growth.

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Green Finance Development in CAREC Countries: Challenges and Possibilities

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INTRODUCTION

Global sustainable finance is growing, reaching more than $2 trillion in 2024.[1] Green bonds are a key driver, with record issuance of $688 billion in 2024.[2] Although green finance in the Central Asia Regional Economic Cooperation (CAREC) countries[3] is expanding, it remains a small share of the global market.[4]

Green finance is crucial to the region's sustainable development. This policy brief explores how aligning financial systems with development goals can boost long-term economic stability. A regional approach is needed, with harmonized regulations and expanded use of instruments such as green bonds and tax incentives to mobilize private capital.

CAREC countries are progressing at varying speeds in developing green finance frameworks and sustainable finance markets. The People's Republic of China (PRC) and Kazakhstan are leading regional initiatives. For example, the PRC has developed

Notes: In this publication, "$" refers to United States dollars. ADB recognizes "China" as the People's Republic of China and "Kyrgyzstan" as the Kyrgyz Republic.

1 R. Nathoo and E. Stephenson. 2025. The "AI Impact Paradox" and Six Other Impact Investing Trends for 2025. *Impact Alpha*. 6 January.
2 C. Zhang and P. Garvey. 2024. Global Sustainable Finance Market: Changing for the Better. *ING Wholesale Banking*. 20 August.
3 The CAREC Program is a partnership of 11 countries (Afghanistan, Azerbaijan, People's Republic of China, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan), working together with support from development partners to accelerate growth and reduce poverty in the subregion. ADB placed its regular assistance to Afghanistan on hold effective 15 August 2021.
4 Asian Development Bank (ADB). 2024. *Central Asia Regional Economic Cooperation Program: Climate Change Action Plan 2025–2027*.

a multilayered green finance system, with cumulative green bond issuance exceeding CNY4 trillion by 2024.[5] Kazakhstan has advanced sustainable finance instruments through green bond issuance and the Astana International Financial Centre.[6] Other countries, including Azerbaijan, Georgia, and the Kyrgyz Republic, have also initiated green finance instruments and mechanisms. These developments indicate growing regional engagement.

However, green bond issuance alone does not indicate market maturity. Sustained progress depends on coherent regulatory frameworks, credible taxonomies, and a robust pipeline of bankable projects. Fragmented data systems, uneven levels of market development, and regulatory inconsistencies across CAREC countries continue to hinder cohesive regional progress. Flexible, tailored approaches are needed to align regional objectives with national contexts, including differences in financial market depth, regulatory capacity, economic structure, and institutional development.

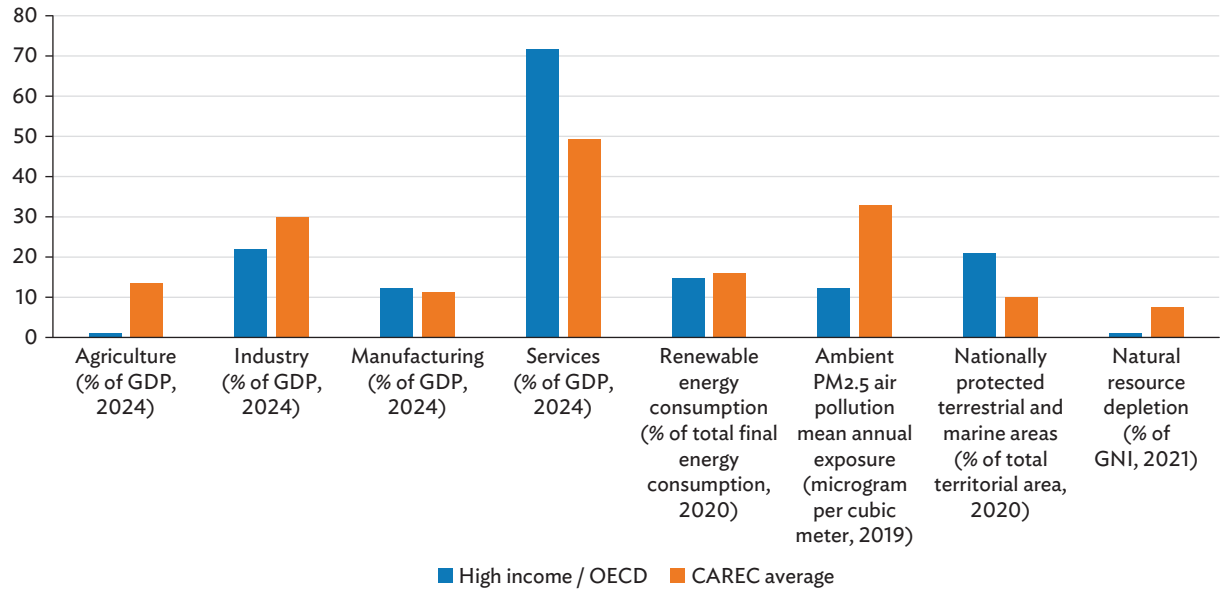
CAREC REGION AT A GLANCE

Economic Structure

CAREC countries face persistent structural and environmental challenges. Agriculture contributes significantly to gross domestic product (GDP) in Pakistan, Tajikistan, and Uzbekistan, while fossil fuels and extractive industries dominate in Azerbaijan, Kazakhstan, Mongolia, and Turkmenistan. Air pollution remains a major regional concern, with high urban concentrations observed in cities such as Almaty, Bishkek, and Lahore. Protected area coverage is generally low, and natural resource depletion is notably high in Azerbaijan, Kazakhstan, Mongolia, and Uzbekistan, highlighting the environmental and economic risks of current growth patterns.

Figure 1 compares indicators for CAREC countries and members of the Organisation for Economic Co-operation and Development. CAREC countries have a much larger share of their economies concentrated in agriculture and industry and face greater environmental challenges, such as air pollution and natural resource depletion.

Figure 1: Structure of Value Added and Selected Green and Climate Measures in CAREC Economies (Excluding the PRC) Compared with OECD Countries



CAREC = Central Asia Regional Economic Cooperation, GDP = gross domestic product, GNI = gross national income, OECD = Organisation for Economic Co-operation and Development, PM2.5 = particulate matter with a diameter of 2.5 micrometers or less, PRC = People's Republic of China.

Notes: All indicators reflect the most recent year available for each variable. Reference years differ across indicators due to data availability constraints. The CAREC average excludes the PRC because subnational data for the Xinjiang Uyghur Autonomous Region and the Inner Mongolia Autonomous Region are not available in the World Development Indicators.

Source: World Bank. World Development Indicators (accessed 1 March 2026).

[5] M. Yue and C. Nedopil. 2025. China *Green Finance Status and Trends 2024–2025*. Griffith Asia Institute, Griffith University (Brisbane) and Green Finance & Development Center, FISF Fudan University (Shanghai).

[6] Astana International Financial Centre (AIFC). 2024. *State of Sustainable Finance in Central Asia*.

To bolster long-term resilience, CAREC countries are expanding their renewable energy sectors. Driven by the substantial increase in renewable power generation in the PRC, the share of renewable energy in the CAREC region's energy mix rose from 25% in 2017 to 29% in 2022.[7] However, excluding the PRC, the CAREC region shows a slight decrease of about 1 percentage point in the share, and progress in nonhydro renewables (solar and wind) remains limited. The Central Asia–South Asia Electricity Transmission and Trade Project (CASA-1000) will connect the Kyrgyz Republic and Tajikistan to Afghanistan and Pakistan, enabling hydropower trade.[8] The Caspian Green Energy Corridor aims to develop long-distance clean energy infrastructure, with support from the Asian Development Bank (ADB) and the Asian Infrastructure Investment Bank.[9] These efforts, along with trade reforms, are paving the way for more environmentally sustainable and inclusive growth across the region.

Environmental and Resource Management Challenges

The CAREC countries face acute environmental challenges, particularly water stress and land degradation, posing major obstacles to sustainable development. Disparities in environmental performance across CAREC countries (Table 1) underscore the need for coordinated policies and investments in resilient infrastructure and sustainable agriculture.[10]

Water scarcity remains the most pressing issue. The Aral Sea has lost more than 70% of its original volume because of upstream water diversion projects, creating one of the world's largest human-induced environmental crises.[11] This problem extends across the region; for example, nearly 80% of farmland in Pakistan is affected by water scarcity, severely threatening food security.[12]

Table 1: CAREC Country Rankings in the Environmental Performance Index, 2024

Country	Environmental Performance Index[a]		Ecosystem Vitality[b]		Environmental Health[c]		Climate Change[d]	
	Rank[e]	Score	Rank	Score	Rank	Score	Rank	Score
Kazakhstan	72	47.8	90	49.7	65	51.0	87	42.3
Georgia	77	47.3	83	50.6	94	42.9	65	46.0
Kyrgyz Republic	105	42.8	129	44.4	114	37.1	72	45.4
Uzbekistan	107	42.6	102	48.4	111	38.2	116	37.5
Turkmenistan	120	40.6	137	40.6	59	54.0	151	29.6
Azerbaijan	121	40.5	126	44.7	104	40.4	135	34.7
Mongolia	143	37.2	68	55.2	140	28.5	177	17.6
PRC	156	35.4	158	35.6	136	29.7	107	39.8
Tajikistan	167	32.3	111	47.3	161	21.9	174	18.5
Afghanistan	171	31.0	168	31.9	169	18.2	104	40.2
Pakistan	179	25.5	173	29.5	178	13.1	150	30.0

CAREC = Central Asia Regional Economic Cooperation, EPI = Environmental Performance Index, PRC = People's Republic of China.

[a] The 2024 EPI combines 58 indicators across 11 issue categories: agriculture, air pollution, air quality, biodiversity and habitat, fisheries, forests, heavy metals, mitigation, sanitation and drinking water, waste, and wastewater.

[b] The ecosystem vitality composite indicator measures outcomes related to ecosystem protection and resource management performance. It accounts for 45% of the total EPI score and comprises six issue categories: biodiversity and habitat, forests, fisheries, air pollution, agriculture, and water resources.

[c] The environmental health composite indicator measures how well countries protect their populations from environmental health risks. It accounts for 25% of the total EPI score and comprises four issue categories: air quality, sanitation and drinking water, heavy metals, and waste management.

[d] The climate change composite indicator accounts for 30% of the total EPI score and comprises a single issue category: climate change mitigation.

[e] Ranking among 180 economies. A lower rank indicates better environmental performance (1 = best; 180 = worst). Countries are listed in ascending order of overall EPI rank.

Source: Yale School of the Environment. 2024 Environmental Performance Index (accessed 1 March 2026).

[7] CAREC Program. 2024. *CAREC 2030 Strategy Midterm Review*.

[8] Central Asia–South Asia Electricity Transmission and Trade Project (CASA-1000). CASA-1000: Increasing Clean Energy Availability and Access in Central and South Asia.

[9] ADB. 2025. ADB Signs MOU with AIIB, Azerbaijan, Kazakhstan, and Uzbekistan to Support Feasibility Study for Caspian Green Energy Corridor. News from Country Offices. 5 April.

[10] ADB. 2017. *CAREC 2030: Connecting the Region for Shared and Sustainable Development*.

[11] United Nations Environment Programme. 2017. The Changing Aral Sea. *Foresight Brief*. No. 3.

[12] Z. Habib and R. Wahaj. 2021. *Water Availability, Use and Challenges in Pakistan: Water Sector Challenges in the Indus Basin and Impact of Climate Change*. Food and Agriculture Organization of the United Nations (FAO).

Air quality is another pressing concern. Almaty and Lahore frequently record PM2.5 levels (particulate matter with a diameter of 2.5 micrometers or less) that exceed World Health Organization standards, posing serious health risks.[13]

These environmental pressures are compounded by socioeconomic vulnerabilities, as many communities in CAREC countries remain heavily dependent on agriculture and livestock herding. In Uzbekistan, water scarcity is projected to worsen as glacier melt increases, evapotranspiration rises, and droughts intensify, reducing water availability by 30%–40% and raising irrigation demand by 25%.[14] In the Kyrgyz Republic, over 40% of summer pastures have been severely degraded since 2000–2004.[15] Similarly, annual water losses of up to 40% in some regions of Kazakhstan's agriculture or irrigation sector reflect persistent gaps in resource management.[16] These challenges are interconnected through shared river basins and climate pressures. Declining upstream water availability, inefficient irrigation systems, and land degradation collectively strain agricultural productivity, increasing competition over transboundary water resources. As these pressures cross national borders, they highlight the urgent need for stronger regional cooperation, improved governance of shared resources, and greater investment in climate-resilient infrastructure.

Financial Systems and Green Finance Landscape

Financial systems in CAREC countries are largely underdeveloped and heavily bank-based, with limited capital market depth. This constrains the range of available green finance instruments, particularly long-term bond and equity financing. Large commercial banks often exhibit low risk appetite for green projects, especially those involving new technologies or longer payback periods, and lending is typically concentrated in established sectors, with limited coverage for small and medium-sized enterprises (SMEs).

While growing, the green finance markets in the CAREC countries (excluding the PRC for comparability, given its size and level of market development) remain small relative to the overall size of CAREC economies, as measured by GDP, and to global benchmarks. For perspective, Kazakhstan, often viewed as a regional frontrunner, has cumulative green and sustainable bond issuance of approximately $1.6 billion, equivalent to about 0.5% of its nominal GDP in 2024 ($291.5 billion).[17] This remains modest compared with the PRC, where outstanding green and sustainable bonds amount to about 2.3% of GDP under the same metric.[18] These figures reflect only labeled green and sustainable bonds and do not capture total climate-related investment in the economy.

In Mongolia, a study found that, as of the fourth quarter of 2023, commercial bank green loans accounted for 2.9% of total outstanding loans.[19] The slow and inconsistent integration of environmental goals into financial regulations, combined with short-term economic priorities and weak policy frameworks, risks deterring global investors and widening the gap between national climate commitments and domestic practice.

Most large renewable energy projects in CAREC countries are developed through foreign direct investment and public–private partnership frameworks, primarily financed by foreign investors and cofinanced or guaranteed by multilateral development institutions, such as the International Finance Corporation and ADB. Direct budgetary (tax-financed) contributions remain limited, and because domestic finance sectors are underdeveloped, countries continue to depend heavily on external financing, highlighting the need to diversify funding sources and deepen local capital markets.[20]

Despite these challenges, green finance is gaining momentum across the region. The Development Bank of Kazakhstan and Samruk-Energy have issued green bonds,[21] while Uzbekistan has launched its first corporate green bond to support energy-efficient housing.[22] Georgia has also expanded its green bond market,[23] including ADB-sponsored issuances for climate-resilient water infrastructure[24] and the country's first locally listed green bonds.[25] However, the green finance market in CAREC countries remains at an early stage.

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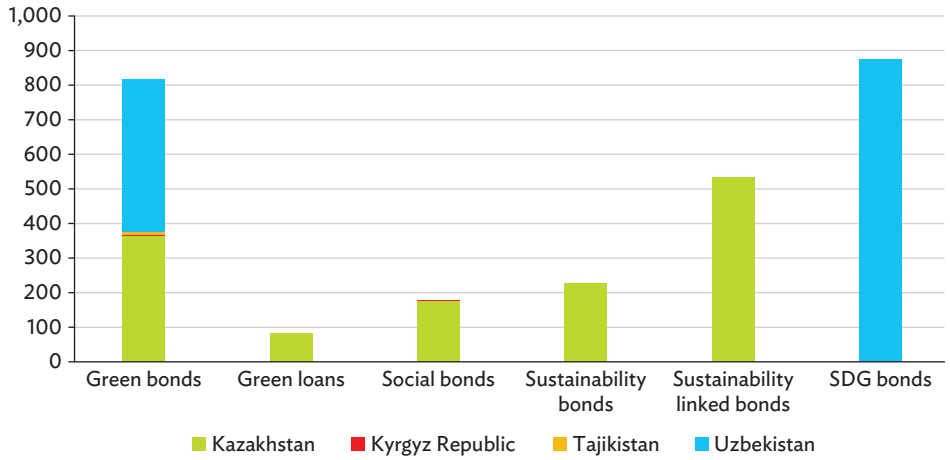
13 World Health Organization. 2024. *WHO Ambient Air Quality Database (Update Jan 2024)*. 1 February.
14 World Bank. 2025. Uzbekistan to Modernize Its Irrigation Infrastructure with World Bank Support. Press release. 21 May.
15 International Fund for Agricultural Development and FAO. 2021. *Low Carbon and Resilient Livestock Development in Kyrgyzstan*. Policy brief.
16 *Eurasian Star*. 2025. Kazakhstan Adopts Water Saving in Agriculture. 18 February.
17 PwC. 2025. *Energy Transition in Eurasia: Who Sets the Pace – Kazakhstan or Uzbekistan?*
18 Climate Bonds Initiative. 2025. China's Sustainable Debt Market Hits Key Milestones. Press release. 4 July.
19 ADB. 2024. *Mongolia Sustainable Development Goal Finance Taxonomy Pilot*.
20 From 2005 to 2025, Central Asia attracted about $282 billion in foreign direct investment (FDI) across 1,624 projects. The renewable energy sector has emerged as one of the region's top five FDI destinations, drawing 113 projects worth $31.6 billion, or about 11% of total FDI. This growing share reflects the sector's expanding role in driving the region's green transition and industrial modernization. Analysis based on G. Barklie. 2025. FDI in Asia: Resilient Growth and Shifting Priorities. *Financial Times*. 11 June.
21 *AIFC*. 2021. Samruk-Energy Raised KZT18.4 Billion Through Offering of Green Bonds on the AIX. 29 November; and *AIFC*. 2023. Development Bank of Kazakhstan Placed Green Bonds on AIX. 25 December.
22 *Daryo*. 2024. Uzbekistan Issues First Green Bonds on Tashkent Stock Exchange. 23 September.
23 ADB. 2024. ADB Invests $40 Million in Green Bonds for a Climate-Resilient Water Supply in Georgia. News from Country Offices. 26 July.
24 ADB. 2022. ADB Invests $4 Million in Georgia's First Locally Listed Green Bond. News from Country Offices. 13 October.
25 *National Bank of Georgia*. 2025. National Bank of Georgia Approves Regulation on the Granting, Maintenance, and Revocation of Green, Social, Sustainability, and Sustainability-Linked Bond Status. 25 August.

Figure 2: Distribution of Sustainability-Related Finance in Central Asia, May 2024



SDG = Sustainable Development Goal.

Source: Astana International Financial Centre. 2024. *State of Sustainable Finance in Central Asia*.

Figure 2 shows the distribution of sustainable financial instruments, including green bonds, green loans, social bonds, sustainability bonds, sustainability-linked bonds, and Sustainable Development Goal bonds, across Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan. Sustainability-related bonds accounted for only about 2% of total outstanding corporate and government bonds in 2024 in these countries, with issuance concentrated in Kazakhstan and Uzbekistan.

This scale of green finance in CAREC countries contrasts starkly with the more mature market in the Association of Southeast Asian Nations (ASEAN) (Table 2), where volumes reach hundreds of billions of dollars, driven by established regulatory frameworks and a strong mix of public and private sector participation.

Table 2: Status of Green Market Development in CAREC and ASEAN Countries

Item	CAREC Countries	ASEAN Countries
Market maturity	Emerging, in early stages of development	More developed and sophisticated
Issuance volume	Small, with the total market just over $2 billion	Significant, with an outstanding value in the hundreds of billions
Regulatory framework	Individual national efforts, supported by regional programs	Established, with a harmonized regional standard
Key drivers	Primarily the public sector and international financial institutions	A strong mix of public and private sector participation

ASEAN = Association of Southeast Asian Nations, CAREC = Central Asia Regional Economic Cooperation.

Source: Asian Development Bank.

KEY ISSUES IN GREEN FINANCE FOR CAREC COUNTRIES

Green finance development in CAREC countries faces significant challenges because of underdeveloped markets. This underdevelopment reflects shallow capital markets, a limited institutional investor base, and the dominance of short-term bank lending. The root causes include weak policies, regulatory frameworks, and institutions, coupled with barriers to regional green finance market development and a limited pipeline of bankable green projects. Long-term financing instruments remain scarce, and domestic savings mobilization mechanisms are weak, constraining funding for capital-intensive low-carbon infrastructure. These factors restrict green and climate investment, reinforcing unsustainable growth patterns and resource degradation. Limited capital for low-carbon development further widens the gap between economic and environmental goals. Strengthening green finance is, therefore, essential to reversing these trends. CAREC countries must continue advancing the regional agenda on financial and capital market development and cooperation. Reinforced policy and regulatory frameworks for green finance will be critical to mobilizing domestic resources and attracting cross-border investment within the region and from global investors.

Deficiencies in Policy, Regulation, Institutions, and Regional Programs

Green finance in CAREC countries is hindered by inconsistent policies and underdeveloped regulatory frameworks. Although most countries lack green budget tagging, they are allocating a larger share of their budgets to green projects. However, the absence of financial incentives, such as tax relief or subsidies, may discourage private investment.[26]

Germany's use of feed-in tariffs[27] and low-interest loans and the PRC's use of interest rate subsidies and tax incentives[28] illustrate effective policy tools.[29] Table 3 shows that CAREC countries' nationally determined contributions identify financing needs that far exceed the capacity of national budgets, amounting to hundreds of billions to trillions of dollars. Without significant external and private investment, these ambitions risk remaining unfunded, jeopardizing both climate goals and sustainable growth.

Regulatory disparities across CAREC countries are a significant barrier to green finance integration. Limited regional alignment makes it harder for financial institutions to design consistent products that support cross-border initiatives. Variations in environmental standards create uncertainty for investors. Differences in green taxonomies; bond guidelines; disclosure requirements; and monitoring, reporting, and verification (MRV) standards increase transaction costs and limit interoperability across markets. Kazakhstan, through the Astana International Financial Centre, has adopted a green taxonomy, while countries such as Tajikistan and Turkmenistan still lack dedicated guidelines (footnote 5). These regulatory inconsistencies reduce transparency and hinder the development of a cohesive regional green finance ecosystem.

The absence of a commonly accepted green taxonomy leads to inconsistencies in how projects are classified and reported, creating uncertainty for investors and financial institutions. Without greater alignment in standards and disclosure practices, verifying the environmental credibility of projects remains difficult, increasing perceived risks and discouraging private sector participation. Competing national interests over transboundary resources, such as the Amu Darya and Syr Darya, further undermine joint green finance initiatives. Dependence on these shared water systems is complicated by differing governance structures, leading to conflicts that stall coordinated efforts. Data challenges persist, including gaps in systems that track pollution and water use, limited use of satellite monitoring, and the absence of centralized platforms for collecting and verifying green finance data. These weaknesses hinder accurate assessment and reduce investor confidence.

Table 3: Financing Requirements Specified by CAREC Countries in Their Nationally Determined Contributions

Country	Nationally Determined Contribution Financing Requirements		
Afghanistan	$17.4 billion (total)	$10.8 billion (mitigation)	$6.6 billion (adaptation)
Azerbaijan	NA		
PRC	$1.4 trillion		
Georgia	$6.0 billion (total)	$1.6 billion (public)	$4.4 billion (private)
Kazakhstan	NA		
Kyrgyz Republic	$10 billion (37% national, 63% external)		
Mongolia	$11.5 billion (total)	$6.3 billion (mitigation)	$5.2 billion (adaptation)
Pakistan	$101 billion (energy transition only)	$209.8 billion (mitigation)	$7 billion–$114 billion (adaptation)
Tajikistan	7% of GDP (more than $1 billion per annum)		
Turkmenistan	$10.5 billion (adaptation measures)		
Uzbekistan	NA		

CAREC = Central Asia Regional Economic Cooperation, GDP = gross domestic product, NA = not available, PRC = People's Republic of China.

Source: United Nations Climate Change. Nationally Determined Contributions Registry.

Barriers to Green Finance Market Development

Limited access to green finance stems from a lack of financial products, such as green credit lines and bonds. This scarcity, coupled with underdeveloped capital markets, constrains investment in green projects. Weak institutional capacity in CAREC countries further hampers the growth of green finance. Financial institutions often lack the expertise to assess risks and structure green projects, reducing their ability to participate in green financing.

Cross-border collaboration is hindered by differing national priorities, inconsistent regulations, and fragmented institutions. These disparities prevent the creation of a unified green finance market and discourage investors from pursuing large-scale, multicountry projects. Structural barriers and gaps in financial markets limit private sector involvement in green finance. High risk

[26] Fossil fuel subsidies, often referred to as negative carbon prices, remain a major disincentive for green investors, reducing the attractiveness of financing renewable energy projects for both banks and private investors.

[27] A feed-in tariff is a government policy that pays individuals and businesses a fixed, above-market rate for renewable energy supplied to the grid. It provides long-term contracts to encourage investment in solar, wind, and other clean technologies.

[28] FuturePolicy.org. The German Feed-in Tariff.

[29] Climate Bonds Initiative and SynTao Green Finance. 2022. *China Green Finance Policy: Analysis Report 2021*.

levels and political instability deter long-term green investment. Financial constraints severely restrict access to green finance for SMEs, rural communities, and low-income populations. Systemic inequalities, lack of collateral, and weak financial infrastructure create significant hurdles that prevent these groups from accessing green finance.

Insufficient Bankable Project Pipelines and Weak Project Preparation Across Economic Sectors

The limited pipeline of bankable projects is a significant barrier to sustainable development, driven largely by a lack of expertise and poor coordination. Without proper appraisal, projects may fail to meet environmental standards or deliver long-term benefits, and design flaws can reduce the effectiveness of green interventions. For instance, Kazakhstan's investments in solar and wind energy are hindered by a lack of grid flexibility and storage.[30] Uzbekistan faces similar challenges, with delays in transmission system upgrades affecting project implementation. Cross-border electricity trade between the Kyrgyz Republic and Tajikistan remains underdeveloped because of limited infrastructure and weak policy coordination.[31] Slow progress in green infrastructure, including renewable energy grids, raises costs and lowers returns. Inconsistent energy policies and regulations further hinder the shift to clean energy, deterring private sector involvement.

High upfront costs and long payback periods for green technologies limit access, especially for marginalized communities. These financial barriers raise investor concerns, leading to tighter lending standards and reduced private investment. Such risk aversion deters capital flows to key sectors, such as green agriculture and clean energy.

Without standardized systems for MRV of environmental benefits, the region faces an elevated risk of greenwashing, which undermines trust when investors cannot confirm that projects genuinely advance green development goals. Kazakhstan has adopted MRV protocols, but the capacities, data management systems, and institutional arrangements are weak or underdeveloped in Turkmenistan and Tajikistan.[32] Traditional investment projects often ignore environmental risks, including long-term degradation, diminishing their effectiveness in promoting sustainability. This highlights the need for financial instruments that better capture the economic implications of environmental change and support green objectives.

POLICY RECOMMENDATIONS FOR GREEN FINANCE DEVELOPMENT IN CAREC COUNTRIES

Scaling green finance in CAREC countries requires targeted regulatory alignment, stronger project preparation capacity, and credible risk mitigation mechanisms. Priorities should focus on harmonizing taxonomies and regulatory standards, followed by strengthening project pipelines and mobilizing private capital through instruments such as guarantees, blended finance structures, and risk-sharing facilities. A sequenced approach will improve investor confidence and ensure measurable progress toward climate commitments. However, finance sector reforms will be most effective when aligned with broader energy pricing and subsidy policies that shape investment incentives across CAREC countries.

Regional regulatory alignment. CAREC countries should adopt a common reference framework for sustainable finance, using the Multi-Jurisdiction Common Ground Taxonomy as a regional baseline. Aligning national taxonomies with a shared framework will improve comparability, reduce transaction costs, and facilitate cross-border capital flows. ASEAN's experience (Box 1) demonstrates that harmonized standards can accelerate issuance growth. A CAREC taxonomy working group could coordinate phased sector adoption.

Box 1: Regional Integration as a Catalyst for Green Finance—Lessons from the ASEAN

Regional policy coordination, as exemplified by the Association of Southeast Asian Nations (ASEAN), is crucial for unlocking green finance. The launch of the ASEAN Green Bond Standards in 2018 established a clear, regionally aligned framework for investors and issuers, helping green bond issuance in the region surpass $36 billion by 2023.[a] This success, along with the development of a green finance taxonomy that provides a common language for classifying sustainable activities, has strengthened market credibility and mobilized private capital. The ASEAN experience highlights the value for Central Asia Regional Economic Cooperation (CAREC) countries of aligning national frameworks with regional tools while maintaining flexibility to reflect local priorities.[b]

[a] Asian Development Bank. 2023. ASEAN+3 Sustainable Bonds Highlights. *AsianBondsOnline*.
[b] ASEAN Taxonomy Board. 2023. *ASEAN Taxonomy for Sustainable Finance–Version 2*.
Source: Asian Development Bank.

[30] ADB. 2023. *Country Partnership Strategy: Kazakhstan, 2023–2027—Accelerating Resilient and Sustainable Growth for All*.
[31] ADB. 2022. *CAREC Energy Outlook 2030*.
[32] ADB. 2023. *Climate Finance Landscape of Asia and the Pacific*; Initiative for Climate Action Transparency. 2022. *Stakeholder Mapping on Climate Transparency and Reporting in Central Asia*; and United Nations Climate Change. 2023. *Fifth Progress Report from Kazakhstan*.

Supervisory integration of climate risk is essential for financial stability. Regulators should introduce climate-related disclosure guidance aligned with emerging international standards and pilot climate stress testing for systemically important banks, consistent with practices adopted by the European Central Bank[33] and the PRC.[34] This would improve risk pricing and encourage capital reallocation toward lower-carbon assets.

Building a strong pipeline of green projects requires better coordination and stronger expertise. Rigorous appraisal and sound design ensure that projects meet environmental standards and deliver long-term benefits, while improved implementation accelerates progress toward environmental goals. ADB, through regional platforms, such as the CAREC Program, can help strengthen the project pipeline by leading capacity building, improving appraisal and design, and coordinating support. It can do so through the CAREC Climate and Sustainability Project Preparatory Fund (CSPPF) and the CAREC Innovation and Venture Investment Catalyst Facility to help governments prepare bankable green projects (Box 2).

Private sector investment incentives. Private capital mobilization requires structured risk mitigation rather than broad fiscal subsidies. As highlighted in Box 3, instruments such as partial credit guarantees, blended finance mechanisms, and viability gap funding have been used in other regions to crowd in private capital while preserving fiscal sustainability. CAREC countries should prioritize targeted de-risking tools to reduce perceived policy and exchange rate risks.

Domestic capital market development. This must accompany regulatory reforms. In most CAREC economies, sustainable bond issuance remains limited relative to total bond markets. Strengthening listing standards, aligning with internationally recognized green bond principles, and expanding institutional investor participation would enhance liquidity and scale. Given the European Union's Carbon Border Adjustment Mechanism[35] and its increasing emphasis on verifiable emissions information, stronger sustainable finance market infrastructure—particularly credible use-of-proceeds reporting and third-party verification—will also support export competitiveness in carbon-sensitive value chains.

Expanding inclusive access to green finance is necessary for equitable transition outcomes. Dedicated green credit lines and risk-sharing facilities, particularly for SMEs and climate-resilient agriculture, would strengthen both environmental performance and rural productivity.

Box 2: CAREC Project Preparation and Innovation Facilities

The Central Asia Regional Economic Cooperation (CAREC) Climate and Sustainability Project Preparatory Fund (CSPPF) is designed to strengthen the pipeline of bankable climate and sustainability projects by financing feasibility studies, technical due diligence, and transaction support. By addressing early-stage preparation gaps—one of the main constraints to infrastructure reaching financial close—the CSPPF helps mobilize private and blended finance in priority sectors, such as renewable energy, water efficiency, and climate-resilient infrastructure.[a]

The upcoming CAREC Innovation and Venture Investment Catalyst (CIVIC) Facility is being designed as a regional platform to promote innovation-driven private sector development. The CIVIC Facility will support early-stage enterprises and scalable innovation across the region, promoting private sector participation in clean technologies, digital solutions, and sustainable industrial development. By improving access to venture financing and regional investment networks, it aims to accelerate technology adoption and economic diversification.[b]

Together, the CSPPF and the CIVIC Facility are expected to address upstream project preparation risks and downstream financing gaps, strengthening CAREC's green investment ecosystem.

[a] Asian Development Bank. Central Asia Regional Economic Cooperation (CAREC) Climate and Sustainability Project Preparatory Fund.
[b] CAREC. 2025. *CAREC 24th Ministerial Conference: Highlights of Proceedings*. Bishkek. 20 November.

Source: Asian Development Bank.

Effective monitoring and data-sharing mechanisms. Regional cooperation in transboundary resource management should complement financial reforms. Shared river basins and climate vulnerabilities require coordinated investment in water efficiency, renewable energy integration, and adaptation infrastructure. Aligning green finance mechanisms with regional governance frameworks would improve resilience and reduce resource pressures.

Robust MRV systems are fundamental to sustaining investor confidence. As shown in Box 4, centralized disclosure frameworks and environmental data platforms can reduce information asymmetries and limit greenwashing risks. CAREC countries should prioritize harmonized reporting templates, interoperable digital platforms, and third-party verification standards.

[33] M. Germann, P. Kusmierczyk, and C. Puyo. 2023. Results of the 2022 Climate Risk Stress Test of the Eurosystem Balance Sheet. *ECB Economic Bulletin*. No. 2/2023. European Central Bank.
[34] J. Zhang, Z. Song, and C. Nedopil. 2024. China Green Finance Status and Trends 2023–2024. Griffith Asia Institute, Griffith University (Brisbane) and Green Finance & Development Center, FISF Fudan University (Shanghai).
[35] It could act as a key policy driver, encouraging CAREC countries to strengthen MRV systems, align with low-carbon standards, and scale up green finance across the region.

Box 3: Global Best Practices in Financial Incentives for Green Finance

Financial incentives are a proven tool for attracting private sector participation in green finance. Countries that have successfully scaled up green and climate investments often combine regulatory clarity with targeted fiscal support. For instance, Germany's KfW Development Bank offers low-interest loans and grants, while India's Viability Gap Funding program helps bridge financial shortfalls for green infrastructure projects.[a] The People's Republic of China also encourages financial institutions to offer favorable lending rates for green initiatives.[b] These examples show that financial incentives, when paired with coherent policy frameworks, can reduce investment risks and mobilize private capital—a strategy that Central Asia Regional Economic Cooperation (CAREC) countries can adopt to foster a more climate-resilient financial ecosystem.

[a] KfW. 2024. *Financial Report 2023: Shaping Transformation*; and Government of India, Ministry of Finance, Department of Economic Affairs. Viability Gap Funding (VGF) Scheme.
[b] China Banking and Insurance Regulatory Commission. 2022. *Green Finance Guidelines for the Banking and Insurance Industry*.

Source: Asian Development Bank.

Box 4: Centralized Environmental Data Systems to Enable Green Finance

Reliable environmental data systems are crucial to scaling up green finance by enhancing transparency and boosting investor confidence. The European Union (EU) is introducing the European Single Access Point to centralize financial and environmental data from companies, improve cross-border transparency, and help investors align with the EU Taxonomy.[a] Similarly, the Japan Exchange Group operates a data platform where listed companies disclose climate-related information, enabling better comparison of environmental performance across firms.[b]

The People's Bank of China has launched the Green Finance Information Platform to consolidate environmental data from banks and enterprises, enabling real-time monitoring of emissions and resource use for more accurate risk assessment. These examples show that centralized, standardized data systems can close information gaps, verify performance, and offer valuable lessons for Central Asia Regional Economic Cooperation (CAREC) countries.

[a] *European Commission*. 2026. EU Taxonomy for Sustainable Activities. 17 March.
[b] *Japan Exchange Group*. 2023. Services Related to Listed Company ESG Information. 11 December.

Source: Asian Development Bank.

CONCLUSION AND WAY FORWARD

Green finance represents both a critical challenge and a transformative opportunity for CAREC countries. Continued economic dependence on resource-based industries and carbon-intensive growth models exposes member countries to significant climate, environmental, and fiscal risks. Although the region has begun to engage in green finance initiatives, efforts remain fragmented and constrained by regulatory, institutional, and technical limitations. Over the next 10 years, a phased, coherent regional approach is essential to align financial systems with sustainability objectives and shift investment flows toward low-carbon and climate-resilient sectors.

During 2026–2028, CAREC countries should complete core market roles, adopt and align taxonomies (using the Multi-Jurisdiction Common Ground Taxonomy as a reference), issue supervisory guidance on climate risk and disclosure, and operationalize MRV and data systems to support credible labeling and reporting. During 2029–2032, the focus should shift to scaling markets and pipelines: expand CSPPF-supported project preparation, deploy risk-sharing and guarantee instruments at scale, and strengthen local currency financing options to reduce exchange rate risk. During 2033–2035, reforms should consolidate into deeper regional integration: strengthen cross-border capital market cooperation; improve interoperability of disclosure and verification systems; and scale green infrastructure investment (including grids, water efficiency, and climate-resilient transport), supported by mature domestic sustainable finance markets.

ADB and development partners can play a catalytic role in supporting this transformation. ADB can coordinate regional efforts through platforms such as the CAREC Institute, the CAREC Climate Change Working Group, and the CSPPF and the CAREC Innovation and Venture Investment Catalyst Facility, aligning national actions with regional priorities and mobilizing blended finance solutions. ADB can also provide targeted technical assistance to help countries develop taxonomies, strengthen MRV systems, and build project preparation capacity while piloting innovative green finance instruments, such as transition bonds, risk-sharing facilities, and regional guarantee schemes, to demonstrate feasibility and crowd in private capital.

Drawing on successful initiatives like the ASEAN Bond Market Initiative, CAREC can strengthen cross-border capital flows, promote financial innovation, and build a functioning regional market for green investment. By embedding green finance into national and regional strategies, CAREC countries can move toward a more resilient, inclusive, and sustainable development trajectory.

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