Needs-based Climate Finance Project

# TECHNICAL ASSESSMENT OF CLIMATE FINANCE IN CENTRAL ASIA AND SOUTH CAUCASUS

## ANNEX TO THE CLIMATE FINANCE ACCESS AND MOBILIZATION STRATEGY FOR CENTRAL ASIA AND SOUTH CAUCASUS 2023–2030

United Nations
Climate Change

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# Abbreviations and acronyms

| | |
|---|---|
| ADB | Asian Development Bank |
| AF | Adaptation Fund |
| AIFC | Astana International Financial Centre |
| BUR | biennial update report |
| CAREC | Central Asia Regional Economic Cooperation |
| CASC | Central Asia and South Caucasus |
| CDM | clean development mechanism |
| CIF | Climate Investment Funds |
| $CO_2$ | carbon dioxide |
| $CO_2$ eq | carbon dioxide equivalent |
| COVID-19 | coronavirus disease 2019 |
| CRS | Creditor Reporting System |
| EAEU | Eurasian Economic Union |
| ESG | environment, social and governance |
| GCF | Green Climate Fund |
| GDP | gross domestic product |
| GEF | Global Environment Facility |
| GHG | greenhouse gas |
| IEA | International Energy Agency |
| IMF | International Monetary Fund |
| IPCC | Intergovernmental Panel on Climate Change |
| MDB | multilateral development bank |
| MRV | measurement, reporting and verification |
| NAP | national adaptation plan |
| NAPA | national adaptation programmes of action |
| NBF | Needs-based Climate Finance |
| NC | national communication |
| NDC | nationally determined contribution |
| OECD | Organisation for Economic Co-operation and Development |
| SME | small- and medium-sized enterprises |
| TAP | technology action plan |
| TNA | technology needs assessment |
| UN DESA | United Nations Department of Economic and Social Affairs |
| UNFCCC | United Nations Framework Convention on Climate Change |

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# Executive summary

In 2017, 2021, and 2022, the Conference of the Parties requested the UNFCCC secretariat to explore ways and means to assist developing country Parties in assessing their climate finance needs and priorities, in a country-driven manner and to translate these needs into action.[1]

The secretariat was also requested by the CDM Executive Board to facilitate the financing of projects and use of the CDM by international finance institutions, as requested by the CMP.[2] In response to these mandates the secretariat launched the NBF project with the objective of facilitating access and mobilization of climate finance for the implementation of priority mitigation and adaptation projects to address the needs identified by developing countries. In this context, the secretariat, in collaboration with the United Nations Economic and Social Commission for Asia and the Pacific, provided the necessary support to the countries of CASC.

The CASC region represents a diverse group of countries of different sizes, economic structures, income levels and many other parameters. What all countries in this region have in common is that their economies are in transition from centrally planned to market economies. However, the pace of this transition varies significantly from country to country. Despite these differences, the countries in this region face similar, and in some cases shared, challenges with regard to climate change.

The CASC region is one of the most at-risk regions in the world to the impacts of climate change. These countries are already facing adverse effects (floods, droughts, invasive pests, etc.). The impacts of climate change are expected to intensify as the projected rise in temperatures in CASC in the mid to late century is likely to exceed the rise in global average temperatures. Changing water flow and potentially precipitation patterns are expected to have a major impact on ecosystems and livelihoods. Some of the economic sectors most affected are expected to be agriculture, energy, irrigation and health.

Since 1990, this region has reduced GHG emissions by much more than the rest of the world. Between 1990 and 2018, global GHG emissions increased by about 50% whereas emissions in CASC remained below their 1990 level for nearly the entire period. At the same time, the region still has the potential to further reduce GHG emissions. The energy, transportation and forestry sectors are among those with the largest and most cost-effective opportunities.

Countries in the region have cooperated with international partners in addressing climate change challenges. Between 2013 and 2018, international public climate finance for the region totalled USD 9.1 billion, of which 76% was for mitigation, 19% was for adaptation and 5% was cross-cutting. About 80% of climate finance was provided through multilateral channels and 20% was through bilateral flows. On aggregate, debt instruments comprised about 89% of all international climate finance, while grants made up about 10% of climate finance flows to the region. The remaining 1% of international climate finance between 2013 and 2018 was through equity instruments. The energy sector (excluding transportation) was the most targeted sector, accounting for about 46% of all climate finance between 2013 and 2018. The agriculture sector was second and transportation was third, accounting for about 11% and 8% respectively. For approximately 12% of climate finance no sector was specified, while the remaining 23% was targeted towards other sectors or for cross-sectoral activities.

1 Long-term finance decisions: 6/CP.23 para. 10; 4/CP.26 para. 22; and 13/CP.27 para. 11.

2 Decisions 3/CMP.1, Annex, para. B 4(d), para. C 5(i); 6/CMP.11, para. 8; and 12/CMA.1.

While international climate finance has focused on mitigation activities, the countries' needs – identified on the basis of a review of their official communications and national reports submitted to UNFCCC – are more balanced. Of the total needs communicated to the secretariat, 46% were for adaptation, 42% were for mitigation and about 12% were cross-cutting. The most frequently mentioned needs were in relation to capacity-building, followed by finance and then technology transfer.

The amount of new finance needed to address climate change activities is significant. International public climate finance in 2018 reached USD 1.7 billion, which is a fraction of the total finance needed. The additional climate-adjusted estimates of finance needs for infrastructure investment in CASC is about USD 5 billion per year, on top of USD 33 billion in baseline financing.

There is an opportunity to enhance the response to the climate challenge by strengthening regional initiatives, such as pooling resources to increase the capacity to deal with cross-border natural threats and disasters. Similarly, improving cross-border cooperation on water issues, energy systems and logistics can create new opportunities for addressing climate challenges.

# I. Introduction

## A. Framing the mandate

1. The Conference of the Parties, at its twenty-third and twenty-sixth sessions, in its decision pertaining to long-term climate finance, requested the UNFCCC secretariat, in collaboration with the operating entities of the Financial Mechanism, United Nations agencies and bilateral, regional or multilateral channels, to explore ways and means to assist developing country Parties in assessing their climate finance needs and priorities, in a country-driven manner, including technological and capacity-building needs, and to translate these climate finance needs into action.[1] The secretariat was also requested in previous decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol to support the CDM Executive Board in facilitating the financing of projects.[2] Collectively, these mandates form a secretariat-wide initiative known as the NBF project, which aims to facilitate the access and mobilization of climate finance and investment in supporting the needs identified by developing countries for the implementation of their priority projects and programmes, as outlined in their NDCs, NAPs and other relevant national policies and/or strategies.

## B. Objective

2. The objective of this technical assessment is to inform and to provide an evidence-based framework for the development of a climate finance mobilization and access strategy for CASC,[3] in order to enhance access to, and mobilization of, finance and to catalyse climate investment for the implementation of priority mitigation and adaptation actions in a country-driven manner.

3. The proposed strategy will be based on needs identified by the CASC countries, in accordance with goals outlined in their NDCs, NAPs, road maps for implementation of the 2030 Agenda for Sustainable Development and other relevant policies or strategies.

## C. Rationale

4. This document serves as an information base for priority finance, technology and capacity-building needs of CASC countries and provides an assessment of the gaps in and barriers to access and mobilization of climate finance. This information can be reviewed and used by CASC countries as a basis for the formulation of a consolidated climate finance mobilization and access strategy for the region. This document, a comprehensive technical assessment validated by countries, is one of three output documents to be produced for the NBF project for CASC. The strategy is a concise and actionable document that will be implemented through a pipeline of projects prioritized to meet regional needs, as identified by CASC countries.

1 See decision 6/CP.23, para. 10.

2 See decisions 3/CMP.1, Annex, paras. B 4(d) and C 5(i); 6/CMP.11, para. 8; and 12/CMA.1.

3 The countries considered in this document are Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. This group of countries is collectively referred to as Central Asia and South Caucasus for the purpose of this project. Central Asia and South Caucasus is not an internationally recognized grouping.

5. The Central Asia and South Caucasus Climate Finance Access and Mobilization Strategy and its implementation will ideally be endorsed at the political level to place a focus on meeting needs as expressed by countries in the region.

## D. Methodology

6. This assessment provides an estimate of the climate finance flows that CASC countries are receiving and/or channelling domestically and internationally. The needs and priorities of CASC countries have been ascertained from official communications to the UNFCCC, national policies and other relevant documents where available. The present document also lists gaps in and barriers to meeting identified needs.

7. The methodology comprises an analysis of quantitative and qualitative data derived from the countries' own assessment of their needs and priorities. As such, it is primarily a desk-based assessment complemented by engagement with CASC country authorities, other relevant stakeholders from the region and international experts.

8. Stakeholder engagement took the form of workshops and regular communications under the guidance of the secretariat, in collaboration with the United Nations Economic and Social Commission for Asia and the Pacific.[4]

9. The data sources used include UNFCCC reports, such as BURs, NAPs, NAPAs, NCs and NDCs; the country strategies of MDBs such as the ADB and the World Bank; and regional, subregional and national thematic and sectoral strategies.

4 More information on the project and related stakeholder engagements are available on the NBF project webpage. See https://unfccc.int/NBF%20Project/Regions#eq-6.

# II. Regional context

## A. Socioeconomic context

10. CASC countries are classified by UN DESA as economies in transition from a centrally planned to a market economy. The pace of transition varies from country to country, as does the stage of development and level of income. As of June 2020, the World Bank classified countries in the region in three income groups: low (Tajikistan), lower middle (Kyrgyzstan, Uzbekistan) and upper middle (Armenia, Azerbaijan, Georgia, Kazakhstan, Turkmenistan).

11. Since the mid-1990s the economies of CASC countries have exhibited strong growth. However, they continue to be exposed to external shocks, such as oil price volatility and changes in external financing conditions. As of February 2021, the impact of COVID-19 on economic growth has been somewhat uneven across the region. According to data from UN DESA, presented in table 1, five countries in the region experienced contraction in economic activity, while only three countries posted growth between the time period of 2017-2020. UN DESA[5] and IMF[6] are forecasting a return to growth for 2021 and 2022 but both organizations highlight the elevated level of uncertainty in their baseline forecasts, particularly due to uncertainty related to the COVID-19 pandemic.

5 World Economic Situation and Prospects. January 2021.

6 World Economic Outlook. October 2020.

**Table 1**
**Annual percentage change in real gross domestic product, 2017–2022**

| | 2017 | 2018 | 2019 | 2020[a] | 2021[b] | 2022[b] |
|---|---|---|---|---|---|---|
| Armenia | 7.5 | 5.2 | 7.6 | -6.9 | 4.0 | 5.4 |
| Azerbaijan | 0.1 | 1.4 | 2.2 | -3.0 | 2.0 | 2.0 |
| Georgia | 4.8 | 4.8 | 5.1 | -5.2 | 4.2 | 4.0 |
| Kazakhstan | 4.1 | 4.1 | 4.5 | -2.6 | 3.8 | 4.0 |
| Kyrgyzstan | 4.7 | 3.5 | 4.5 | -7.5 | 4.8 | 4.5 |
| Tajikistan | 7.1 | 7.1 | 7.5 | 3.0 | 6.0 | 4.0 |
| Turkmenistan | 6.5 | 6.2 | 3.0 | 5.6 | 6.0 | 6.0 |
| Uzbekistan | 4.5 | 5.5 | 5.6 | 0.5 | 5.6 | 6.0 |

*Source:* UN DESA. 2021 World Economic Situation and Prospects. January 2021 (based on data of the United Nations Statistics Division and individual national sources).
[a] Partly estimated.
[b] Baseline scenario forecasts based in part on the UN DESA World Economic Forecasting Model.

12. The region is largely landlocked and difficult to navigate, which, when combined with outdated infrastructure, poses additional challenges to regional cooperation.

13. Demographic trends and projections by UN DESA point to continued expansion in the population in the near term (2020–2025), with countries in Central Asia growing at a faster rate than those in the South Caucasus. The only exception is Georgia, where low birth rates and emigration are expected to contribute to a drop in population. In 2020, Central Asia is estimated to have a population of over 74 million while the population of the South Caucasus is estimated at over 17 million (see table 2).

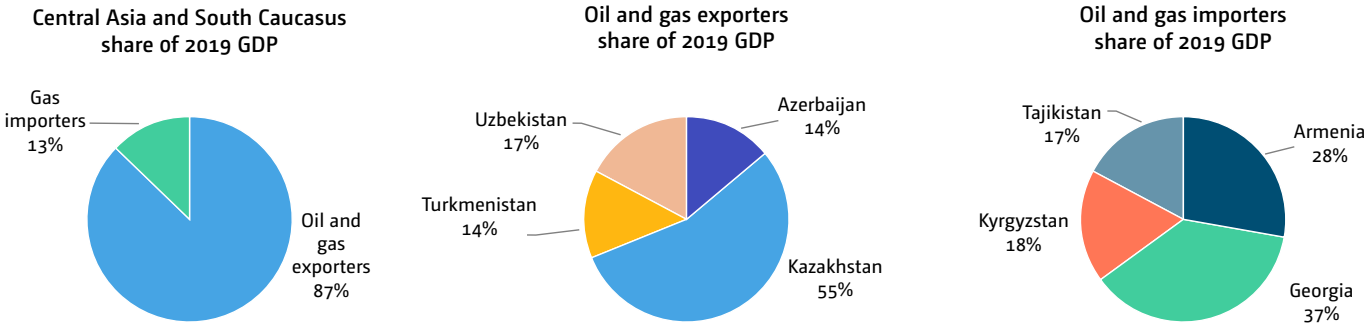
**Table 2**
**Population, 2020**

| | Estimated 2020 population *(USD million)* | Forecast percentage change by 2025 |
|---|---|---|
| Armenia | 2.96 | 0.5 |
| Azerbaijan | 10.14 | 3.5 |
| Georgia | 3.99 | -1.5 |
| Kazakhstan | 18.78 | 5.4 |
| Kyrgyzstan | 6.52 | 7.4 |
| Tajikistan | 9.54 | 10.7 |
| Turkmenistan | 6.03 | 6.7 |
| Uzbekistan | 33.47 | 6.4 |

*Source:* UN DESA Population Division. Based on World Population Prospects 2019, probabilistic population projections.

14. In addition to being at different stages of development, countries in the region also have different economies. According to the IMF, four of the eight CASC countries, specifically Azerbaijan, Kazakhstan, Turkmenistan and Uzbekistan, are oil- and gas-exporting economies,[7] accounting for up to 87% of economic activity in the region (see figure 1).

**Figure 1**
**Central Asia and South Caucasus share of gross domestic product by oil and gas exporters and importers**




*Source:* IMF. 2020. World Economic Outlook. October 2020.

15. Agriculture plays an important role in the region,[8] accounting for a larger share of employment than its relative share of GDP. The agriculture sector is a major source of employment and livelihood for the population in both oil-importing and oil-exporting economies. However, there are disparities between countries: in Kazakhstan, 15% of all jobs are in the agriculture sector, whereas in Tajikistan, the agriculture sector accounts for 45% of total employment (see table 3).

**Table 3**
**Employment in agriculture, 2019**

| | *% of total employment* |
|---|---|
| Armenia | 24 |
| Azerbaijan | 36 |
| Georgia | 38 |
| Kazakhstan | 15 |
| Kyrgyzstan | 19 |
| Tajikistan | 45 |
| Turkmenistan | 21 |
| Uzbekistan | 26 |

*Source:* World Bank Data Catalog. Based on ILOSTAT, the labour statistics database of the International Labour Organization. Data retrieved on 22 February 2021.

7 IMF. 2020. *Regional Economic Outlook: Middle East and Central Asia.*

8 Veritas Global webpage. *Georgia's Economy – from cultivating land to harvesting innovation?* May 2019. Available at https://veritasglobal.ch/post/georgia-s-economy-on-a-path-from-cultivating-land-to-harvesting-innovation.

16. Some policies, such as those aimed at reducing administrative burden, undertaken by CASC countries have specifically targeted improving conditions for business. The region has some of the most improved countries in the World Bank's Doing Business 2020 report. However, country rankings differ significantly across the region. According to the latest rankings, Georgia is ranked 7th in the world, whereas Tajikistan is ranked 106th (see table 4).

**Table 4**
**Ease of doing business ranking**

| | Overall global ranking |
|---|---|
| Armenia | 47 |
| Azerbaijan | 34 |
| Georgia | 7 |
| Kazakhstan | 25 |
| Kyrgyzstan | 80 |
| Tajikistan | 106 |
| Turkmenistan | No ranking |
| Uzbekistan | 69 |

*Source:* World Bank. Doing Business 2020. Available at https://archive.doingbusiness.org/en/doingbusiness.

## B. Climate and environmental context

17. Countries belonging to the region can be divided into two geographic regions: Central Asia and the South Caucasus.

18. Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan belong to the Central Asia subregion and are located east of the Caspian Sea and west of the Altai and Tian Shan mountain ranges. The land mass of these five countries is approximately equivalent in size to the European Union. To the north are vast Siberian forests and to the south are mostly arid swaths of territory. The subregion is landlocked, with hot summers and cold winters, and can be characterized as being dry and continental. Several mountain ranges run through Central Asia, including the Pamir, the Ural and Tien Shan. Mountain zones generally receive moderate to high levels of precipitation. At lower elevation, the climate is mostly semi-arid and arid, with large parts of the territory being classified as steppes and deserts.

19. Armenia, Azerbaijan and Georgia belong to the South Caucasus subregion, which is located between the Black Sea and the Caspian Sea. To the north is the Greater Caucasus mountain range, which includes the highest mountains in Europe. To the south is the Lesser Caucasus mountain range. The two mountain ranges are connected by the Likhi range. There is high climate variability both vertically (according to elevation) and horizontally (according to latitude). For example, average annual temperatures range from about 15 °C on the Black Sea coast to –8 °C on the slopes of high mountains. There is significant seasonal variability, with large parts of the South Caucasus exhibiting characteristics of a continental climate.

### 1. Vulnerability and disaster risk

20. CASC inhabitants, economies and natural ecosystems are extremely vulnerable to climate change and disaster-related risks.

21. In Central Asia, rising temperatures have been observed, with increases in the number of hot days and decreases in the number of cool days. The same historical trends have also been documented by national and regional studies in the South Caucasus. A review of national, regional and global assessments suggests that the projected rise in temperatures in Central Asia in the mid to late century is likely to exceed the rise in global average temperatures.[9,10] The spread between the global average temperature rise and the projected temperature rise in Central Asia is likely to grow under scenarios with more limited global GHG emission reductions. In the South Caucasus, average temperature warming is also likely to exceed the global average, but by a lower margin than that of Central Asia. These trends are illustrated in the 2014 report of the IPCC on Impacts, Adaptation and Vulnerability.[11]

22. There is less international consensus on projected changes in precipitation. However, several recently concluded national and regional studies indicate that precipitation may marginally increase in Uzbekistan and decrease in Turkmenistan.[12] Even though some models expect a marginal increase in overall precipitation in Central Asia, the shifting precipitation patterns combined with increases in dry spells will likely increase water stress. In addition, changing intensity and timing of mountain snowmelt and glacial melt are expected, which could change the timing of peak flow in key rivers from summer to spring. In the longer term (second half of the century), as water resources in glaciers become depleted, the level of water flow is expected to reduce in

9 United States Agency for International Development. 2018. *Climate Risk in Central Asia: Region Risk Profile*. Available at https://climatelinks.org/sites/default/files/asset/document/2018-April-30_USAID_CadmusCISF_Climate-Risk-Profile-Central-Asia.pdf.

10 World Bank. 2009. *Adapting to Climate Change in Europe and Central Asia*. Available at http://documents1.worldbank.org/curated/en/127181468024643244/pdf/489480ESW0ECA010Box338935B01PUBLIC1.pdf.

11 IPCC. 2014. Climate Change 2014: *Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. CB Field, VR Barros, DJ Dokken, et al. (eds.). Cambridge and New York: Cambridge University Press. Available at http://ipcc.ch/report/ar5/wg2.

12 United States Agency for International Development. 2018.*Climate Risk in Central Asia: Region Risk Profile*. Available at https://climatelinks.org/sites/default/files/asset/document/2018-April-30_USAID_CadmusCISF_Climate-Risk-Profile-Central-Asia.pdf.

Central Asia. In the South Caucasus, too, the outlook for precipitation is uncertain and expected to be uneven. For example, Georgia expects a reduction in rainfall in the eastern part of the country but an increase in the west. As highlighted in the 2014 report of the IPCC on Impacts, Adaptation and Vulnerability, a global mean temperature rise of 2.7 °C above pre-industrial levels is expected to decrease streamflow for large parts of CASC by between 10 and 30%. From a global perspective, the likely extent of streamflow decrease is among the largest in the world.

23. Agricultural productivity is expected to be significantly affected. In Central Asia, rice and cotton production are likely to be among the products most adversely affected. Droughts in western Turkmenistan and Uzbekistan could negatively affect cotton production, increasing water demand for irrigation and exacerbating desertification.[13] The combination of rising temperatures and changing rainfall patterns could contribute to increased outbreaks of disease and pests, including transboundary-scale disruptions. Rising temperatures and changing precipitation patterns are also likely to be disruptive to livestock production. In South Caucasus, most crop yields, especially rain-fed potato and cotton, are expected to be adversely impacted. As part of the feedback provided on this report, Azerbaijan indicated that if irrigation technologies and water supply facilities are not modernized, more acute water scarcity may occur in 10–15% of irrigated lands in 2020–2040, 15–25% in 2041–2070, and 30–35% in 2071–2098, which may drastically reduce harvest yields. Irrigated crops (which in Azerbaijan make up 80% of agricultural output) are also likely to be exposed to water stress owing to a combination of increasing demand for water resources as a result of higher temperatures and limited water supply. With nearly a third of the region's population engaged in the agriculture sector, these changes will have a major impact on livelihoods.

24. Climate change could significantly disrupt energy and irrigation systems. For example, as part of the feedback provided on this report, Azerbaijan indicated it expects that a decrease in river flow could reduce electricity generation at hydropower plants by 10–15% in 2020–2040, 15–25% in 2041–2070 and 30–35% in 2071–2098. Furthermore, fresh water supply per capita is expected to decrease even further in 2020–2040 compared with 1961–1990 (reaching 650 $m^3$), 1.75 times in 2041–2070 (reaching 575 $m^3$), and further decreases in 2070–2098 (reaching 500 $m^3$), while the existing water pollution situation is also expected to get worse. In the CASC region there is a heavy dependence on water resources and established water flow patterns. More extreme weather events, such as floods, mudflows, landslides, avalanches and droughts, are likely to increase the need for better disaster risk management. The combination of increasing temperatures and changing precipitation could create conditions that are favourable to the spread of vector-borne and waterborne diseases, leading to the resurgence of diseases like malaria, which pose significant risks. More broadly, the changing climate could lead to increased pests and loss of habitat, threatening forest and mountain ecosystems across the CASC region.

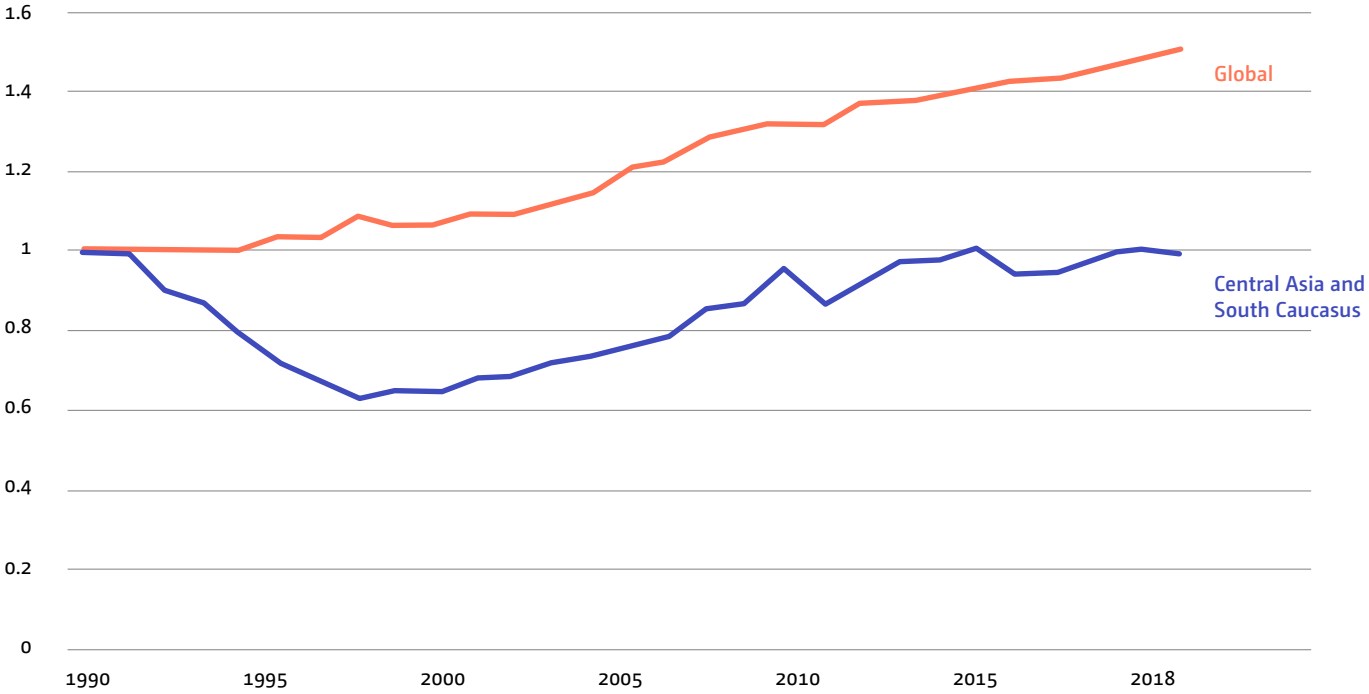
## 2. Emission profile

25. As highlighted in figure 2, since 1990 the CASC region has reduced GHG emissions by much more than the rest of the world. Between 1990 and 2018, global GHG emissions increased by about 50% whereas emissions in CASC remained below their 1990 level for nearly the entire period. This outperformance of global emission trends is explained by a combination of factors, including periods of reduced use of traditional fossil fuel energy, economic restructuring and improvements in energy efficiency. The sharp drop in emissions from the region observed in the early 1990s is also explained by reduced economic activity and armed conflict, among other factors.

26. The region has been able to reduce GHG emissions while fostering economic growth. Between 2000 and 2018, the region's economic output (measured in constant US dollar terms) increased by about 595% while GHG emissions (measured in CO2 eq) grew by only 47%. Over the same period global economic output expanded by 153% with GHG emissions growing by 37%. Put differently, a percentage point increase in GHG emissions in CASC region was matched by an increase in economic activity of over 12%; in contrast, a percentage point increase in GHG emissions globally was matched by an increase in economic growth of around 4%. This comparison shows that the region has a better track record than the rest of the world in decoupling economic growth from emission growth.

13 IPCC. 2014. *Impacts, Adaptation and Vulnerability, Technical Summary* (p.76).

**Figure 2**
**Greenhouse gas emissions for Central Asia and South Caucasus versus global emissions since 1990**




*Source:* World Resources Institute. Climate Analysis Indicators Tool database.

27. At the same time, the countries in the region have the potential to further reduce their GHG emissions per unit of economic output. In 2018, for each USD 100 of GDP output in the CASC region, about 200 kg of $CO_2$ eq was emitted. In contrast, as a global average, for each USD 100 of GDP output, about 58 kg $CO_2$ eq was emitted. Studies have identified significant opportunities for energy efficiency and renewable energy generation in the region.[14,15] Georgia, Kazakhstan, Kyrgyzstan and Tajikistan have among the highest untapped potential globally for generating hydropower. In addition, the natural characteristics of the CASC region, especially Central Asian countries, are favourable to solar and wind power generation.[16,17]

28. Crucially, regional cooperation can play a key role in realizing climate opportunities. For example, a study by the World Bank found that enhancing regional power trade in Central Asia could help to generate of USD 6.4 billion while enabling climate-friendly investment by broadening the energy pool.[18] Regional initiatives like the CAREC programme are helping to deliver the benefits of cooperation within the framework of the CAREC Energy Strategy 2030.[19] The CAREC programme includes countries outside the CASC region, such as Afghanistan, China, Mongolia and Pakistan. The goals of the CAREC Energy Strategy 2030 include improving energy security through regional interconnections, scaling up investment through market-oriented reforms and enhancing sustainability by greening the regional energy system. Through such initiatives, these countries aim to contribute meaningfully to meeting investment needs of USD 400 billion between 2020 and 2030 for countries (excluding China) that are part of this broader cooperation programme. Similarly, the Black Sea Trade and Development Bank is supporting the countries of the South Caucasus and other Black Sea littoral States with integration initiatives. The investment delivered through these initiatives includes support for climate-relevant sectors such as logistics and energy.

29. For the entire CASC region, the energy sector was responsible for about 82% of all GHG emissions in $CO_2$ eq in 2018. The aggregate figures mask disparities between countries: in Tajikistan and Georgia, the energy sector represents only 46% and 58% of total emissions respectively. In contrast, in Azerbaijan, Kazakhstan and Turkmenistan, the energy sector accounts for over 85% of total emissions. The agriculture sector is the second

14 Central Asia Regional Data Review. 2019. *Hydropower Potential of the Central Asian Countries*.

15 International Energy Agency. 2020. *Georgia 2020 Energy Policy Review*. Available at https://iea.blob.core.windows.net/assets/24da4104-6971-4cde-99d3-630f455ae2c3/Georgia_2020_Energy_Policy_Review.pdf.

16 Global Solar Atlas. Available at https://globalsolaratlas.info/map.

17 Global Wind Atlas. Available at https://globalwindatlas.info.

18 World Bank. 2016. *Enhancing Regional Power Trade in Central Asia*.

19 CAREC. 2019. *Energy Strategy 2030: Common Borders. Common Solutions. Common Energy Future*. Available at https://carecprogram.org/?publication=carec-energy-strategy-2030.

largest contributor of GHG emissions, accounting for 12% of emissions in CASC, but there are significant differences between countries: in Armenia, Kyrgyzstan, Tajikistan and Uzbekistan, agriculture represents 16, 19, 36 and 42% of total emissions respectively, whereas in Azerbaijan, Kazakhstan and Turkmenistan, the sector accounts for less than 10% of total emissions. The waste and industrial processes and product use sectors contribute about 3 and 2% of total emissions, respectively. On aggregate, in 2018, the land use, land-use change and forestry sector was a net carbon sink, sequestering about 12 million t $CO_2$ or about 2% of total GHG emissions. Table 5 summarizes GHG emissions by country and sector.

**Table 5**
**Greenhouse gas emissions by sector, 2018 (millions of t $CO_2$ equivalent)**

| | Agriculture | Energy | Industrial processes and product use | Waste | Land use, land-use change and forestry | Total |
|---|---|---|---|---|---|---|
| Armenia | 1.8 | 6.5 | 0.4 | 0.7 | 0.0 | 9.4 |
| Azerbaijan | 7.4 | 67.6 | 1.2 | 4.1 | -1.9 | 78.4 |
| Georgia | 2.1 | 9.8 | 1.8 | 3.2 | – | 16.9 |
| Kazakhstan | 25.4 | 238.1 | 5.1 | 5.6 | -3.0 | 271.2 |
| Kyrgyzstan | 5.4 | 11.3 | 0.7 | 0.8 | -3.3 | 14.9 |
| Tajikistan | 6.4 | 7.0 | 0.9 | 0.9 | -0.1 | 15.1 |
| Turkmenistan | 9.2 | 112.4 | 2.1 | 1.4 | – | 125.1 |
| Uzbekistan | 36.0 | 185.8 | 6.7 | 7.0 | -3.4 | 232.1 |
| **Total** | **9.7** | **638.5** | **18.9** | **23.7** | **-11.7** | **736.1** |

*Sources:* UNFCCC. Greenhouse Gas Inventory Data for Non-Annex I Parties. Available at https://di.unfccc.int/flex_non_annex1; and World Resources Institute. Climate Analysis Indicators Tool database.

## C. Climate-related policies

30. Each country in the region has put in place policies and directives related to climate change and in some cases on climate finance. CASC countries have also submitted official communications to the UNFCCC (see table 11) wherein they elaborate on current and planned policies to support the implementation of mitigation and adaptation action in their countries. A non-exhaustive list of climate-related policies (excluding official communications to the UNFCCC) in each country is provided in table 6.

**Table 6**
**Summary of climate-related policies in Central Asia and South Caucasus countries**

| | Overarching climate change policies | Energy (including transportation, efficiency) | Adaptation | Tourism | Agriculture | Coastal zones and marine systems | Finance |
|---|---|---|---|---|---|---|---|
| Armenia | Draft law on atmospheric air protection | Law on Energy; Law on Energy Saving and Renewable Energy | National Risk Management Strategy and Action Plan | Tourism Development Concept | Strategy for Agricultural and Rural Sustainable Development | Not applicable | Green Economy Financing Facility – credit line |
| Azerbaijan | Azerbaijan 2030: National priorities for socioeconomic development strategy; five-year implementation plan under development | Ongoing update of the law on the use of renewable energy sources in the production of electricity | Actions taken for enhancing cooperation on implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030 | Development of eco-parks and outdoor tourism, focusing on sustainable travel | Rural Development Programme for Mountainous and Highland Areas | Cooperation through the Caspian Environment Program to address climate impacts | Green Economy Financing Facility – "Energocredit" credit line |
| Georgia[a] | 2030 Climate Change Strategy and Action Plan for 2021–2023 | National Energy Efficiency Plan; Law on Energy and Water Supply | Multi-hazard early warning system | Green tourism promotion | Rural development strategy 2021–2027 and action plan for 2021–2023 | Plans being developed to improve coastal zone management | Member of Sustainable Banking Initiative of the International Finance Cooperation |
| Kazakhstan | Strategic development plan 2025 – policy 6: green economy and environmental protection; Kazakhstan 2050 | Emissions trading scheme – national allocation plans for GHG emissions | Countering soil degradation and desertification | Eco-tourism development | Support for development of biopower installations | Environmental code of Kazakhstan (Art. 260) | AIFC – Green Finance Centre |
| Kyrgyzstan | National Development Strategy 2018–2040 | Reduce technical losses of energy companies | Investment plan developed with pilot programme for climate resilience | Green tourism capacity development | Livestock productivity improvement | Not applicable | Member of Sustainable Banking Initiative of the International Finance Cooperation |
| Tajikistan | National Development Strategy up to 2030 | Improve financial performance of power utility | National disaster risk reduction strategy 2019–2030 | No information available | Programme for reforming agriculture (beyond 2020) | Not applicable | Climate change resilience credit line |

**Table 6 (continued)**
**Summary of climate-related policies in Central Asia and South Caucasus countries**

| | Overarching climate change policies | Energy (including transportation, efficiency) | Adaptation | Tourism | Agriculture | Coastal zones and marine systems | Finance |
|---|---|---|---|---|---|---|---|
| Turkmenistan | National Programme for Socio-economic Development 2011–2030; Programme of the President for Socio-economic Development 2019–2025 | Law on Hydrocarbons | National platform for disaster risk reduction; basic principles of implementation of the State programme | No information available | Law on State regulation of agricultural development | No information available | No information available |
| Uzbekistan | Development Strategy 2035 | Low Carbon Energy Strategy 2030 | Developing risk-informed development policies and integrated solutions to reduce disaster risks | No information available | Improving sustainability of irrigation and water-use practices | Not applicable | Green Economy Financing Facility – credit line |

[a] Tourism, agriculture, coastal zones and marine system, and finance are considered as Georgia's sectoral policies.

## D. Financial landscape

31. Financing of capital investments in CASC countries is dependent on official development assistance and finance from international financial institutions, including multilateral and regional development banks, bilateral development agencies and other regional financial institutions. International private finance flows to the region are mainly targeted at the oil and gas sector. Over the past 30 years, the oil and gas sector has received more private foreign direct investment than any other sector. In most countries, governments continue to play a central and dominant role in the economy, including through government spending and ownership of companies and assets.

32. A combination of oil price volatility and slowing economic activity due to the measures taken to combat the COVID-19 pandemic contributed to a fall in GDP in 2020. The IMF estimates that in 2020 the GDP of countries in the region shrank by an average of about 6%. Its forecasts indicate that, at the aggregate level, the region will return to growth as soon as 2021, although for several countries (Armenia, Azerbaijan, Georgia, Kazakhstan and Kyrgyzstan) economic activity is not expected to reach 2019 levels until 2022 or later.[20]

### 1. Public debt as a percentage of GDP

33. The amount of total debt held by governments in proportion to the size of the national economy can be used to compare debt levels across countries. This measure is often used by experts as one of the variables, alongside several others, for assessing the new or additional borrowing capacity of governments.

34. Debt, in proportion to GDP, increased significantly in 2020 across most countries in the region owing to a combination of higher borrowing and shrinking GDP. A double-digit percentage point increase in debt has been observed in Armenia, Georgia and Kyrgyzstan. Other countries, such as Azerbaijan, Kazakhstan, Tajikistan and Uzbekistan, have experienced more moderate increases in debt levels as a share of GDP, ranging from about 2 to 7% in Tajikistan. The level of debt as a share of GDP in Turkmenistan was estimated to have fallen by nearly 2% in 2020 compared with 2019. Borrowing was increased in these countries to meet needs related to the pandemic response and manage the associated socioeconomic fallout. The impact of the pandemic on public debt has yet to be fully quantified but in several countries fiscal space is already significantly restricted, especially in Armenia, Georgia, Kyrgyzstan and Tajikistan (see table 7).

20 IMF. 2020.World Economic Outlook database.

**Table 7**
**Government gross debt (% of GDP)**

| | 2019 | 2020 |
|---|---|---|
| Armenia | 50 | 61 |
| Azerbaijan | 18 | 20 |
| Georgia | 43 | 59 |
| Kazakhstan | 20 | 23 |
| Kyrgyzstan | 54 | 68 |
| Tajikistan | 43 | 48 |
| Turkmenistan | 33 | 31 |
| Uzbekistan | 29 | 36 |

*Source:* IMF. 2020. World Economic Outlook database, October 2020.

### 2. Domestic credit to private sector

35. Domestic credit to private sector measures the financial resources provided to the private sector through loans, purchases of non-equity securities and other forms of finance. Countries in the CASC region have different levels of domestic credit penetration, in part because of differences in the maturity of their banking systems. Georgia has the highest domestic credit to private sector as a share of GDP at nearly 68%, followed by Armenia at about 60%. The remaining countries have domestic credit to private sector of below 30% of GDP. Uzbekistan's domestic credit to private sector grew rapidly from less than 12% of GDP in 2016 to about 30% in 2019 (see table 8).

**Table 8**
**Domestic credit to private sector (% of GDP)**

| | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Armenia | 49 | 52 | 56 | 60 |
| Azerbaijan | 33 | 22 | 21 | 23 |
| Georgia | 59 | 58 | 63 | 68 |
| Kazakhstan | 33 | 29 | 26 | 24 |
| Kyrgyzstan | 21 | 21 | 23 | 26 |
| Tajikistan | 19 | 14 | 12 | 12 |
| Turkmenistan | – | – | – | – |
| Uzbekistan | 12 | 17 | 24 | 30 |

*Source:* IMF, International Financial Statistics and data files, and World Bank and OECD GDP estimates; extracted from data.worldbank.org on 30 March 2021.

### 3. Contribution of micro-, small- and medium-sized enterprises to gross domestic product and employment

36. In 2017, SMEs made up about 97% of all firms and were responsible for about 45% of all employment in CASC. As highlighted in the 2019 IMF report Promoting Inclusive Growth in the Caucasus and Central Asia,[21] one of the common challenges facing SMEs in the region relates to low levels of financial inclusion. Despite having a large economic footprint and serving as an engine for employment, SMEs in CASC accessed less than 7% of available credit in the economy in 2017. There is a sizeable financial inclusion gap among SMEs in the CASC region. The gap is comparable with those observed in other regions with significant disparities in financial inclusion, such as the Middle East, North Africa, and sub-Saharan Africa, and with those observed in developing countries like Afghanistan and Pakistan. Notable exceptions include Georgia and Armenia, where financial inclusion is better and broadly comparable with that observed in emerging and developing countries in Asia.

21 IMF. 2019. *Promoting Inclusive Growth in the Caucasus and Central Asia.*

### 4. Level and status of State-owned enterprises

37. State-owned and -controlled enterprises play an important role in the economies of the CASC region. These companies are major employers and often providers of essential services. The presence of State-owned enterprises in the CASC region is most common in the energy, transport, oil and gas, mining, finance, telecommunications and water sectors. According to a recent World Bank survey, the revenue generated by State-owned enterprises in the region varies significantly, from 8% of GDP in Georgia to 148% of GDP in Azerbaijan.[22] The survey did not include revenue data for Kazakhstan, Turkmenistan and Uzbekistan, where State-owned enterprises play a very important role across many sectors of the economy, including in the oil and gas sector.

38. In some countries, the importance of State-owned and State-controlled enterprises goes beyond their contribution to employment and economic activity. For example, in Uzbekistan, State-owned companies have regulatory functions such as granting licences, setting quality and performance standards and other sectoral oversight functions.[23]

39. Approaches to governance and oversight over State-owned enterprises differ significantly from country to country. In some countries, holding companies have been created to provide oversight of State-owned enterprises, whereas in others, line ministries hold oversight functions. In some cases, professional and independent board members participate, whereas in others, oversight is minimal and governance practices are opaque.

### 5. Domestic markets and access to international markets and credit ratings

40. There are significant challenges related to domestic finance markets and financial inclusion. International financial markets have become more accessible but remain a relatively small component of the overall financial landscape. To remedy this, in December 2015, the President of Kazakhstan approved the establishment of the AIFC in Nur Sultan to serve as a leading international centre of financial services. The AIFC has several key advantages, including an independent supervisory authority that adheres to best international standards and an attractive tax rate that includes an extended period of exemption from corporate and personal income taxes for financial and ancillary services. The AIFC aims to create a financial hub by attracting investment from the region, Asia and the Middle East. This initiative could potentially make it easier for governments and companies in the CASC region to access international financial markets and develop the non-banking financial sector within the region.[24]

### 6. Monetary unions and currencies

41. There are no monetary or currency unions in the CASC region. Armenia, Kazakhstan and Kyrgyzstan are members of the EAEU, along with two other countries from outside of the region. There is free movement of goods, services, capital and labour within the EAEU. Monetary and fiscal policy is managed individually by each member State of the EAEU, with active information exchange but no coordination or joint decision-making.

42. The Russian Federation is the largest economy in the EAEU, representing about 87% of economic activity. Kazakhstan is a distant second with 9% and Belarus is third with about 3%. Armenia and Kyrgyzstan together make up about 1% of economic activity within the union. As the Russian Federation is a leading trading partner and significant source of remittance and investment flows within the EAEU, developments in that country have a major impact on other EAEU member States. Moreover, Russian dependence on oil and gas revenue and its monetary policy, which is not focused on exchange rate stability, lay the foundations for the continued volatility of the Russian rouble against foreign currencies. The combination of these two factors exposes EAEU member States to future potential shocks, which are likely to be most disruptive for non-oil- and gas-exporting countries such as Armenia and Kyrgyzstan.[25]

### 7. Financial, fiscal and monetary policy

43. At the regional level, capital inflows are dominated by foreign direct investment, particularly in the oil and gas sector. Outside the oil and gas sector, capital flows are relatively low, and countries retain restrictions on international capital transactions. Some countries have started to ease these restrictions, most recently Uzbekistan, but the latest available data suggest that there is still significant room for improving capital openness (see figure 3). Armenia and Georgia have the most open financial systems but even in these countries there are several restrictions, including on investments of insurance companies and pension funds abroad and on agricultural land purchases by non-residents.[26] The lack of openness of countries in the region to foreign investors may limit international financing of climate actions.

22 World Bank. 2020. *Corporate Governance of State-Owned Enterprises in Europe and Central Asia*.

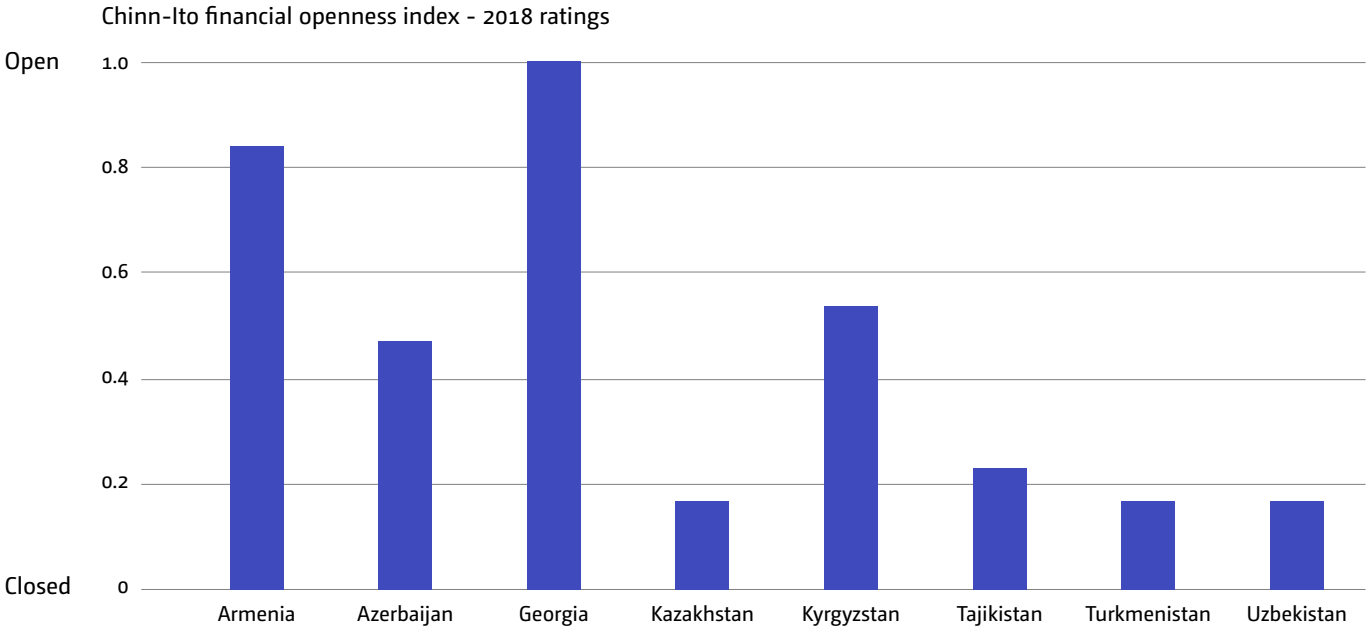
23 ADB. 2020. *State-owned Enterprises in Uzbekistan, Umidjon Abdullaev*. Available at https://adb.org/sites/default/files/publication/560601/adbi-wp1068.pdf.

24 AIFC. Available at https://aifc.kz.

25 Veritas Global. 2020. *Volatility in Eurasian Union revealed by Google trends*. https://veritasglobal.ch/post/volatility-in-eurasian-union.

26 IMF. 2018. *Opening Up in the Caucasus and Central Asia*.

**Figure 3**
**Emerging market clean energy foreign direct investment by investor type**




*Source:* Chinn-Ito Index, accessed 25 February 2021.

44. The COVID-19 pandemic has had an impact on the fiscal stance of countries in the CASC region. Unprecedented borrowing has squeezed fiscal space, especially in tourism-dependent and oil- and gas-importing countries. The COVID-19 pandemic has far-reaching consequences that are different from other forms of short-term volatility. For example, the higher debt burden of oil- and gas-importing countries accrued during the pandemic will have a long-term impact on fiscal space and borrowing capacity.

45. At the onset of the COVID-19 pandemic, local currencies faced downward pressure. The slowing in foreign direct investment, loss of tourism revenue and lower remittance flows have raised questions about the ability of some countries to finance their current account deficits. Even central banks that had previously signalled support for a free-floating exchange rate rushed to stabilize their currencies by selling accumulated foreign exchange reserves. Exchange rate instability is a particularly significant issue in the region and is linked to systemic vulnerabilities in the financial sectors of some countries. Disorderly local currency devaluation can increase the likelihood of a spike in loan defaults because of high dollarization in the banking systems of Armenia, Georgia, Kyrgyzstan, Tajikistan and Uzbekistan.[27] If systemic risks to the financial system materialize, the emanating volatility could impact both short- and long-term economic growth trajectories. On the positive side, banks in the region have high capital adequacy ratios, meaning that a moderate increase in non-performing loans may not jeopardize the entire financial system. However, in anticipation of an increase in non-performing loans, banks may curtail their lending activity. In addition to adversely impacting economic growth, more risk aversion among banks could make it more difficult to access finance, including for climate-related investments.

**8. Exchange controls / import tax**

46. CASC is poorly integrated into the global trading system. In recent years, the region has made some progress in integrating with the rest of the world, particularly through special economic zones, which have also notably helped to attract foreign direct investment. However, the region's share of world trade is significantly below its potential.[28] Trade within the region is also low although has marginally improved in recent years. The low levels of integration with the world and within the region can be explained by factors such as high transit costs, lack of suitable infrastructure, burdensome regulatory frameworks and high tariff and non-tariff barriers. Some countries, especially Georgia, have been more proactive in opening to trade and putting in place measures that accelerate integration into the global trading system. Nevertheless, at the regional level, significant challenges remain. As alluded to above, one inhibitor for integration into world trade is the existence of import tariffs. Excluding Georgia, the weighted average tariff rate in 2015 in the region ranged from 2.5 to 8.7% of the merchandise value (see table 9).

27 IMF. 2020. Fiscal Challenges from the Pandemic. *Regional Economic Outlook, Middle East and Central Asia.* October 2020. Available at https://imf.org/en/Publications/REO/MECA/Issues/2020/10/14/regional-economic-outlook-menap-cca.

28 IMF. 2018. *Opening Up in the Caucasus and Central Asia.*

As a basis for comparison, open economies such as Japan and Germany had an average tariff rate of about 1.5%.[29]

**Table 9**
**Weighted average tariff rate, 2015**

| | % of trade value |
|---|---|
| Armenia | 2.5 |
| Azerbaijan | 5.3 |
| Georgia | 0.3 |
| Kazakhstan | 4.7 |
| Kyrgyzstan | 2.7 |
| Tajikistan | 7.2 |
| Turkmenistan | – |
| Uzbekistan | 8.7 |

*Source:* World Bank. Extracted from the IMF report Opening Up in the Caucasus and Central Asia, 2018.

### 9. Reserve and central bank support

47. Central banks are primarily focused on ensuring broad macroeconomic stability and regulatory oversight over banks. Most central banks in the region have not incorporated climate change considerations into their oversight functions. However, Kyrgyzstan and Georgia have recognized this as an issue and have joined the Sustainable Banking Initiative of the International Finance Cooperation.[30] Georgia has gone further and developed a sustainable finance road map, which is primarily focused on enhancing understanding of sustainable finance, knowledge dissemination and enhanced transparency. These measures could potentially drive more capital flows to the sustainable sector while at the same time helping to better position Georgian banks to raise green capital. Similarly, in Kazakhstan, a draft decree on "green" taxonomy for green finance has been developed by the Green Finance Centre of the AIFC. The draft decree is under review with the Ministry of Ecology, Geology and Natural Resources.[31]

## E. Institutional landscape

48. All countries in the region are signatories to the UNFCCC and have also ratified the Kyoto Protocol and the Paris Agreement. Across all countries, the profile of climate change has increased significantly, and closer coordination on the issue can be observed among governments and other institutions.

49. In Central Asia, countries have gradually increased interdepartmental coordination on climate change related issues. For example, in Uzbekistan institutional mechanisms have been set up to enable coordination on technical and strategic issues related to climate change, the latter being handled by the Deputy Prime Minister's office. In Tajikistan and Kyrgyzstan, too, the Deputy Prime Minister's office has an interministerial coordination role. In Turkmenistan, the State Commission on Climate Change is coordinated by the Ministry of Nature Protection. In Kazakhstan, the Ministry of Energy is currently responsible for climate policy administration and international climate negotiations, while the Council for Transition to a Green Economy under the President's office is responsible for interdepartmental coordination on sustainable development.

50. Across all South Caucasus countries, interministerial councils chaired by ministers responsible for environment protection issues have been set up to coordinate on climate change related matters. In Armenia and Azerbaijan interministerial councils have existed for some time and aim to help government agencies to coordinate on climate policies.[32] More recently, Georgia set up a ministerial-level climate change council for setting strategic directions for climate policy.

51. At the subregional level, several projects and programmes are focused on eliciting closer cooperation among countries on environment and climate change issues. The Regional Environment Centre for the Caucasus and the Regional Environment Centre for Central Asia play a particularly important role in facilitating cooperation on environment issues at the subregional level.

52. From a regional perspective, several international financial institutions play a particularly active role in providing implementation support. The scope and area of intervention of these institutions vary and are usually complementary in nature.

29 See footnote 28.

30 See https://ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/company-resources/sustainable-finance/sbn_members.

31 See https://gfc.aifc.kz/news/the-aifc-green-finance-centre-developed-and-submitted-a-draft-resolution-of-the-government-of-kazakhstan-on-green-taxonomy-to-the-ministry-of-ecology-geology-and-natural-resources/.

32 Shatberashvili, N.; Rucevska, I.; Jørstad, H.; Artsivadze, K.; Mehdiyev, B.; Aliyev, M.; Fayvush, G.; Dzneladze, M.; Jurek, M.; Kirkfeldt, T. & Semernya, L. 2015. *Outlook on climate change adaptation in the South Caucasus mountains*. United Nations Environment Programme, GRID-Arendal and Sustainable Caucasus. Available at https://grida.no/publications/161.

53. CAREC (which includes all countries in Central Asia and South Caucasus except for Armenia) is focused on promoting regional cooperation and economic integration among its members. The International Fund for Agriculture Development is entirely focused on supporting interventions in the agriculture sector. The United Nations Economic Commission for Europe makes more policy-centric interventions, particularly in the areas of air pollution and natural resource management. The United Nations Development Programme supports implementation across various sectors, including through capacity-building initiatives. Development banks are also active in the CASC region. Their support is described in more detail in section III.B of this report.

54. Table 10 provides a summary of the key national, subregional and regional/international institutions focusing on climate change issues in the CASC region.

**Table 10**
**Institutions focusing on climate change issues**

| | National | Subregional | Regional/international |
|---|---|---|---|
| Armenia | The Ministry of Environment is the main interface with the UNFCCC and is also the Chair of the Interministerial Council. | Regional Environment Centre – Caucasus | Several international financial institutions are particularly active in supporting the region on environment and climate change issues, including:<br>ADB<br>European Bank for Reconstruction and Development<br>International Fund for Agricultural Development<br>CAREC (excludes Armenia)<br>United Nations Development Programme<br>United Nations Economic Commission for Europe<br>United Nations Economic and Social Commission for Asia and the Pacific<br>World Bank |
| Azerbaijan | The Ministry of Ecology and Natural Resources is the main interface with the UNFCCC and is also the Chair of the Interministerial Council. | | |
| Georgia | The Ministry of Environmental Protection and Agriculture is the main interface with the UNFCCC and is also the Chair of the Interministerial Council. | | |
| Kazakhstan | The Ministry of Energy is responsible for climate policy, while the Council for Transition to a Green Economy under the President's office is responsible for interdepartmental coordination on sustainable development . | Regional Environment Centre – Central Asia | |
| Kyrgyzstan | The State Committee on Ecology and Climate is responsible for developing policy in the field of environmental protection. The Coordination Council on Climate Change, Ecology and the Development of a Green Economy has an overall coordination role. The Climate Finance Centre under the State Committee on Ecology and Climate is the secretariat of the Coordination Council. | | |

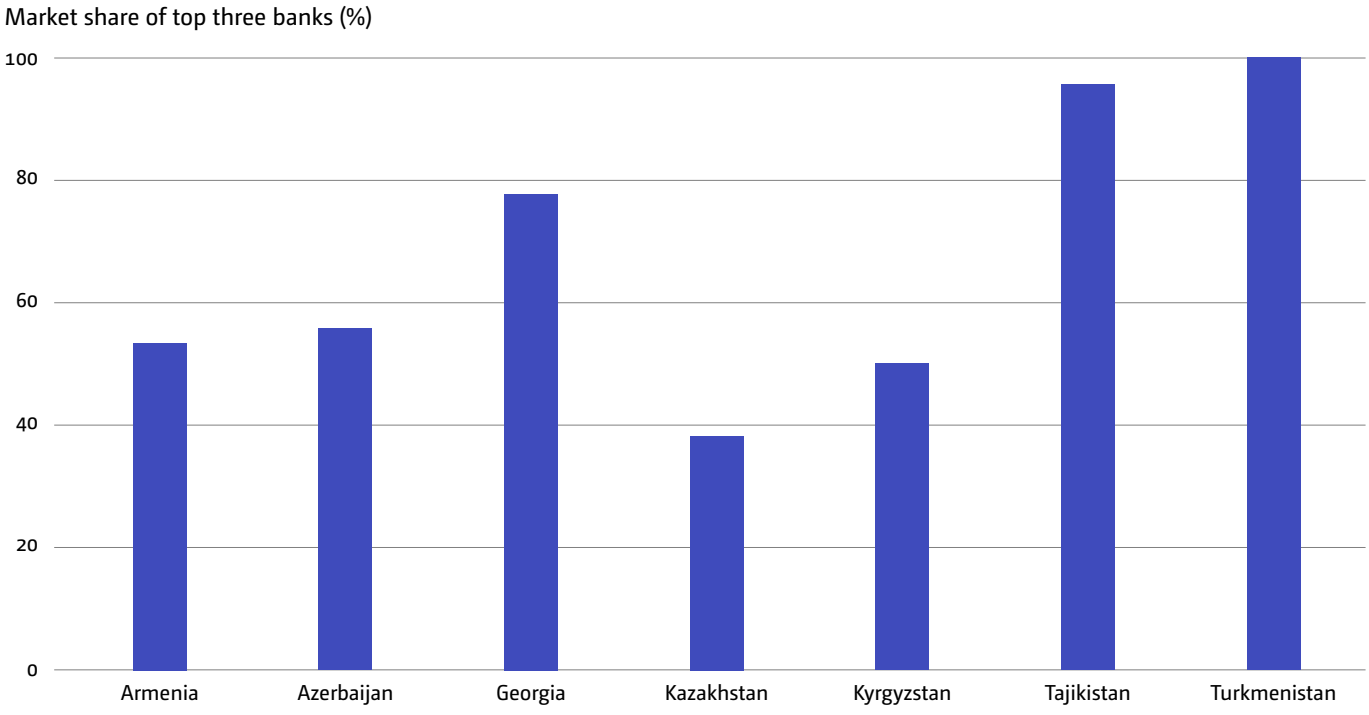
**Table 10 (continued)**
**Institutions focusing on climate change issues**

| | National | Subregional | Regional/international |
|---|---|---|---|
| Tajikistan | The Deputy Prime Minister's office plays an interministerial coordination role. | | |
| Turkmenistan | The Ministry of Agriculture and Environment Protection interfaces with the UNFCCC and coordinates the Interministerial Commission on Climate Change | | |
| Uzbekistan | Institutional mechanisms have been established to coordinate on technical issues, with strategic issues handled by the Deputy Prime Minister's office. | | |

## F. Domestic banking sector

55. Georgia, Tajikistan and Turkmenistan have relatively highly concentrated domestic banking markets within the CASC region (see figure 4). Level of concentration in the banking sector is measured by the national market share of the top three banks. A high level of concentration should not be interpreted to refer to the level of sophistication. A highly concentrated banking sector means there are fewer large-scale players in the banking sector. The limited number of players may make it easier to disseminate new knowledge and best practices. The competitive dynamics in the banking sector may also influence the ease of disseminating knowledge and best practice.

**Figure 4**
**Bank concentration, 2017**




*Source:* World Bank.

## G. Banking, investment and insurance associations

56. Traditional trade associations in the areas of regional and national banking, investment and insurance play a limited role in decision-making. However, international associations and international financial institutions play a very important role in knowledge diffusion. For example, the International Capital Market Association provided valuable support in translating the

Green Bond Principles into Georgian. In addition, a number of State-owned enterprises function like traditional trade associations, for example by issuing permits or granting licences (see section II.D.4 for more information on State-owned enterprises).

57. Regional associations focusing on either the stock market or regional investment banks are not deemed to play a significant role in the region. However, further monitoring of their role in the future may be warranted.

## H. Investment promotion and export credit agencies

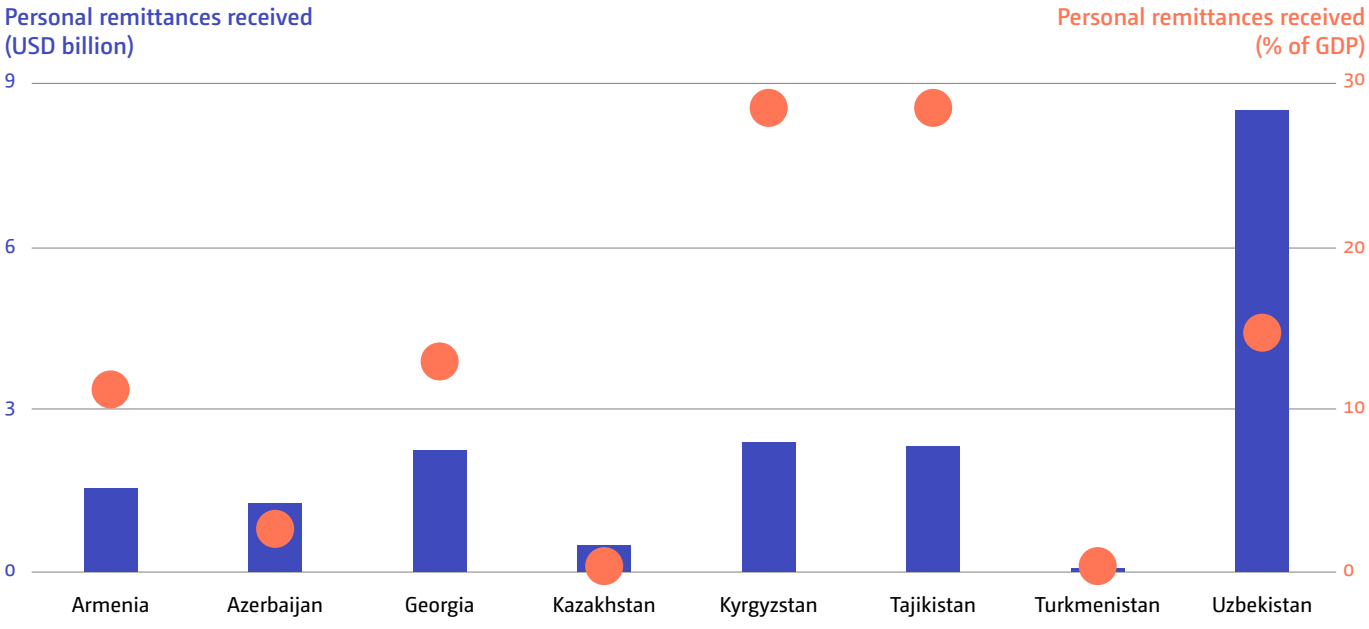
58. Every country in the region has at least one investment promotion agency. These agencies gather information on government programmes targeted at supporting investment. Some of them are charged with administering programmes to encourage foreign investment, including support for climate change related initiatives. A key focus of most investment promotion agencies in the region is to nurture export industries. In this context, several countries have actively supported the development of free economic zones that benefit from preferential fiscal terms, public investment in infrastructure and other forms of special treatment. Measures for attracting export-focused industries include favourable trade finance arrangements, cash back incentives and insurance products. Investment promotion agencies have the potential to play an enhancing role in promoting and marketing climate-friendly investments to foreign investors.

59. External export credit agencies are also present in the region and are focused on promoting their services. Although information on the extent of investment by China is not readily available to the public, analysts believe that the significant expansion of Chinese investment through the Belt and Road Initiative has in part been enabled through Chinese interventions that include activities characteristic of export credit agencies. External export credit agencies play an important role in de-risking investments, especially in the deployment of new technologies. Therefore, external export credit agencies can play an important role in de-risking climate-related investments through credit enhancement instruments and guarantee schemes.

## I. Community funding (including credit unions, savings societies, cooperatives, remittance funds and philanthropy)

60. Remittance inflows are a very important source of finance in the CASC region. In 2019, Kyrgyzstan and Tajikistan received the most remittances as a share of GDP, equivalent to about 29%. However, in absolute terms Uzbekistan is by far the largest recipient of remittances, which represented USD 8.5 billion in inflows to the country in 2019. In the CASC region, remittances play a particularly important role among oil and gas importers. In both Armenia and Georgia, remittance inflows accounted for more than 10% of GDP in 2019 (see figure 5). Remittances in the region are on an upward trend and grew by 6% in 2019 year on year. In 2018, the value of remittance inflows to the region was about 10 times higher than that of international public finance, and was even higher than the total value of international public climate finance for 2013–2018.

**Figure 5**
**Remittances received in Central Asia and South Caucasus, 2019**




*Source:* World Bank.

# III. Climate finance flows

## A. Methodology

61. Information for tracking international public climate finance flows from bilateral and multilateral sources to developing countries is publicly available on the OECD CRS database, which is currently the most comprehensive source of information available on international public climate finance flows. In addition, climate change project databases on climate funds such as the AF, CIF, GCF, and GEF were consulted to complement information on international public climate finance flows. Data on domestic public climate finance are scarce and, where available, fragmented.

62. Key sources for domestic public climate finance are national public-sector investment plans. These plans report the share of public investment spent on environment-related activities and infrastructure. It should be noted, however, that the values reported are likely to be lower-bound values. This is because, in some cases, investments in sectors such as renewable energy and transport are classified under different categories, with no detailed breakdown of the exact amounts invested. Data for tracking private finance flows to climate-related investments were sourced from countries' NCs, where such information was available. Data from Climatescope reflect foreign direct investment flows into countries only in clean energy technologies and only for those with capacities greater than 1 MW. Flows from MDBs reported in the Climatescope database were removed to avoid double counting data on international public climate finance flows. In addition, the GCF database provides information on project co-financiers, some of which are private entities. Data from CDM projects also capture private investment flows to emission reduction projects. The total number of certified emission reductions issued through the CDM in the region are quantified in this section of the report. The sector classifications are based on the sectoral definitions set out in the OECD Development Assistance Committee database, with slight adjustments to ensure that the priority sectors of the countries were reflected.

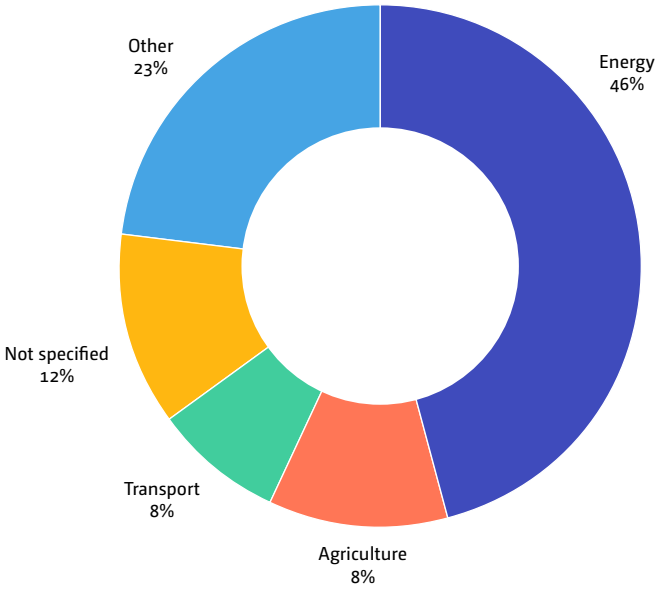
## B. International public climate finance

63. International public climate finance for CASC for climate change projects and programmes totalled USD 1.7 billion in 2018, marking the third consecutive year of growth in international public climate finance for the region. On aggregate, between 2013 and 2018, reported international public climate finance totalled USD 9.1 billion. Only climate components and principal climate activities are considered climate finance.

### 1. Sectors

64. International public climate finance was largely concentrated in a select few sectors. As highlighted in figure 6, the energy sector (excluding transportation) accounted for about 46% of all climate finance between 2013 and 2018. The agriculture sector was the second largest beneficiary, accounting for approximately 11%. The transportation sector was third with about 8% of total climate finance. For approximately 12% of climate finance transactions, no sector was specified. The remaining 23% was targeted at other sectors (such as industry, sanitation, social services and water) or was allocated for cross-sectoral activities.

**Figure 6**
**International public climate finance for Central Asia and South Caucasus by sector, 2013–2018**

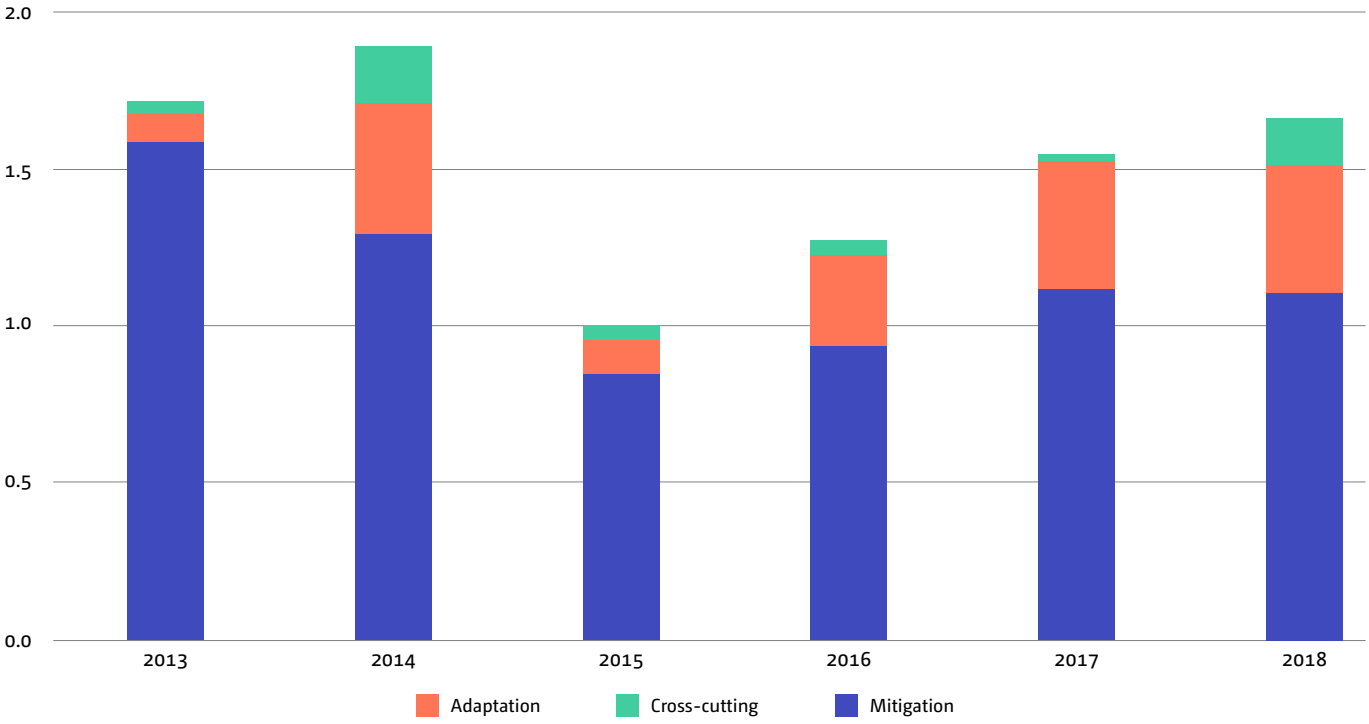



*Source:* OECD CRS database.

## 2. Mitigation, adaptation and cross-cutting activities

65. Climate finance flows have mostly gone towards supporting mitigation activities. Reported support for adaptation has been increasing since 2015 but only makes up a fraction of the total (see figure 7). Between 2013 and 2018, 76% of international public climate finance was for mitigation activities, 19% was for adaptation and 5% was cross-cutting. There are strong synergies between adaptation issues and renewable energy investments owing to the existence of cross-cutting elements in the challenges facing the region. As highlighted in section II.B.1 of this report, there is uncertainty about the impact of climate change on precipitation. Some areas are expected to experience an increase in precipitation whereas others are expected to experience a decrease. Furthermore, changes in intensity and timing of snowmelt are expected to affect the water flow levels of key rivers. Some of these changes may impact water resource availability and contribute to both drought and flooding. These considerations further complicate efforts to realize the region's renewable energy potential, particularly from hydrological resources.

**Figure 7**
**International public climate finance for Central Asia and South Caucasus for mitigation, adaptation and cross-cutting activities**
*(USD billion)*



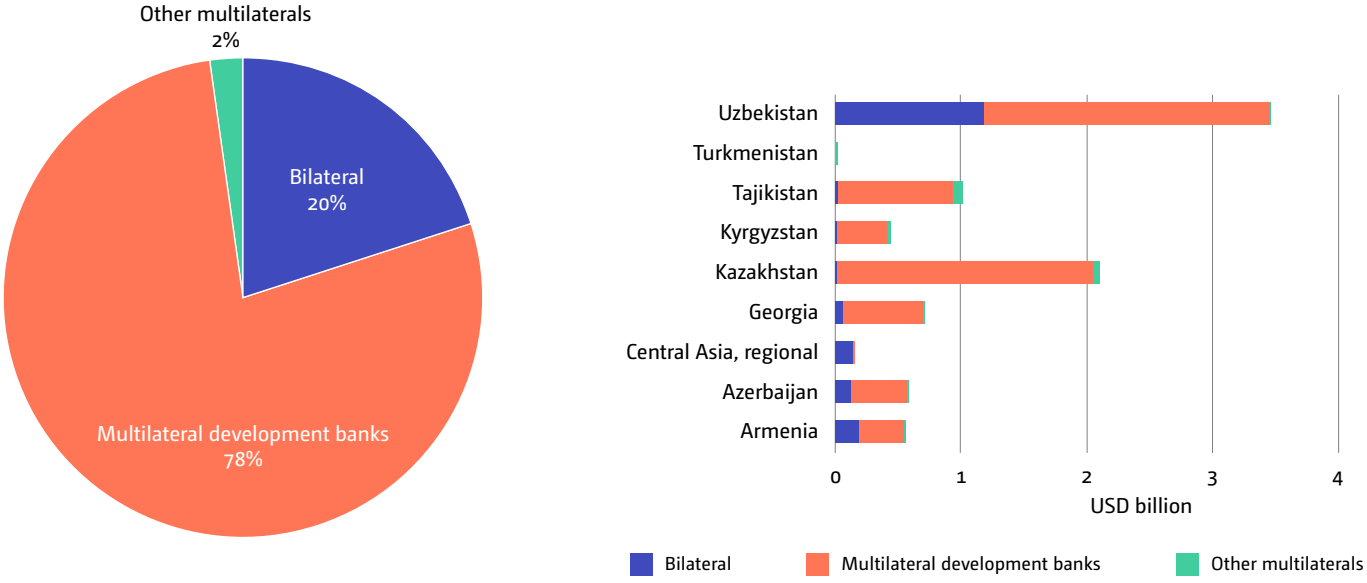

*Source:* OECD CRS database.

### 3. Donor countries (bilateral and multilateral climate finance)

66. Between 2013 and 2018, bilateral climate finance accounted for 20% of all international climate finance for the CASC region. The donor countries and entities that reported the largest bilateral flows were the European Union, France, Germany, Japan, Switzerland and the United States of America. The remaining 80% of climate finance was multilateral. The multilateral institutions contributing the most climate finance were the ADB, the European Bank for Reconstruction and Development, the European Investment Bank and the World Bank Group.

The European Bank for Reconstruction and Development is particularly active in scaling private sector led initiatives, including through local financial intermediaries. The ADB and the World Bank are active in a number of areas, including policy advice and financing support. Figure 8 provides a breakdown, by channel and by country, of climate finance provided between 2013 and 2018. The data sources used in this analysis may understate non-OECD related investments, a portion of which may be classified as climate finance. In particular, the data may not adequately capture the expanding portfolio of Chinese investment in the region, since China does not systematically report such investment to the OECD.

**Figure 8**
**Climate finance by channel and by country, 2013–2018**

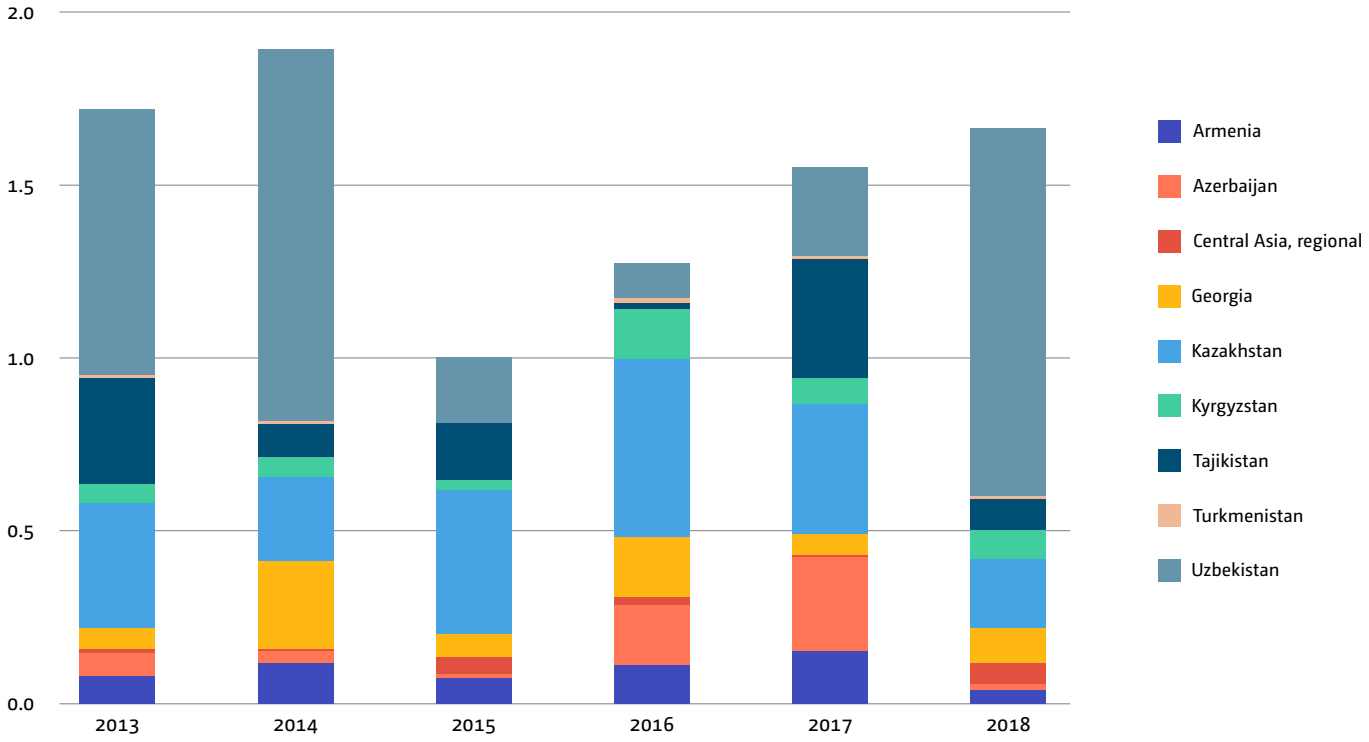



*Source:* UNFCCC. Based on OECD reports.

### 4. Recipient countries

67. Overall, climate finance provided has been on an upward trajectory since 2015. In absolute terms, countries in Central Asia have a significantly larger share of climate finance than those in the South Caucasus. Kazakhstan, Tajikistan and Uzbekistan have been particularly successful in securing climate finance (see figure 9). Although CASC countries face similar, and in some cases shared, climate change challenges, regional cooperation initiatives have received relatively little of the total finance allocated to climate projects. Tables 13-16 of this report on priority sectors highlights the shared and common climate challenges facing the region. On aggregate, between 2013 and 2018, regional initiatives amounted to only about USD 150 million, mostly in the form of bilateral grants.

**Figure 9**
**International public climate finance to Central Asia and South Caucasus by recipient country**
*(USD billion)*




*Source:* OECD CRS database.

## C. Private climate finance

### 1. Sectors

68. Cross-border private sector investment in renewable energy (excluding domestic investment) that flows between 2013 and 2018 was reported to amount to about USD 0.7 billion.[33] Investment in wind made up the largest share of this, accounting for about 75%. Small hydro energy investment was a distant second, accounting for about 17%. The smallest share of cross-border private investment in renewable energy was for solar investment, at around 9%.

69. There was insufficient information to assess private sector finance mobilized to support renewable energy or other climate-related investment from domestic sources.

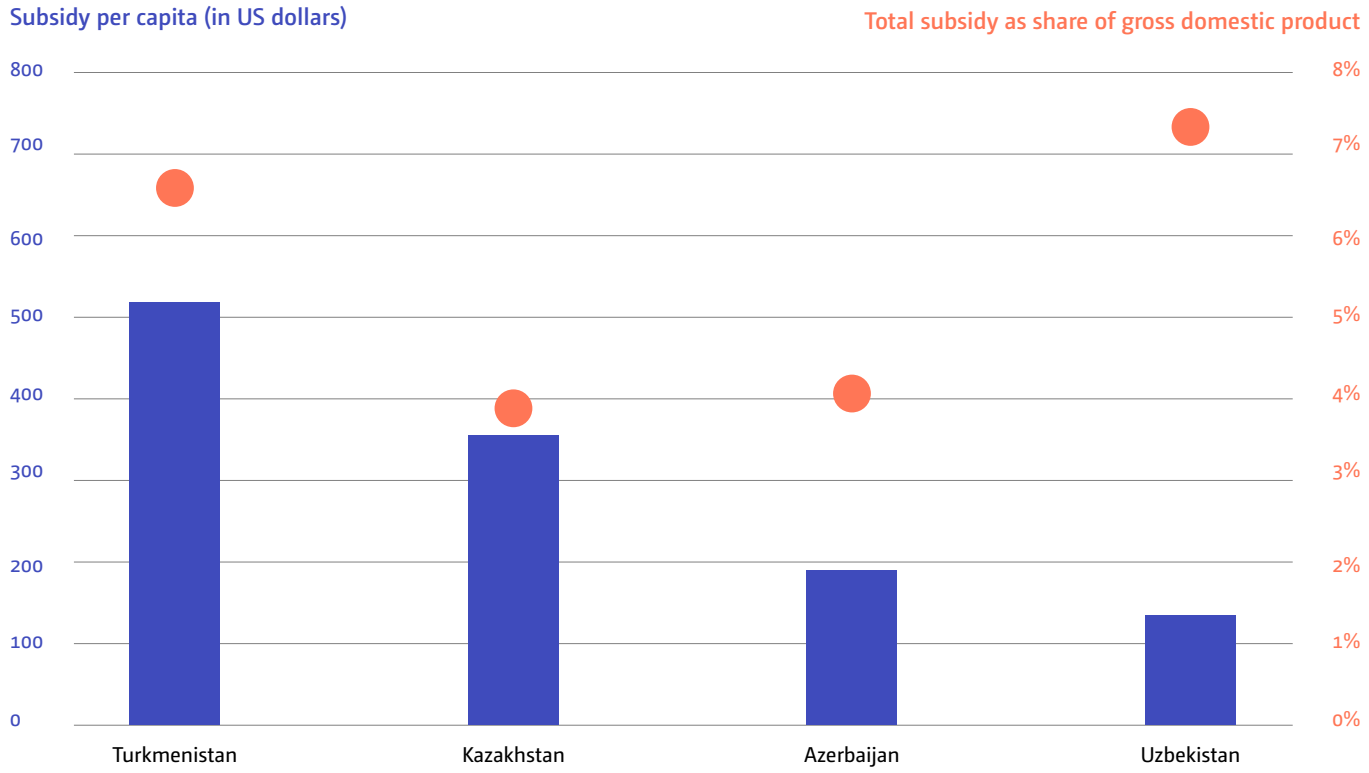
## D. Carbon pricing and finance

70. Kazakhstan is the only country in the region that has implemented carbon pricing, which it has done through its emissions trading scheme. The coverage and stringency are gradually being increased. To date, emission permits have been allocated to companies on the basis of historical emissions (i.e. 'grandparenting') as well as product-based benchmarking. In 2019, the average price per t $CO_2$ eq was USD 1.14.[34]

33 Climatescope, excluding data on finance provided by development banks.
34 International Carbon Action Partnership, Kazakhstan Emissions Trading Scheme, February 2021.

71. Oil- and gas-exporting countries in CASC have some of the world's highest subsidies for energy and fossil fuels per person and as a share of GDP. Turkmenistan is estimated to have the highest per capita subsidy in the region, equating to about USD 516 per person in 2019. This is the highest per capita subsidy for any country outside the Middle East. Uzbekistan has an energy subsidy of USD 132 per capita, which is the lowest subsidy of any oil- and gas-exporting country in CASC. However, Uzbekistan spends 7.3% of its GDP on energy and fossil fuel subsidies, which is the highest in the region and one of the top five worldwide (see figure 10).

**Figure 10**
**Energy and fossil fuel subsidies, 2019**




*Source:* IEA database.

### 1. Clean development mechanism

72. All countries, except Kazakhstan, are eligible for participating in the CDM. Armenia, Azerbaijan, Georgia and Uzbekistan have been successful in implementing projects that generated certified emission reductions. As at February 2021, of the 19.6 million certified emission reductions issued in the region, about 91% were for projects in Uzbekistan. Projects in Georgia accounted for about 8% of all issued credits, while those in Armenia and Azerbaijan together accounted for about 1% of all credits issued from projects in the region.

### 2. Carbon finance and market readiness

73. Kazakhstan is a technical partner of the Partnership for Market Readiness, which it joined in March 2014. The focus of Kazakhstan's efforts has been on developing and enhancing an MRV system for GHG emissions. The Partnership supports efforts to enhance the effectiveness and efficiency of Kazakhstan's emissions trading scheme.

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# IV. Climate finance needs and priorities

## A. Methodology

74. In order to document climate finance needs for the region, all known public communications to the UNFCCC were assessed. In addition, GCF, GEF, AF and multilateral and bilateral funding agency country programmes were reviewed where available. Data presented at the NBF inception workshop, which took place on 14 December 2020, were also incorporated in the assessment. The analysis relied on quantitative and qualitative methods. The needs specified by category are entirely based on the official communications submitted by Parties to the UNFCCC. The analysis presented in this section tallies the number of times each Party mentions a specific need. Table 11 provides an overview of official country communications to UNFCCC by year of submission up to January 2020.[35] At the request of the Parties, recent NDCs submitted to the UNFCCC were included in the analysis as well. Financial needs were quantified on the basis of figures communicated directly by Parties and a compilation of analyses from authoritative international sources.

**Table 11**
**Overview of official country communications to UNFCCC by year of submission up to January 2020**

| | NDC | NAP | Initial NC[a] | NC2 | NC3 | TNA[b] | TAP | BUR1 | BUR2 |
|---|---|---|---|---|---|---|---|---|---|
| Armenia[a] | 2021 | – | 1998 | 2010 | 2015 | 2015 | 2017 | 2016 | 2018 |
| Azerbaijan | 2017 | – | 2000 | 2011 | 2016 | 2012 | 2012 | 2015 | 2018 |
| Georgia | 2021 | – | 1999 | 2009 | 2016 | 2002 | 2012 | 2016 | 2019 |
| Kazakhstan | 2016 | – | 1998 | 2009 | – | 2013 | 2016 | – | – |
| Kyrgyzstan | 2021 | – | 2003 | 2008 | 2017 | – | – | – | – |
| Tajikistan | 2021 | – | 2002 | 2008 | 2014 | 2003 | – | 2019 | – |
| Turkmenistan | 2016 | – | 2000 | 2010 | 2016 | 2007 | – | – | – |
| Uzbekistan | 2021 | – | 1999 | 2008 | 2017 | 2001 | – | – | – |

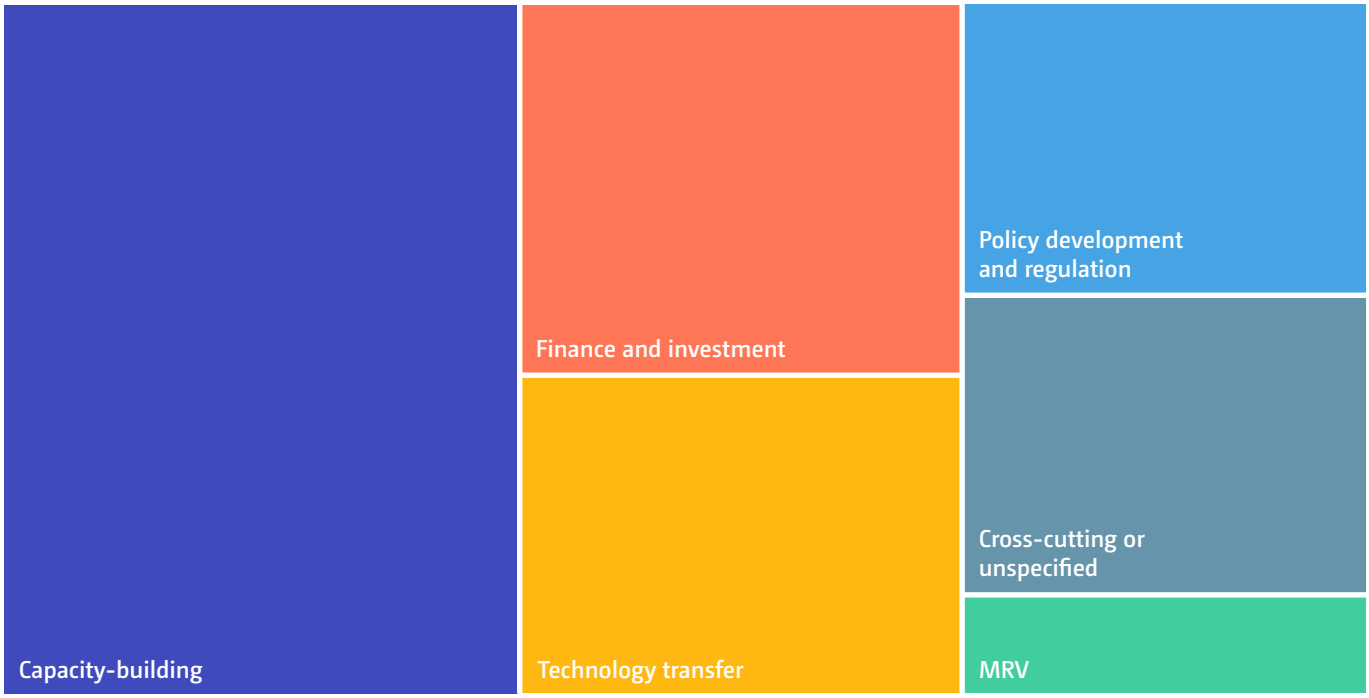
*Source:* UNFCCC.
[a] In addition to communications mentioned here, Armenia also submitted its NC4 in May 2020.

*Notes:*
1. For NCs, the most recent document was assessed.
2. For TNAs and TAPs, the most recent document was assessed.

35 In addition to submitting official communications to the UNFCCC, several Parties, including Armenia, Azerbaijan, Georgia and Kazakhstan, have taken steps to develop low emission development strategies.

75. Information communicated to the UNFCCC includes details of what Parties considered to be their specific needs for addressing climate change. Of all the needs communicated, 38% related to capacity-building, 19% to finance and investment and 14% to technology transfer. Other needs identified by Parties included cross-cutting support (13%), policy development (13%) and MRV (4%) (see figure 11). Needs that were communicated less frequently are not necessarily less important. For example, as part of the feedback on this report, some Parties explained that they attach particular importance to MRV issues. Indeed, MRV is seen by some Parties as a prerequisite for making informed decisions on the approval of emission reduction policies and verifying the effectiveness of strategic actions.

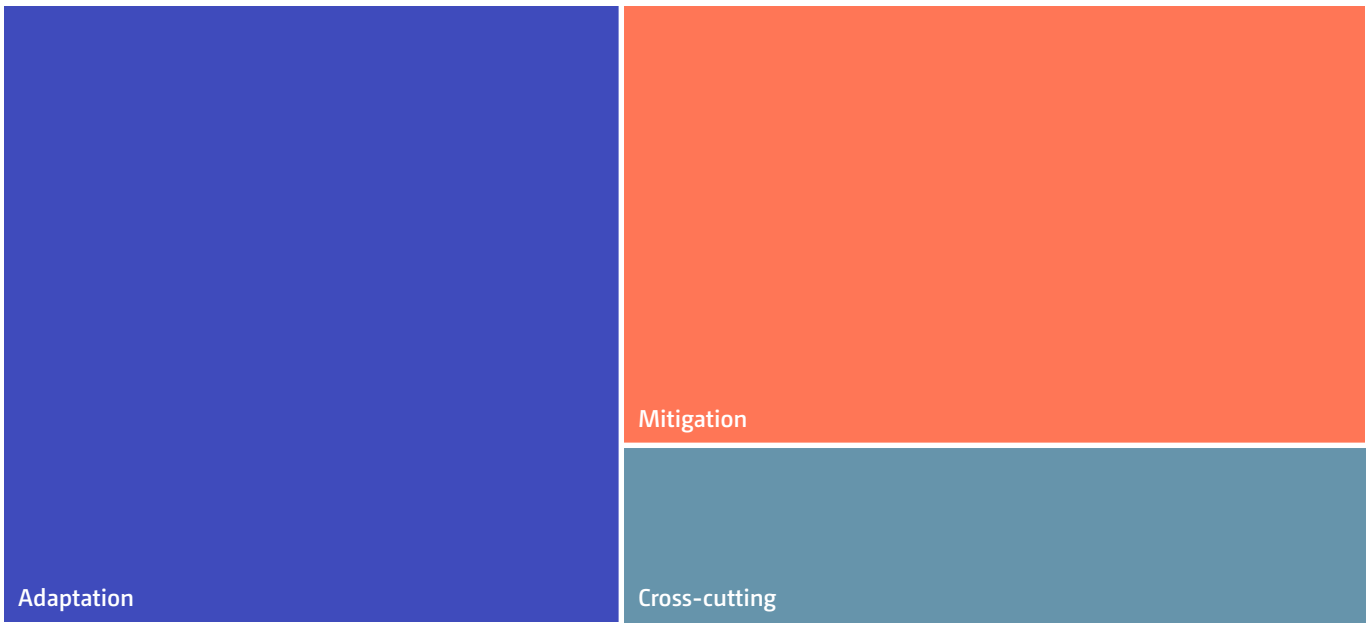
**Figure 11**
**Types of support needed as communicated to UNFCCC by Central Asia and South Caucasus Parties**




*Source:* UNFCCC. Based on aggregated data from biennial reports, NCs, NDCs, TAPs and TNAs.

76. The needs communicated by Parties indicate that adaptation and mitigation are almost equally balanced, although adaptation needs are mentioned slightly more frequently in official communications. Of the needs communicated, 46% related to adaptation, 41% to mitigation and about 13% to cross-cutting measures (see figure 12).

**Figure 12**
**Balance between mitigation and adaptation of needs communicated to the UNFCCC secretariat by Central Asia and South Caucasus Parties**




*Source:* UNFCCC. Based on aggregated data from biennial reports, NCs, NDCs, TAPs and TNAs.

## B. Mitigation

77. As highlighted in section II above, a key characteristic of the CASC region is that it is in the process of transition from a centrally planned to a market-based economy. The challenges faced by the region is evident in the submitted NDC, which also highlight different approaches in managing such challenges. Some countries chose to communicate absolute emission targets, some opted for per capita emission targets, and some communicated deviations from 'business as usual' or reduction targets for emissions per unit of GDP, while others opted not to specify a target and instead identified climate actions (see table 12).

**Table 12**
**Overview of emission reduction targets and quantifiable activity-related targets as presented in NDCs**

| | Emission reduction (unconditional) | Emission reduction (conditional) | Quantifiable activity-related targets |
|---|---|---|---|
| Armenia | | Ecosystem neutral emissions by 2050 (2.07 t $CO_2$ eq per capita per year) | Per capita target |
| Azerbaijan | 35% reduction by 2030 compared with 1990 (base year) | | Reduction in emissions versus base year |
| Georgia | 35% reduction by 2030 compared with 1990 (base year) | 50–57% reduction by 2030 compared with 1990 (base year) | Reduction in emissions versus base year; sectoral mitigation targets |
| Kazakhstan | Limit per capita emissions to 1.23 t $CO_2$ eq or 11.49–13.75% below 'business as usual' by 2030 | 25% reduction by 2030 compared with 1990 (base year) | Reduction in emissions versus base year |
| Kyrgyzstan | Reduce emissions by 16.63% by 2025 and by 15.97% by 2030 under 'business as usual' scenario | Reduce emissions by 36.61% by 2025 and by 43.62% by 2030 under 'business as usual' scenario | Per capita target |
| Tajikistan | Not to exceed 60–70% of 1990 (base-year) emissions by 2030 | Not to exceed 50-60% 1990 (base-year) emissions by 2030 | Reduction in emissions versus base year |
| Turkmenistan | Actions identified | | Actions identified |
| Uzbekistan | | 35% reduction in emissions per unit of GDP versus 2010 level | Reduce GHG emission intensity per unit of GDP |

*Source:* UNFCCC. Based on NDC registry as at 30 December 2021.

78. Not all NDCs mention target sectors, and few detail the policy mix they intend to implement to achieve mitigation outcomes. However, information submitted by Parties through their other communications submitted to the UNFCCC, reports of international organizations and expert analyses show that, across all countries, the energy sector is a clear priority for mitigation activities. Furthermore, the energy sector, including transportation, makes up about 82% of emissions in $CO_2$ eq. (see table 13).

**Table 13**
**Priority sectors in mitigation**

| | Energy | Transport | Agriculture | Industrial processes and product use | Forestry and land use | Waste |
|---|---|---|---|---|---|---|
| Armenia | ✔ | | ✔ | ✔ | ✔ | ✔ |
| Azerbaijan | ✔ | ✔ | ✔ | | ✔ | ✔ |
| Georgia | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| Kazakhstan | ✔ | ✔ | ✔ | ✔ | | ✔ |
| Kyrgyzstan | ✔ | ✔ | | | ✔ | |
| Tajikistan | ✔ | | ✔ | ✔ | | ✔ |
| Turkmenistan | ✔ | ✔ | ✔ | ✔ | | |
| Uzbekistan | ✔ | | ✔ | ✔ | ✔ | ✔ |

*Source:* UNFCCC. Based on aggregated data from biennial reports, NCs, NDCs, TAPs and TNAs.

79. Some NDCs and communications submitted to the UNFCCC also include estimates of climate finance needs for mitigation. As noted in table 14 Kyrgyzstan and Georgia have undertaken national finance assessments of mitigation needs. Kyrgyzstan provided an assessment of mitigation costs, estimating total resource requirements to be USD 7.24 billion, of which international support was estimated to make up USD 4.34 billion.[36] Turkmenistan indicated that achieving its mitigation targets would depend on finance from the State budget. However, it also highlighted that growth in GHGs could be halted or even reduced if a commensurate level of international support were provided. Georgia assessed the cost implications of mitigation policies in its NC3. It estimated that a mitigation target of a 15% reduction from 'business as usual' by 2030 (unconditional target) would incur an additional EUR 0.34 billion in energy system costs in terms of net present value. A more ambitious emission target of 25% below 'business as usual' by 2030 (conditional target) would incur an additional EUR 0.93 billion in energy system costs in net present value terms. To achieve the target of 15% below 'business as usual' by 2030, additional capital of EUR 0.57 billion would be required. Achieving the more ambitious target of 25% below 'business as usual' would require an additional EUR 1.50 billion compared with the reference scenario. These resources would need to be mobilized in addition to the average annual payments of EUR 0.29 billion estimated under the reference scenario.

**Table 14**
**National assessments of mitigation finance needs**

| | Needs |
|---|---|
| Georgia | USD 3 billion (8 billion Georgia lari) for an emission reduction of 35% (unconditional target) versus business as usual; an additional USD 5 billion for a reduction of 50–57% (conditional target). A more ambitious emission target of 25% below 'business as usual' by 2030 (conditional target) would incur an additional EUR 0.93 billion in energy system costs in net present value terms (or additional capital of EUR 1.50 billion)<br>These resources would need to be mobilized in addition to the average annual payments of EUR 0.29 billion estimated under the reference scenario. |
| Kyrgyzstan | USD 7.24 billion, of which international support was estimated to make up USD 4.34 billion. |

*Source:* Kyrgyzstan's 2015 NDC and Georgia's NC3 (p.213).
*Note:* All figures reported for Kyrgyzstan in this table are based on 2005 US dollars.

36 The investment programme costs as stated in the NDC may be for the entire time period. International support refers to funds not currently secured from any particular funding source that need to be mobilized during the implementation period of the NDC.

## C. Adaptation

80. Most NDCs cover adaptation. Kazakhstan is the only country that does not explicitly mention adaptation in its NDC. However, this omission should not be interpreted as a lack of need for climate change adaptation in Kazakhstan. Kazakhstan is expected to face several adaptation-related challenges, including flooding, more extreme weather events and changes in precipitation. Information submitted to the UNFCCC through official communications, reports of international organizations and expert analyses show that, across the region, priority areas in the context of climate adaptation are likely to be critical infrastructure, water supply and sanitation, health, biodiversity, food security and disaster risk reduction. In addition, several countries are expected to prioritize interventions in the areas of tourism and coastal zone protection and marine resources. Adaptation-related issues are closely interlinked with mitigation policies, particularly in the context of energy and infrastructure development. Since climate change is expected to significantly impact water flows in CASC, there is likely to be a need for additional scrutiny when planning hydropower projects and other infrastructure investments. As part of the feedback received in preparing this report, several Parties highlighted that there may be opportunities to further strengthen regional cooperation on water resource management (see table 15).

**Table 15**
**Priority areas in adaptation**

| | Critical infrastructure | Tourism | Water supply and sanitation | Health | Biodiversity | Food security (agriculture, livestock, fisheries) | Coastal zone protection and marine resources | Disaster risk reduction |
|---|---|---|---|---|---|---|---|---|
| Armenia | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ |
| Azerbaijan | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| Georgia | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| Kazakhstan | ✔ | | ✔ | ✔ | ✔ | | ✔ | ✔ |
| Kyrgyzstan | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ |
| Tajikistan | ✔ | | ✔ | ✔ | ✔ | ✔ | | ✔ |
| Turkmenistan | ✔ | | ✔ | ✔ | ✔ | ✔ | | ✔ |
| Uzbekistan | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ |

*Source:* UNFCCC. Based on aggregated data from biennial reports, NCs, NDCs, TAPs and TNAs.

81. Some NDCs and communications submitted to the UNFCCC include estimates of climate finance needs for adaptation. As noted in table 16, Kyrgyzstan and Georgia have undertaken national finance assessments of adaptation needs. Kyrgyzstan estimated that total financial resources of USD 2.83 billion would be required for the implementation of adaptation measures, of which international support needed accounted for USD 2.02 billion.[37] Turkmenistan indicated that its adaptation needs would be met through finance provided from the State budget. Georgia included estimates of adaptation finance needs in its NDCs. It estimated that adaptation measures will cost USD 1.5–2.0 billion for 2021–2030. Estimated economic losses without implementing adaptation measures in Georgia would total about USD 10–12 billion.

**Table 16**
**National assessments of adaptation finance needs**

| | Needs |
|---|---|
| Georgia | The Party's initial NDC estimates the cost of adaptation measures at USD 1.5–2.0 billion for 2021–2030. |
| Kyrgyzstan | Financial resources required for the implementation of adaptation measures are estimated at USD 2.83 billion. |

*Source:* Kyrgyzstan's updated 2021 NDC and Georgia's intended NDC.

37 International support refers to funds not currently secured from any particular funding source that need to be mobilized during the implementation period of NDC.

## D. Estimated finance needs

82. The CASC region's infrastructure finance needs are even greater when taking into account climate change related considerations. While the national finance needs assessments mentioned above provide a valuable reference point, aggregated regional estimates provide a more complete picture of finance needs at the aggregate level in the region. The region is facing an infrastructure financing gap of as much as USD 38 billion per year once climate-adjusted estimates are considered. Even without building in GDP growth forecasts, the expected total financing needs for infrastructure investment alone stand at approximately USD 380 billion for 2021–2030. Considerable effort is needed to bridge the gap between the climate finance needs of countries in CASC and the amounts received from providers of financial resources. CASC is not alone in its need to scale up infrastructure and climate-related investments: other developing regions and subregions face similar challenges (see table 17).

**Table 17**
**Infrastructure investment needs, 2016–2030**
*(USD billion in 2015 prices)*

| | Baseline estimate | | | Climate-adjusted estimate | | |
|---|---|---|---|---|---|---|
| Region/ subregion | Investment needs | Annual average | Investment needs as % of GDP | Investment needs | Annual average | Investment needs as % of GDP |
| CASC | 492 | 33 | 6.8 | 565 | 38 | 7.8 |
| East Asia | 13 781 | 919 | 4.5 | 16 062 | 1 071 | 5.2 |
| South Asia | 5 477 | 365 | 7.6 | 6 347 | 423 | 8.8 |
| South-east Asia | 2 769 | 184 | 5.0 | 3 147 | 210 | 5.7 |
| Pacific | 42 | 3 | 8.2 | 46 | 3 | 9.1 |
| Total | 22 551 | 1 504 | 5.1 | 26 166 | 1 745 | 5.9 |

*Source:* ADB. 2017. *Meeting Asia's Infrastructure Needs.*

## E. Barriers to accessing and mobilizing climate finance

### 1. Capacity barriers

83. Capacity-building was the most commonly identified need in official documents communicated by Parties to the UNFCCC.[38] Across all countries in the region, major gaps exist in addressing adaptation challenges and translating the scientific understanding of climate impacts into policy solutions and development planning. In feedback provided for this report, Parties also highlighted the need for capacity-building activities to strengthen the MRV system for GHGs. The lack of robust MRV was identified by some countries as a key barrier to scaling up climate action and as an impediment to accessing support. Furthermore, Parties emphasized that they needed support for strengthening capacity in preparing viable projects and accessing resources from international climate funds, including for capacity-building and readiness activities.

84. Beyond climate change considerations, there is broader weakness in the institutional capacity of CASC countries to implement climate-related projects. At the subnational level, each country has areas where institutional capacity issues are acute. However, at the aggregate level, Kyrgyzstan, Tajikistan and Turkmenistan have the greatest capacity-building needs for broader institutional support.

38 See table 11 for a list of country communications to UNFCCC.

### 2. Technology barriers

85. CASC countries need access to technology solutions that have proved to be effective in other parts of the world. Demonstrating and deploying new technologies in CASC could play an important role in meeting those countries' needs. On the other hand, CASC countries also need support in modernizing and commercializing technology solutions that have been developed indigenously and are trusted by local communities. One such technology is the anti-hail system developed by Georgia, which shields Georgian agricultural producers from extreme hailstorms.[39] Investing in indigenous technologies to make them safer, more effective, and more commercially viable could greatly strengthen the ability of the region to address climate challenges while at the same time offering solutions to other countries around the world that face the same challenges.

### 3. Financing barriers

86. Capital costs are significantly higher among CASC countries than among developed countries. Professor Aswath Damodaran of New York University estimates that countries in the region have a country risk premium 1.84–6.30% higher than the United States.[40] This means that capital-intensive projects, particularly those with high up-front capital costs, are more costly to implement. This is particularly disadvantageous for renewable energy investments such as wind and solar and to an extent for large hydropower. Since renewable energy projects have a larger proportion of fixed costs relative to variable costs (compared to conventional forms of energy like coal and natural gas), renewable energy projects are more disadvantaged by the higher cost of financing. However, project-specific conditions need to be considered and assessed on a case-by-case basis. Higher capital costs and lack of financial resources also make it difficult for communities to invest in adaptation measures that improve their long-term resilience.

39 Delta Anti-hail system. See http://delta.gov.ge/en/product/anti-hail-system.

40 Damodaran A. 2021. Country Default Spreads and Risk Premiums, January 2021. Available at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html.

# V. Sources of climate finance

## A. International public finance

87. Climate funds, MDBs, and development finance institutions play a critical role in supporting the CASC region in addressing climate change challenges. While these institutions are crucial finance providers, they also play a much bigger role in terms of knowledge dissemination, capacity-building and helping to pilot better ways of addressing climate challenges facing the region.

88. Climate investment needs in the region are being met through several funds, which are detailed below and include the AF, CIF, GCF and GEF. While these funds are the largest and most significant providers of climate finance in the region, they are by no means the only international funds that are supporting climate activities. Other key players include the Global Facility for Disaster Reduction and Recovery, Green for Growth Fund, Sovereign Green Sukuk Framework. The role of MDBs is discussed in section III.B of this report.

### 1. Green Climate Fund

89. The GCF is financing 10 country projects, 21 readiness activities and several multi-country programmes in the CASC region (see table 18 and table 19). Of the 10 country projects approved, five were for adaptation, three were for mitigation and two were cross-cutting. In addition to being an important source of climate finance, the GCF also has a governance structure that is strongly supported by countries in the region. As of February 2021, CASC did not have approved accredited entities at the national and regional level; however, the region works closely with internationally approved entities to develop projects and programmes.

**Table 18**
**Green Climate Fund country support in Central Asia and South Caucasus**

| | Projects approved | GCF grant (USD million) | GCF loan (USD million) | Readiness activities | Readiness approved (USD million) | Readiness disbursed (USD million) |
|---|---|---|---|---|---|---|
| Armenia | 2 | 30.0 | – | 4 | 4.2 | 2.1 |
| Azerbaijan | – | – | – | 3 | 3.8 | 1.1 |
| Georgia | 2 | 66.9 | – | 5 | 0.9 | 0.7 |
| Kazakhstan | 1 | – | 106 | 2 | 0.3 | 0.3 |
| Kyrgyzstan | 2 | 38.6 | – | 3 | 3.4 | 0.5 |
| Tajikistan | 3 | 41.3 | 23 | 3 | 4.0 | 0.8 |
| Turkmenistan | – | – | – | 1 | 0.5 | 0.2 |
| Uzbekistan | – | – | – | 2 | 2.2 | 0.6 |
| Total | 10 | 176.8 | 129 | 21 | 18.8 | 6.2 |

*Source:* GCF website, accessed on 28 February 2021.

**Table 19**
**Green Climate Fund multi-country support with Central Asia and South Caucasus participation**

| | Projects approved | Grant and loan (USD million)[a] |
|---|---|---|
| Armenia | 3 | 88.4 |
| Azerbaijan | – | – |
| Georgia | 2 | 41.9 |
| Kazakhstan | 1 | 42.7 |
| Kyrgyzstan | – | – |
| Tajikistan | 2 | 20.8 |
| Turkmenistan | – | – |
| Uzbekistan | 2 | 56 |

*Source:* GCF website, accessed on 28 February 2021.
[a] The total amount of GCF funding allocated to each country is estimated on the basis of GCF secretariat calculations using best information available. Unless allocation information for projects is provided, for reporting purposes, the GCF secretariat evenly distributes the approved amount of funding to each country in the multi-country proposal.

## B. Global Environment Facility

90. The GEF has a long track record of supporting climate action in the CASC region. Although the GEF is a trust fund set up under the World Bank, its funds can be accessed by countries through any of the 18 institutions that act as GEF agencies. The GEF provides finance in several environment-related focal areas, including climate change. It also manages dedicated climate funds, such as the Special Climate Change Fund, which considers projects outside the climate focal area. In total, the region has accessed over USD 26 million from the Special Climate Change Fund. In addition, countries can access resources in the context of regional projects or based on their individual country allocations. South Caucasus countries have not fully utilized the funds available to them under GEF country allocations. Table 20 presents the climate window allocation (based on resources under the GEF-6 System for Transparent Allocation of Resources) and utilization levels for county support.

**Table 20**
**Global Environment Facility country support in Central Asia and South Caucasus**
*(USD million)*

| | Grant allocation | Grant utilization |
|---|---|---|
| Armenia | 2.0 | 0.3 |
| Azerbaijan | 4.8 | 0.8 |
| Georgia | 2.0 | 0.4 |
| Kazakhstan | 11.8 | 10.9 |
| Kyrgyzstan | 2.0 | 1.9 |
| Tajikistan | 2.8 | 1.9 |
| Turkmenistan | 5.0 | 7.0 |
| Uzbekistan | 11.5 | 11.3 |

*Source:* GEF website, accessed on 28 February 2021.

## C. Adaptation Fund

91. The AF makes available various funding mechanisms that include project funding and grant funding for readiness, innovation, learning and project scale-up. Within the CASC region, one country (Armenia) has accessed readiness funding equivalent to USD 20,000. Several countries in the region have successfully accessed AF project funding (see table 21). In addition to country projects, the AF has also supported a regional project in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan with approved grant funding of USD 6.5 million. This regional project is focused on reducing the vulnerability of populations in the Central Asia region from glacier lake outburst floods in a changing climate and is being implemented by the United Nations Educational, Scientific and Cultural Organization.

92. The AF was the first multilateral climate fund to operationalize the direct access modality, which allows national accredited agencies to access funds directly for project implementation. However, internationally accredited entities have still been the most frequently used modality for project implementation, especially for countries in the CASC region.

**Table 21**
**Adaptation Fund country support with Central Asia and South Caucasus participation**

| | Projects approved | Grant approved (USD million) | Grant transferred (USD million) |
|---|---|---|---|
| Armenia | 2 | 3.9 | 3.4 |
| Azerbaijan | – | – | – |
| Georgia | 2 | 10.0 | 6.3 |
| Kazakhstan | – | – | – |
| Kyrgyzstan | – | – | – |
| Tajikistan | 1 | 10.0 | 1.1 |
| Turkmenistan | 1 | 2.9 | 2.9 |
| Uzbekistan | 1 | 5.4 | 5.4 |

*Source:* AF website, accessed on 28 February 2021.

## D. Climate Investment Funds

93. The CIF has supported the development of climate plans in four countries in the region, of which three have received financing. The funds provided have included support for mitigation-centred activities in Armenia and Kazakhstan. Tajikistan has been a substantial recipient of adaptation funding. Kyrgyzstan has developed an investment plan but has yet to secure project funding (see table 22).

**Table 22**
**Climate Investment Funds country support to Central Asia and South Caucasus**
*(USD million)*

| | CIF funding | Co-financing |
|---|---|---|
| Armenia | 37.8 | 266.1 |
| Kazakhstan | 64.3 | 711.3 |
| Kyrgyzstan | – | – |
| Tajikistan | 72.0 | 87.0 |

*Source:* CIF website, accessed 28 February 2021.

## E. Domestic and regional public finance (public expenditures)

94. One estimate suggests that globally about 76% of all climate finance is invested in the same country in which it is sourced.[41] Understanding the amount and the flows of domestic finance in the CASC region is also important. However, data on domestic finance are not accessible through a centralized database, making it difficult to undertake a quantitative assessment.

### 1. Sovereign wealth funds

95. Sovereign wealth funds within the region could potentially be a large source of climate finance for supporting domestic and regional investments.

96. Oil and gas exporters have the largest sovereign wealth funds in the region. Azerbaijan and Kazakhstan have sovereign funds that undertake significant investments internationally. The State Oil Fund of the Republic of Azerbaijan has about USD 44 billion under management.[42] In addition to low-risk foreign investments, this fund supports domestic expenditure mandated by the Government and provides transfers to the State budget. Kazakhstan's National Oil Fund has about USD 62 billion under management.[43] The investment strategy of the fund is not published but public accounts suggests that it is similar in structure to the State Oil Fund of the Republic of Azerbaijan. Turkmenistan has two funds, a stabilization fund and a foreign exchange fund, although there is limited publicly available information on these funds. The Uzbekistan Fund for Reconstruction and Development is more akin to a development fund than a sovereign wealth fund but some of its characteristics are similar to those of a sovereign wealth fund. It undertakes investment projects, often in partnership with international financial institutions, with the aim of supporting socioeconomic development in Uzbekistan.

97. Oil and gas importers also have sovereign wealth funds, but they are significantly smaller in size and differ in structure. Sometimes they are not even classified as sovereign wealth funds. The Partnership Fund of Georgia, which has a fund portfolio of about USD 0.4 billion, takes proceeds from government-owned companies and invests them in commercially viable projects in Georgia. Kyrgyzstan has a fund that is replenished by proceeds from the Kumtor gold mine and valued at about USD 0.4 billion.[44]

### 2. National pension funds

98. Pension funds have several characteristics that make them a good fit for being climate change investors. One reason is their long-term time horizon, which incentivizes them to be more proactive about managing long-term risks in their investments. They also place a premium on reliability of revenue payouts, which is often a strength of infrastructure assets. Furthermore, pension funds often have statutory requirements to undertake a significant portion of their investments within their domestic markets. The combination of these factors makes pension funds a good match for being climate finance providers domestically and potentially also within the region.

99. Kazakhstan has a large pension fund, which, as of March 2020, had assets of over USD 26 billion.[45] The pension fund is a notable source of the country's local currency liquidity. The financial instruments in which the pension fund can invest and the fund's investment strategy are developed in coordination with the President, the National Oil Fund, the Government and the central bank. About two thirds of all the fund's assets are held in local currency, with the remainder held mostly in USD.[46] The extent to which environmental sustainability

41 Climate Policy Initiative. 2019. *Global Landscape of Climate Finance*, November 2019. Available at https://climatepolicyinitiative.org/wp-content/uploads/2019/11/2019-Global-Landscape-of-Climate-Finance.pdf.

42 State Oil Fund of the Republic of Azerbaijan. Accessed 26 February 2021. See https://oilfund.az/en/investments/information.

43 Eurasianet.org Tracking Kazakhstan's sovereign wealth funds through the last oil slump. See https://eurasianet.org/tracking-kazakhstans-sovereign-wealth-funds-through-the-last-oil-slump.

44 2020 Investment Climate Statements: Kyrgyz Republic. Available at https://state.gov/reports/2020-investment-climate-statements/kyrgyz-republic/.

45 See https://state.gov/reports/2020-investment-climate-statements/kazakhstan/.

46 Unified Accumulative Pension Fund. See https://enpf.kz/en/about/summary/index.php.

or climate change issues are incorporated into decision-making by the fund is unclear.

100. The resources under management of the Uzbekistan Pension Fund are not publicly disclosed. The fund operates on the basis of mandatory contributions of households under a pay-as-you-go scheme, where income from savings and investment are cumulated on personal accounts. The Government exerts total control over investment decisions and has significant influence over the income generated by the fund. International institutions have questioned whether it is appropriate to treat the fund separately from the general government budget.[47] Other pension funds in Central Asia are also largely considered as extensions of government budgets in terms of both assets and liabilities. Uzbekistan has recently announced that it intends to reform the pension system, which could potentially make the fund more independent.[48]

101. Armenia's pension system has two mandatory pension fund managers that offer different investment profiles to pensioners. In total, at the end of 2020 they had about USD 700 million under management. About two thirds of their investments are made in the local currency, with the rest mostly denominated in either EUR or USD.[49] About two thirds of the funds' investments are made through financial instruments and government bonds. At least one of the two fund managers explicitly mentions adherence to sustainable and socially responsible development. However, neither fund manager explains how sustainability and climate change issues are considered in their decision-making.

102. In 2018, Georgia established the Pension Agency, to which all employed adults are required to contribute, although some exemptions apply. The investment policy of the Agency allows it to undertake low-risk investments in Georgia and internationally. The latest audited reports show that at the end of December 2019 the Pension Agency had assets that were valued at about USD 200 million. Its investment policy identifies ESG as an element of a responsible investment framework and commits it to developing an ESG policy.[50] However, it is not yet clear how ESG issues, including climate change, will be considered in decision-making. Since the fund undertakes only low-risk investments, de-risking instruments may need to be made available in order for the fund to consider investing in climate-related activities.

### 3. Private sector

103. The largest providers of international private sector climate finance for renewable energy investments in CASC are project developers, comprising about 59% of total private sector investment. Industrial users and international utilities follow with 17% and 12% respectively.[51] All other international private finance providers, including manufacturers, commercial banks and private equity, make up less than 13% of total international private sector investment in renewable energy across CASC.

104. Green bond issuances constitute a potentially promising mechanism for mobilizing domestic climate finance in the CASC region. The green bond market in the region is at an early stage. The first green bond in the region was for less than USD 1 million and was issued in Kazakhstan in August 2020.[52] Despite the modest scale and nascent status of the green bond market, green bonds have good potential and could help to raise domestic climate finance, including from private sources.

### 4. Climate and green finance initiatives

105. International financial institutions often use local intermediaries for channelling finance, particularly in support of climate and green initiatives. In countries where banking systems are well developed, non-concessional finance is made available through credit lines at local commercial banks. For example, in Georgia, the European Union, in partnership with the European Investment Bank, has made a credit line available to the local banks TBC, BASIS and Crystal in support of a green growth programme. The programme allows SMEs to take out loans of EUR 60,000 (in local currency equivalent) for financing specified activities, including investment in water storage and irrigation technologies, installation of new boilers and insulation of properties, as well as major energy efficiency investments. In addition, green finance initiatives are supported on a grant basis. However, these tend to be small projects, usually financed through bilateral agencies, that are either focused on piloting or have a broader agenda of strengthening the bilateral relationship.

### 5. International debt swaps

106. Well-designed debt for environment swaps have the potential to generate additional public expenditure on environmental activities, which would also have climate co-benefits. International debt swaps can take different forms but are most commonly negotiated as part of debt restructuring of public long-term debt vis-à-vis official bilateral creditors. Usually there are specific qualifying criteria. In exchange for a partial cancellation of its international debt, the debtor government commits to mobilizing the equivalent (or agreed amount) in the local currency for specific purposes.

107. Debt for environment swaps were attempted between major creditor countries[53] and debtor countries in the region in the early 2000s (Georgia and Kyrgyzstan)

47 IMF. 2018. Strengthening Fiscal Transparency: Republic of Uzbekistan, December 2018.

48 See https://kun.uz/en/news/2021/02/01/uzbekistan-to-introduce-a-cumulative-pension-system.

49 Armenia Securities Exchange. See https://cda.am/en/37/information-centre/72/pension-system.

50 Pension Agency of Georgia, investment policy document. Available at https://pensions.ge/.

51 See footnote 33.

52 AIX News. *Damu Fund has listed the first green bonds on AIX*. Available at https://aix.kz/damu-fund-has-listed-the-first-green-bonds-on-aix/.

53 Major creditor countries included members of the Paris Club and others (such as Turkey). See clubdeparis.org.

but the negotiations were unsuccessful. Debt for environment swaps have historically been complex to design and negotiate.[54] However, such arrangements could be particularly beneficial in realizing opportunities through nature-based solutions where the generation of climate co-benefits often depends on long-term public expenditure. In this context, there are significant opportunities in the forestry sector throughout the region. Armenia, Azerbaijan, Georgia, and Kyrgyzstan have identified the forestry sector as a priority in the context of climate change mitigation in their official communications to the UNFCCC. In addition, restoring degraded and damaged forests in the region has been identified by international initiatives, such as the Bonn Challenge, as an effective option for climate mitigation action in the region.[55] Furthermore, an international study, State of Forests of the Caucasus and Central Asia, highlights the role played by forests in the region in sequestering CO2 emissions.[56]

108. Attempts at debt for environment swaps have been largely focused on finding common ground in addressing regional environmental challenges, incentivizing creditors in close geographic proximity to debtor countries. However, with the growth in importance and urgency of the climate issue, more geographically remote creditors may be interested in participating in debt for environment transactions.

54 OECD webpage. Debt-for-Environment swaps. See https://oecd.org/env/outreach/debt-for-environmentswaps.htm.

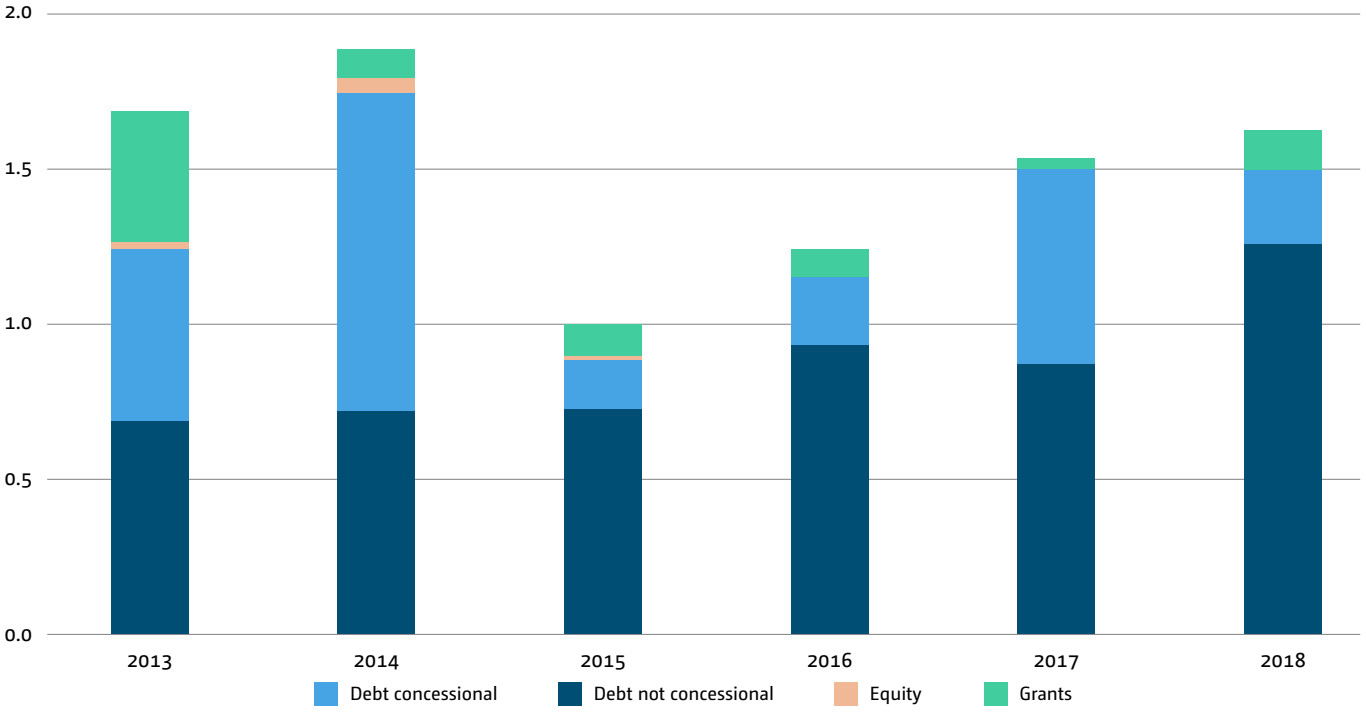
55 International Union for Conservation of Nature. 2018. Forest Brief No. 23. June 2018. Available at https://iucn.org/sites/dev/files/content/documents/20180621_bc-central-asia_fbrief_web.pdf.

56 United Nations Food and Agriculture Organization and United Nations Economic Commission for Europe. 2019. *State of Forests of the Caucasus and Central Asia*. Available at https://unece.org/fileadmin/DAM/timber/publications/sp-47-soccaf-en.pdf.

# VI. Financial instruments

109. International public flows use a combination of financing instruments to deliver climate finance. At the aggregate level, three broad types of instrument were used in CASC in 2013–2018, namely debt, equity and grants. Debt-based instruments included concessional and development loans, non-concessional loans and non-specified loans. Equity instruments consisted of concessional and development equity and non-concessional equity. Grants included concessional, development and private concessional instruments. Flows fluctuate between years and instruments; however, as illustrated in figure 13, aggregate climate finance has been on an upward trajectory since 2015.

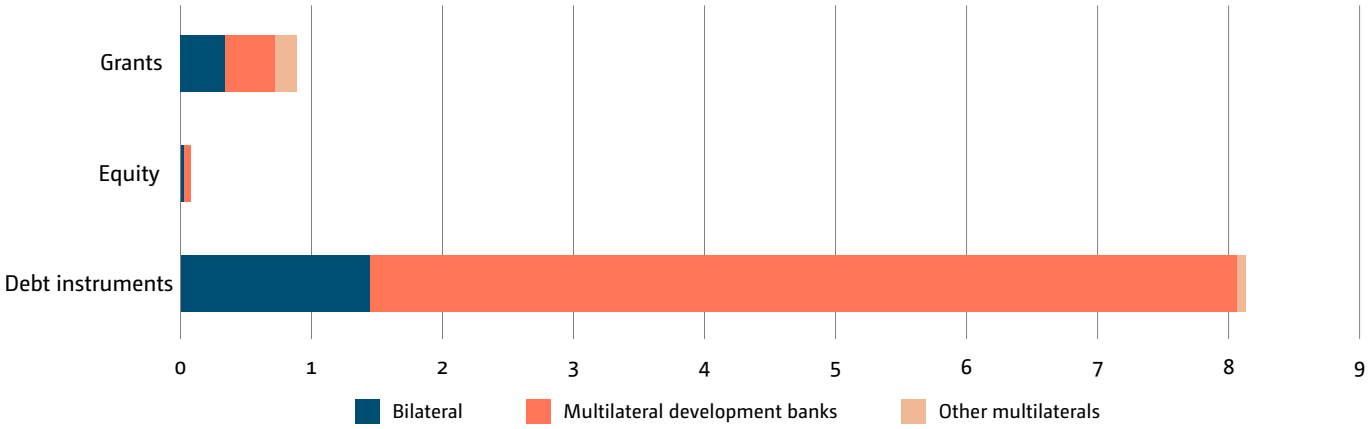
**Figure 13**
**International public climate finance for Central Asia and South Caucasus by financing instrument**
*(USD billion)*




*Source:* UNFCCC. Based on OECD reports.

110. On aggregate, in 2013–2018, debt instruments comprised about 89% of all international climate finance in CASC, of which about two thirds was based on non-concessional or unspecified debt instruments. This means that only about a third of all debt was concessional. Grants made up about 10% of all climate finance in the region. The remaining 1% of international climate finance was through equity instruments. As illustrated in figure 14, the vast majority (78%) of climate finance flowed from MDBs, with debt instruments accounting for 94% of MDB finance. Bilateral support accounted for about 20% of climate finance and was also comprised mostly of debt instruments (81%).

**Figure 14**
**International public climate finance for Central Asia and South Caucasus by financing instrument and channel**
*(USD billion)*




*Source:* UNFCCC. Based on OECD reports.

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is available on the UNFCCC webpage

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