



REVIEW

IMPLEMENTATION OF THE ENVIRONMENTAL CONVENTIONS IN CENTRAL ASIA

UN FCCC
UN CCD
UN CBD

Author: Zhanel Karina

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REVIEW OF IMPLEMENTATION OF THE INTERNATIONAL ENVIRONMENTAL CONVENTIONS IN CENTRAL ASIA

This review is prepared to provide general information about the participation of CA countries in the processes attributed to the global environmental policy and international environmental law. The review provides a summary of international environmental law and the participation of CA countries in its development, the status of ratification of major international environmental agreements (MEAs) in Central Asia, and analysis of country participation in selected MEAs: the United Nations Framework Convention on Climate Change (UNFCCC), the Convention The United Nations Convention to Combat Desertification (UNCCD) and the Convention on Biological Diversity (CBD).

Executive summary

Since independence, five Central Asian countries - Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan and Tajikistan - have entered into a completely new era in natural resources management. Countries needed to find new approaches regarding the use of natural resources and address many cross-border issues, relying on international practices and protecting their national interests. In order to confirm their sovereignty and global status, CA countries actively joined the international processes and are now parties to a significant number of international environmental treaties. Various regional and sub-regional agreements and conventions on environmental protection have also been concluded between countries at the regional level. Thus, in addition to the national legislation, the system of legal regulation of environmental cooperation in Central Asia is represented by multilateral environmental agreements, regional, sub-regional and bilateral agreements and conventions.

On the one hand, this fact shows the legal development in the region; while on the other hand, there is a failure to fulfill the obligations undertaken within the framework of environmental treaties. Accession and ratification of international legal instruments in the field of environmental protection and development is an important element of the fulfillment by CA countries of their obligations to the international community. However, often commitments undertaken by countries under certain agreements are not implemented at the national and regional levels, which reduce the effectiveness of global efforts to address specific environmental challenges and achieve sustainable development. In addition, inadequate participation of countries in international agreements leads to a decrease in awareness, a weakening of the country's capacity and capability, and as a result, might lead to potential isolation of the country from the ongoing global processes, reforms, including opportunities of attracting technical and financial assistance, data and knowledge.

Despite the availability of case study on awareness and promotion of MEAs, such as the web-page "Global Environmental Conventions of the United Nations in Kyrgyzstan"¹, which cover the activities carried out within Rio conventions in the Kyrgyz Republic, the level of sharing of data and information s on the implementation of conventions and the quality of relevant analytical materials in the region remains at low level.

In the meantime, Central Asia, inheriting environmental problems from the Soviet era with the irrational practices of natural resource management, has become a vulnerable region to environmental challenges; every year it is becoming increasingly difficult to address those challenges. Climate change, depletion of water resources, soil degradation, air pollution and loss of biodiversity pose a threat to the ecological, economic and social security of the CA countries. These problems do not stay within national borders, but in order to address them it is important to have a legal and institutional framework, able to facilitate the effective implementation of MEAs and other agreements at the national and regional level.

¹ Facebook page «Global Environmental Conventions of the United Nations in Kyrgyzstan» @rioconventionskg, covering the activities carried out within the Rio Conventions in the Kyrgyz Republic

1. Brief information on the international environmental law and participation of CA countries in development of the international environmental law

International Environmental Law is concerned with the attempt to control pollution and the depletion of natural resources within a framework of sustainable development. It is a branch of public international law - a body of law created by states for states to govern problems that arise between states. International Environmental Law covers topics such as population, biodiversity, climate change, ozone depletion, toxic and hazardous substances, air, land, and sea and transboundary water pollution, conservation of marine resources, desertification and etc.

As per Article 38 of the Statute of the International Court of Justice, applicable sources of International Environmental Law are:

- International conventions, whether general or particular, establishing rules expressly recognized by the contesting states;
- International custom, as evidence of a general practice accepted as law;
- The general principles of law recognized by civilized nations;
- Subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.

The emergence of international environmental law is directly linked with the complex and global nature of environmental problems that require close, long-term and multifaceted cross-border cooperation. One of the most important branches of international law has been developing particularly rapidly over the past 45 years [1] and has had a significant impact on the national legislation of many countries [2]. In the international legal literature, various approaches are used to distinguish the stages of formation of international environmental law, including duration of such stages.

Special principles play an important role in international environmental law. Currently, such special principles are now most fully unofficially codified in the draft International Covenant on Environment and Development [5]. Initially 9 such principles has been adopted: ensuring compliance with constitutional environmental human rights; no cross-border harm to environment; environmentally sound rational use of natural resources; no radioactive contamination of the environment; protection of ecological systems of the World Ocean; prohibit effectively military or any other hostile use of environmental modification; ensuring environmental safety; States recognize the liability for environmental damage; precautionary principle or approach [3].

Most descriptions of the historical evolution of international environmental law distinguish four major "periods" or "phases" [3]:

- 1) The first phase (1839-1948), which in some sources is referred as the "traditional era" [4], originates from the bilateral Convention for Defining and Regulating the Limits of the Exclusive Right of the Oyster and Other Fishery on the Coast of Great Britain and of France as of August 2nd, 1839. During this period, fragmented efforts at the bilateral sub-regional and regional levels were undertaken to protect and preserve selected wildlife sites.
- 2) The second phase (1948-1972), also known as the "Pre-Stockholm era", is characterized by the strengthening of the institutional framework of international environmental cooperation. During this period, the UN and its specialized agencies were established, as well as a number of international non-governmental environmental organizations, the leading role of which belongs to the International Union for the Conservation of Nature and Natural Resources (IUCN was, established in 1948).
- 3) The third phase (1972-1992), called the "Stockholm era", begins with the First UN Conference on the Human Environment in Stockholm and establishment, as recommended, of the institution, - United Nations Environment Program (UNEP). UNEP as a subsidiary body of the UN General Assembly is mandated to coordinate the efforts of international organizations and states in the field of international environmental protection.
- 4) The fourth phase (1992-2017), a modern period in the history of international environmental law, sometimes referred to as the "Rio de Janeiro era," originates from the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, that took place in June 1992. With documents adopted during said Conference, the international environmental cooperation shifted towards socio-natural development

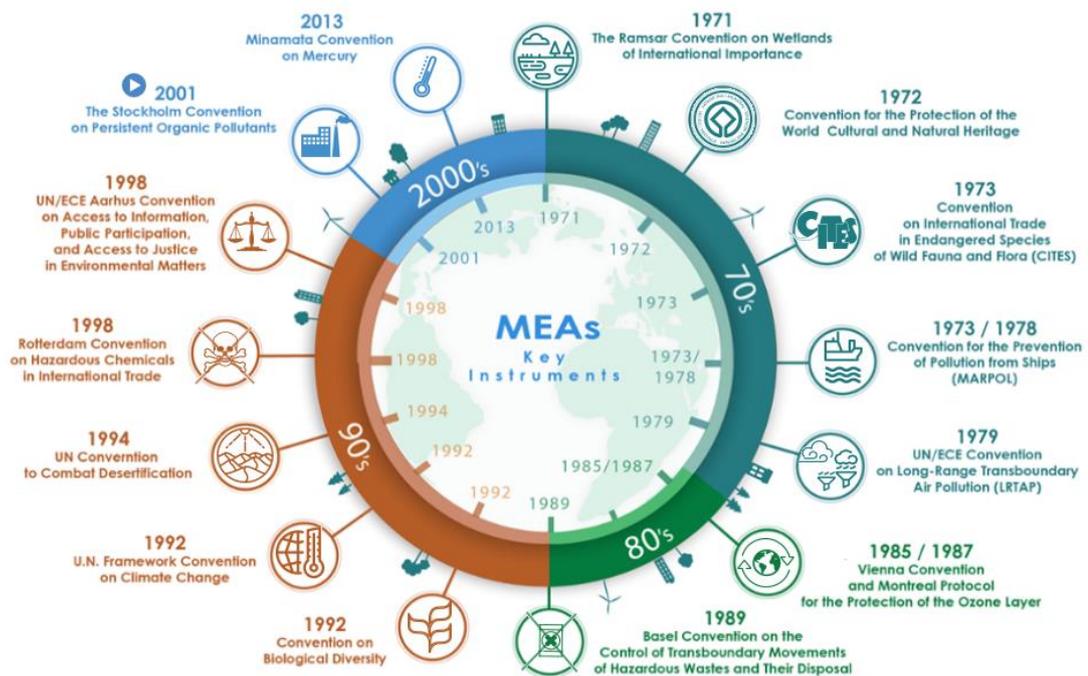
New principles and rules have emerged and been refined. The focus has shifted from a near exclusive concern with negotiating new legal instruments to one concerned with implementing and complying with international agreements. These developments can be grouped as follows:

- 1) The linkage of international environmental law with other areas of law - namely, international economic law, human rights law, and national security law;
- 2) The rise of actors other than States in shaping international environmental law, namely the multilateral development banks through their policies and procedures, the private sector through voluntary codes of conduct and green standards, public-private partnerships, and stockholder efforts, and nongovernmental organizations and civil society generally through diverse means;
- 3) The development and refinement of new international principles and rules of international environmental law and the increase in non-legally binding instruments; and
- 4) A new emphasis on implementation of and compliance with international environmental agreements [1]

International conventions, both general and special, as well as multilateral (MEAs) and bilateral ones shall be considered as the sources of international environmental law [2]. MEAs are usually defined as legally binding instruments between two or more States that deal with an environmental related aspects and issues. MEAs are an essential tool for implementing global environmental policies and play an important role in achieving the sustainable development goals [6], despite the existing criticism about their effectiveness [7, 8]. With intensified use of international treaties as an effective mechanism to address global environmental problems, serious concerns have arisen regarding the compliance of States with commitments to which they agreed under a MEA. One of the reasons for these trends is the inadequate investment in assuring effective compliance and enforcement of these legal instruments at the national level due to various reasons including the administrative and financial capacity of governments to translate these important multilateral agreements into reality. [9]

MEAs of some sort have been in place for about a hundred years. These instruments have flourished enormously in the last three decades especially after the 1972 International Stockholm Conference on Human Environment which also established UNEP. The Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar Convention) was one of the first MEAs. More than 60% of the operating MEAs were adopted after 1992. The desktop analysis did not allow determining the exact number of MEAs in the world at present, in various sources the figures range from 216 to 1,280. One source refers to the UNEP Register which tells about 216 operating multilateral environmental agreements (agreements, conventions), including protocols to them. Others indicate that currently there are now more than 500 international treaties related to environment, of which 323 are regional in focus. As has been noted, some studies have counted a conservative estimate of 700 MEAs currently in place [10]. The IEA Database suggest that globally there are more than 1,280 MEAs, 2,100 bilateral agreements and 250 other environmental agreements have been signed, ratified and entered into force.

Conventionally, there are seven large groups of international agreements in the field of environmental protection and protection of environmental human rights concerning the following issues: international legal regulation of the protection of environmental human rights; international legal protection of biodiversity; international issues of protection of water bodies, including the marine environment; international protection of atmospheric air, ozone layer, climate; international legal protection of ecosystems; international legal issues related to emergencies, the handling of hazardous wastes and substances; international criminal and environmental law [11]. Consequently, the MEAs cover through their regulation all the main natural resources (water, land, vegetation, wildlife resources, atmosphere and etc.).



Source: United Nations Information Portal on Multilateral Environmental Agreements (www.informeia.org)

With the declaration of independence, CA countries are actively involved in the global cooperation process. CA countries have joined the United Nations, and the activities of international organizations are expanding across the region. By the decision of the heads of state of Central Asia, several regional platforms were established, including the International Fund for Saving the Aral Sea (IFAS) in 1993, the Interstate Commission for Sustainable Development of the Aral Sea Region (IACSD) in 1995 and the Regional Environmental Center for Central Asia in 2001. Involvement of Central Asian countries in international cooperation also takes place through greater participation in environmental agreements at the global and regional level.

However, despite the participation of CA countries in subsequent Conferences of the Parties following the ratification of the MEAs, often CA countries rarely make statements on international platforms. In general, we might highlight the lack of a unified "voice" of the CA region on the international MEAs arena, where existence of such voice could influence the development of international environmental law and global environmental policy.

2. Ratification status of major MEAs in Central Asia

The Central Asia countries are parties to a significant number of international environmental treaties. The status of the MEAs ratification by Central Asian countries is available in Annex 1. All five countries are parties to key MEAs such as the United Nations Framework Convention on Climate Change, the Convention on Biological Diversity and the Convention to Combat Desertification. Also, all CA countries are fully represented as parties to the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer, as well as biodiversity conventions (CITES, CMS, Ramsar) and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. With regard to UNECE conventions, such as the Air Pollution Convention, the Water Convention, the Espoo Convention, the Industrial Accidents Convention, the Aarhus Convention, which are considered in a transboundary context and implementation of such conventions requires cross-border cooperation, countries representation is uneven. Only Kazakhstan is a party to all five UNECE Conventions, while Kazakhstan has not ratified individual protocols to these conventions.

Below table provides information on the year of ratification of the three conventions that are subject of this review (disaggregated by countries).

	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
UN FCCC	1995	2000	1998	1995	1993
UN CBD	1994	1996	1997	1996	1995
UN CCD	1997	1997	1997	1996	1995

3. The UN Framework Convention on Climate Change: Analysis of CA Stakeholders

As per IPCC's report [12] - "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia". Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history: this has led to atmospheric concentrations of greenhouses that are unprecedented in at least the last 800,000 years. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen. Increase in the number of heavy precipitation events is observed in a number of regions.

Climate change will amplify existing risks and create new risks for natural and human systems. Climate change affects various natural processes and is the cause of natural disasters. For example, the rapid melting of glaciers triggers intensive mudflows, landslides and floods. Impacts from recent climate-related extremes, such as heat waves, droughts, floods, cyclones and wildfires, reveal significant vulnerability and exposure of some ecosystems and many human systems to current climate variability. Risks are unevenly distributed and are generally greater for disadvantaged people and communities in countries at all levels of development.

The UN Framework Convention on Climate Change as a global platform

UNFCCC entered into force on 21 March 1994 and ratified by 197 countries. This treaty reflects the general principles of joint action to contain the global climate change. The objective of UNFCCC and associated legal documents is to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". We might highlight two main areas of UNFCCC – (1) emission reduction [to prevent climate change] and (2) resilience [to reduce vulnerability and enhance resilience to changes and impacts]. Since 1995, The United Nations Climate Change Conference are yearly conferences held in the framework of the UNFCCC. They serve as the formal meeting of the UNFCCC Parties (COP²) to assess progress in dealing with climate change. COP serves as a supreme legislative body of the UNFCCC.

The Kyoto Protocol was adopted in Kyoto, Japan on 11 December 1997. The conditions of the Kyoto Protocol consist of mandatory targets on greenhouse gas emissions for the world's leading economies, since they are responsible for the largest share of current and historical greenhouse gas emissions. Kyoto Protocol entered into force on 16 February 2005 and since then the Conferences of Parties have also served as the Meetings of Parties of the Kyoto Protocol (CMP) to review the progress on implementation of the Kyoto Protocol.

The key focus of the Paris Agreement is reflected in Article 2. In addition, the Paris Agreement stipulates that developed countries will allocate funds to a special climate fund to assist more vulnerable states in developing and implementing national plans for resilience and combating the climate change, and funds for transition to the widespread use of renewable energy sources.

² Conference of Parties

Meetings of representatives of member-states of the Paris Agreement will also be held simultaneously with the UNFCCC COP.

Article 2 of the Paris Climate Agreement

1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

- (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;
- (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and
- (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.



Source: The Structure of UNFCCC bodies and the Kyoto Protocol <http://bigpicture.unfccc.int/>

Two permanent subsidiary bodies were established within the UNFCCC: the Subsidiary Body of Implementation (SBI) and the Subsidiary Body of Scientific and Technological Advice (SBSTA).

Both SBI and SBSTA facilitate CMP³ and CMA⁴ meetings. In addition, there are such institutional arrangement and specialized bodies such as Adaptation Committee, Standing Committee on Finance, Technology Executive Committee and others.

Since 2016, via Ad-Hoc Working Group on Paris Agreement, Parties develop set of rules for Paris Agreement. This process is also facilitated by SBI, SBSTA with participation of official and oversight bodies. Thus, a complex institutional “architecture” for global climate management was developed in line with the Convention and the Kyoto Protocol. This “architecture” is currently being developed and enhanced under the Paris Agreement.

All five CA countries signed the Paris Agreement and committed to fulfill climate change related obligations (NDCs⁵). Currently, the Paris Agreement is ratified in Kazakhstan, Tajikistan and Turkmenistan.

Climate Change in Central Asia: status, projection, consequences

Central Asia, characterized by a sharply continental dry climate with significant seasonal and diurnal temperature fluctuations and uneven distribution of precipitation, is one of the regions that are most vulnerable to climate change. The World Bank has assigned the highest level of vulnerability for four out of five Central Asian countries among the 28 countries of Europe, the Caucasus and Central Asia, recognizing Tajikistan and Kyrgyzstan as the most vulnerable ones [13].

Temperature increases in Central Asia have been above global average, as exemplified by an average temperature increase of 1.2 to 2.1 °C in the region since the 1950s [14]. Weather records clearly confirm that the surface temperature is rising in Central Asia. It increased by 0.65°C between two thirty-year climate reference periods (1942-1972 and 1973-2003) [15]. In Kazakhstan and Uzbekistan the temperature has increased by 0.8-1.3°C over the past 100 years with increasing rates since the 1950s at 0.3°C per decade. Almost everywhere in the region, climate warming in the winter months is more pronounced than in other seasons. It accounts for the majority of the temperature increase.

Precipitation is distributed unevenly across the region, and their frequency varies by season. The mean annual precipitation during the last century has ranged between 60 mm to 1,180 mm across different localities in the region [16]. At the same time climate change is projected to cause more precipitation in northern of Central Asia and less in the south. It is also most likely that winter precipitation will increase, while summer precipitation will decrease [17]. Monthly precipitation in Central value was high, based on validation against observational data, and used to detect the spatial and temporal trend of precipitation in Central Asia and four sub-regions during 1960–2013 [18]. No significant trends were observed for annual precipitation in Central Asia, while precipitation in winter displayed a significant increase (0.11 mm/year). Additionally, significantly increasing trends were detected in spring, summer, autumn, and winter over the Southeast during 1960–2013. At the same time, frequent droughts of the spring, summer and autumn periods will be observed.

The changing climate of the last 100 years, especially since the 1950s, has had a negative impact on the glaciers, snow covers and permafrost. More than 46 glaciers in the region are currently melting. Some of the small glaciers (smaller than 0.5 km²) have totally melted. In the last 50-60 years, between 14% to 30% of the Tien Shan and Pamir glaciers have melted. The glaciers melting rate in Central Asia, which is the main reserve for feeding rivers and the most important source of fresh water, is 0.2-1% per year [15].

³ CMP - Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol

⁴ CMA - Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement

⁵ Nationally Determined Contributions - NDCs

Rapid melting of glaciers and a decrease in snow cover in winter affect the hydrology of the region. Melt water from snow, glacier and permafrost supplies around 80% of the total river runoff in Central Asia [15]. Despite the short-term increase in runoff due to melting of glaciers, in the long term, assessing the region's water resources, taking into account climate change, shows that none of the climatic scenarios depicting warming suggests the increase in available water resources. By 2050 the water flow of the Amu Darya may be reduced by 10-15% and the Syr Darya by 6-10%, as a result of the loss of glaciers and permafrost, higher temperatures, increased evaporation and reduced surface runoff [19].

As per IPCC forecast, by 2100 global warming will be likely 1.5° C to 4.8 °C above pre-industrial temperatures [17]. Climate change scenarios for Central Asia suggest a 1° to 3°C increase in temperature by 2030-50 [15]. Such an increase in temperature can lead to serious consequences for people and ecosystems.

Climate change contributes to an increasing risk of extreme weather events and climate-related hazards, such as heavy rainfall, droughts, floods and mudflows, extreme heat, dust storms and forest fires [19]. In Kazakhstan and Uzbekistan, because of their location in the steppe, semi-desert and desert areas, prolonged droughts and strong winds are common, which affects the yield of agricultural land. For mountain countries - Tajikistan and Kyrgyzstan, as well as southeastern Kazakhstan, the risks of mudflows and floods are higher. Over the past ten years, a series of glacial floods occurred in the mountains of this area.

As per ADB's interim report, the mean costs of climate change impacts for Central West Asia are estimated to be around USD 1.5 million per year in 2010, but are likely to increase to USD 547 million per year by 2050 and USD 1,796 million by 2100. The economic impacts of reduced river flow and irrigation water availability on the agriculture sector attributed to a decline in crop production by 2100 for Kyrgyzstan to be in the order of USD 103 million and USD 177 million for Tajikistan. In Kyrgyzstan the damages of natural disasters are currently in the order of USD 32-35 million annually [21].

Agriculture, energy, water and land resources, biodiversity and human health in Central Asia will be affected by climate change. Taking into account that agriculture in Central Asia is one of the most important economy sectors, climate change induced natural disasters pose a serious threat to the food security of both the region and neighboring food-importing countries. A great deal of damage associated with changes in the seasonal dynamics of the river flow will be inflicted on the irrigated agricultural production sector, which uses more than 80% of the region's water resources. And the productivity of grain/cereals in Central Asia can be reduced to 30% [17]. Low river runoff will have negative impact over hydraulic facilities. Additionally, Central Asia is heavily dependent on hydropower to generate electricity; it is expected that energy security could become an issue [22]. The climate change exacerbates desertification and land degradation effects, poses a threat to biodiversity and causes a shift in plant area, increases social risks and affects environment-related health factors - clean air, safe drinking water, food in sufficient quantities and shelter.

Regional cooperation on climate change

Being the Parties to the UNFCCC, the CA countries regularly submit their National Climate Change Communications, conduct national inventory of greenhouse gas emissions and sinks, vulnerability and adaptation assessments, and formulate measures to mitigate the climate change and contribute to capacity building and awareness raising [23]. However, despite the fact that the climate change issue and its consequences are common for the entire region, there is currently no operational regional action program for mitigation and climate resilience in the Central Asia.

In 2010-2014, the UNDP Project "UNDP Central Asian Multi-Country Program on Climate Risk Management" was implemented. The regional component of the program included strengthening the human resources capacity to manage the climate change risks; dissemination of knowledge

and lessons learned from changes in national development processes to include risks and opportunities associated with climate change; increase knowledge and awareness level of the glaciers degradation in the Central Asia. The program also included national projects in each country of the Central Asia.

A regional platform for knowledge sharing and discussion of the climate issues is the Central Asian Knowledge Forum on Climate Change, organized by the World Bank in 2013. At the First Central Asian Forum held in June 2013, it was proposed to hold similar conferences to discuss climate change issues annually in order to be able to discuss current trends and to consolidate the existing potential at the regional level. During the Second Central Asian Forum held in May 2014, a proposal was made to implement an initiative to combat climate change at regional level and through joint regional actions.

The Regional Environmental Centre for Central Asia (CAREC), through its Climate Change and Sustainable Energy Program, also contributes to the promotion of climate cooperation in the Central Asian region. An example of the regional cooperation is the preparatory work organized by CAREC before the Conference of the Parties in Paris in 2015. CAREC, with the support of donors, held a regional conference on climate change – “Towards Paris⁶”, which resulted in identification of priorities for adaptation, mitigation and capacity building, which are of a general regional nature and attract the interest of all five Central Asian countries. The result of the Paris process was the participation of the region countries in the parallel session of the Conference of the Parties (December 4, 2015, Paris), at which opportunities for joint regional actions for implementing the global climate agreement were announced.

In each CA country, separate projects on climate change are being implemented, and in general, climate investments in projects in this vulnerable region have increased. As of 2014, the Central Asian countries received about \$ 105 million for adaptation projects, where Tajikistan has become the largest recipient with more than \$ 77 million dollars solely for adaptation activities [23].

The issues of climate change in Central Asia are addressed in the framework of such regional GIZ projects as the Program for Sustainable Use of Natural Resources in Central Asia (2002-2015), the Ecosystem Approach for the Climate Resilience in the Highland Regions of the Asia (2015-2019), Sustainable Land Management Program for Climate Change for Economic Development in Central Asia (2016-2019).

An example of a large-scale regional project is the 5-year CAMP4ASB Project "Climate Adaptation and Mitigation Program for the Aral Sea Basin". The project is aimed at addressing common problems and challenges related to the climate change effects in the Central Asian countries through the increased access to the improved knowledge and data on climate change for the key stakeholders, and through the increased investment and technical capacity building.

Within the framework of the project and as a continuation of the First and Second Forum, on 24-25 January 2018, the Central Asian Conference on Climate Change was held. Conference was attended by more than 200 representatives from various sectors. Participants learnt about the latest global discussions and tendencies in climate change, received information on best practices, research, innovative technologies, financing opportunities for climate change, and considered opportunities to strengthen cooperation in the implementation of the Paris Agreement and the 2030 Sustainable Development Agenda through multilateral regional partnerships to achieve the Global Program of Action on Climate Change.

⁶ Outcomes of the regional conference are available at https://carececo.org/main/news/zaklyuchen-itogovyy-dokument-regionalnoy-konferentsii-na-puti-v-parizh-2015-/?sphrase_id=141350

National efforts and measures: The Republic of Kazakhstan

Kazakhstan is taking political measures aimed mainly at mitigating than adapting to climate change. Under the Kyoto Protocol, the country pledged to limit emissions to a level close to 1990 levels. The main legal and regulatory framework, referred to by the Government of the Republic of Kazakhstan with the reduction of greenhouse gas emissions through its own efforts, is the Law on Energy Saving and Energy Efficiency, the Law on Support for the Use of Renewable Energy Sources and the Concept for the Transition to the Green Economy [25]. They set out specific targets for reducing emissions in the energy sector by 2020 and by 2030, as well as goals related to energy efficiency. The system of quota trading, created in 2014 - 2015, covers facilities and industrial enterprises, the emissions of which amount to more than 20 thousand tons per year.

Kazakhstan presented its preliminary obligations related to climate change (INDC), expressing its preparedness to reduce the greenhouse gas emissions by 15% (40,097.7 Gg CO₂e) compared to the base year 1990 (267,298 Gg CO₂e) by 2030. Subject to the external assistance, including the transfer of new technologies and favorable economic conditions, Kazakhstan is ready to reduce emissions from 25 to 34% (i.e. from 66,824.5 to 90,881.32 Gg CO₂e-eq) in the period 2021-2030.

Regarding the issues of the climate resilience, the developed Strategy for the Climate Resilience in Kazakhstan and the draft Law of the Republic of Kazakhstan "On Amendments and Additions to Certain Legislative Acts of the Republic of Kazakhstan on Adaptation to the Consequences of Climate Change" have not yet been adopted at the legislative level.

National efforts and measures: The Kyrgyz Republic

The general framework of the country's environmental policy, including the ones on climate change, has been established in the National Sustainable Development Strategy of the Kyrgyz Republic for the period 2013-2017. The legal framework for inventorying is defined by the Resolution of the Government of the Kyrgyz Republic "On measures to implement the United Nations Framework Convention on Climate Change" and the Law of the Kyrgyz Republic "On State Regulation and Policies in the Greenhouse Gas Emissions and Sinks" [25]. In order to guide and coordinate actions to implement Kyrgyzstan's international obligations under the UNFCCC in 2012, an interdepartmental Coordinating Commission on Climate Change was established. Its structure includes heads of the key government departments, and the working body is SAEPF. In 2014, at the initiative of SAEPF, the Climate Dialogue Platform of Kyrgyzstan was established, the mechanisms of which allow ensuring a multidisciplinary and comprehensive regular exchange of information, knowledge and experience at the national level among all interested parties [26].

The intended nationally-determined contribution of the Kyrgyz Republic highlights resilience as a priority for the country. The process of preparing for resilience actions was launched in the country, which consisted of two stages. At the first stage, a common document was prepared for the country as a whole - Priority directions for the climate resilience in the Kyrgyz Republic until 2017. At the second stage, key ministries and agencies, based on Priority Areas, prepared the sectorial programs and plans for the climate resilience that include assessing the current state of the sector, assessing the vulnerability and rationale for climate resilience and, in fact, assessing the required costs for their implementation. The sectorial programs and plans that have been prepared for the sectors are as follows: water resources and agriculture, emergencies, health, forestry and biodiversity [26].

Regarding the emission reduction plans announced at INDC, the Kyrgyz Republic plans to reduce greenhouse gas emissions by 11.49-13.75% relative to the 'business as usual' scenario by 2030. The long-term goal is to reduce GHG emissions by 12.67-15.69% relative to the 'business as usual' scenario by 2050 (Annex 2).

In September 2016, right after the accession to Paris Agreement of the, the Government of the Kyrgyz Republic, with the support of UNDP-GEF and the Ministry of Foreign Affairs of Finland, organized a High-Level Conference "From Paris to Bishkek: Towards a Climate-Sustainable Development of Kyrgyzstan", which was the starting point in the formation of country's climate change policy beyond 2017. In August 2017, the Climate Finance Center under the Government of the Kyrgyz Republic was established. In 2017, together with UNDP, the application for the support of the National Process for Adaptation to Climate Change was developed and submitted to the Green Climate Fund. To increase the effectiveness of monitoring the implementation of the UNFCCC, in 2018, the State Agency for Environmental Protection and Forestry under the Government of the Kyrgyz Republic (SAEPF) and the National Statistical Committee of the Kyrgyz Republic, with the support of the UNDP-GEF project "Strengthening Institutional and Legal Capacities for Improving the National Management System and monitoring of environmental information" have started to carryout pilot activities of a set of key climate change indicators and the development of a Road Maps for improving climate change related statistics in the Kyrgyz Republic.

National efforts and measures: The Republic of Tajikistan

Tajikistan's national priorities for ensuring environmental sustainability and rational natural resources management are reflected in the National Development Strategy of the country for the period 2016-2030 [27]. Currently, the climate policy in Tajikistan is supported by the National Action Plan for Climate Change Mitigation (NAP) adopted in 2003, and will continue to be implemented within the framework of the National Strategy for Climate Resilience, which is being approved by the Government of the country. Tajikistan was one of the first countries in the region which started preparing the Fourth National Communication.

Tajikistan's preliminary commitments related to climate change (INDC) reflect the country's willingness to reduce greenhouse gas emissions by 10-20% (from 2.55 to 5.1 Mt CO₂eq) by 2030 by its own efforts, with international support from 25 to 35% (i.e., from 6,375 to 8,925 Mt CO₂ eq) by the year 2030 (Annex 2).

The issues of the climate resilience are priorities in the climate policy of Tajikistan. In terms of the climate resilience, a number of activities are listed in the provisional commitments, but it is stated that the own financial resources are insufficient to implement all the envisaged programs. The own efforts to implement adaptation measures are envisaged in the context of the national programs and action plans for the development of hydropower, agriculture, water management, glacier protection, and disaster risk reduction.

In view of its high vulnerability to climate change and its low adaptive capacity, Tajikistan has received international funding under the Pilot Program for Climate Resilience since 2009. The volume of financing of this program and other climate-related projects in Tajikistan is about 150 million US dollars in the form of loans, grants and funding of activities in the area of hydropower, agriculture, land use, water basin management and others [25]. Through its work with international accredited organizations, Tajikistan has access to the Green Climate Fund. Tajikistan became the first country in which the EBRD launched the Climadapt program, a 10 million USD pilot program for the EBRD aimed at promoting adaptation to climate change.

National efforts and measures: The Republic of Turkmenistan

The strategy of the economic, political and cultural development of Turkmenistan for the period until 2030 determines the national priorities of the country [28]. In the field of climate policy, the National Strategy for Climate Change (2012) is the main document representing the policy framework for increasing climate resilience and a low-carbon development policy at the country level [23]. The Strategy provides for measures to increase energy efficiency in all major economy sectors, on technical modernization and on introduction of the renewable energy systems in the

remote and sparsely populated areas. It is aimed at increasing the share of renewable energy sources in the fuel and energy balance of the country and on the development of economic incentives for their use. Based on the strategy, the National Action Plan on Climate Change Adaptation and Reduction is being developed, which will be part of a broader green economy development plan [25].

It should be noted that the solution of issues in the field of climate change is taking place at the highest state level, as evidenced by the proposal of the President of Turkmenistan to create and host a Regional Centre for Technologies related to climate change in the country [25].

The dynamics of the economic development in Turkmenistan causes an increase in greenhouse gas emissions in the short term - by 2030 greenhouse gas emissions may increase by almost four times in relation to the 2000 base year. The government of Turkmenistan is ready to reduce the energy intensity and carbon load of such sectors as energy, industrial processes, agriculture and wastes by own efforts. With significant international assistance, including the transfer of new technologies and financial support, and given the favorable economic environment, Turkmenistan can halt the growth of greenhouse gas emissions and approach the baseline year level (Annex 2).

On the other hand, for Turkmenistan adaptation is also a priority. Consequently, integration of the adaptation measures into key social and economic development sectors and natural resources will help to reduce vulnerability and the risk of natural disasters and dangerous hydrometeorological events (drought, dust storms, floods and prolonged frosts).

National efforts and measures: The Republic of Uzbekistan

Despite the lack of a focused document on climate change, there are a number of environmental strategies and programs and climate-related problems included in the development and financing programs for energy, construction, transport, water and forestry, as well as the Vision 2030 draft structural reform strategy of Uzbekistan. The strategy sets temporary goals for reducing energy intensity of GDP, energy efficiency and expanding the use of renewable energy sources, primarily solar energy. For example, in Samarkand region, with the support of ADB, the largest solar power plant in Central Asia (100 MW capacity) is being constructed [25].

The climate change issue is addressed in the Strategy for Water Conservation and Rational Water Use in Irrigated Agriculture, developed by the UNDP National Greenhouse Gas Emission Reduction Strategy and the document "Towards Sustainable Energy: The Low-Carbon Development Strategy of the Republic of Uzbekistan". Also, on the basis of the Decree of 2006, an Interdepartmental Council on Clean Development Mechanism projects was established. The Coordinating Center of the UNFCCC, GEF and Green Climate Fund and the main agency responsible for climate policy in Uzbekistan is the Hydrometeorological Service Center under the Cabinet of Ministers (Uzhydromet) [25].

Measures and actions to prevent the negative impact of climate change and adaptation to it are integrated into the Life-Improvement Strategy, the National Program of Action to Combat Desertification and Drought in the context of the UNCCD, National Strategy and Action Plan for the Conservation of Biodiversity for the period 2016-2025, sectorial programs in the field of energy efficiency and energy conservation [29]. Despite the integration of issues related to resilience into national programs, Uzbekistan has not yet ratified the Paris Agreement.

In the intended nationally-determined contributions, the Republic of Uzbekistan, with international support, is ready to reduce the greenhouse gas emissions by 10% by 2030 from level of 2010. Also, the state is considering the climate resilience measures.

4. The UN Convention to Combat Desertification: Analysis of CA Stakeholders

Desertification is a process in which desert conditions develop as a result of degradation processes, largely due to a significant decline in soil productivity. The most vulnerable areas include regions with arid, sub-arid and dry climatic conditions, which are very sensitive to excessive use by people and animals, as well as to climate change. Soils become eroded and saline; they lose their ability to retain water, the groundwater level decreases, the vegetation cover decreases or completely disappear. Desertification leads to the fact that the land becomes infertile and degraded. The main types of desertification are: primary and secondary salinization of soils, deforestation, degradation of lands and pastures, drainage of the seabed and reservoirs [30].

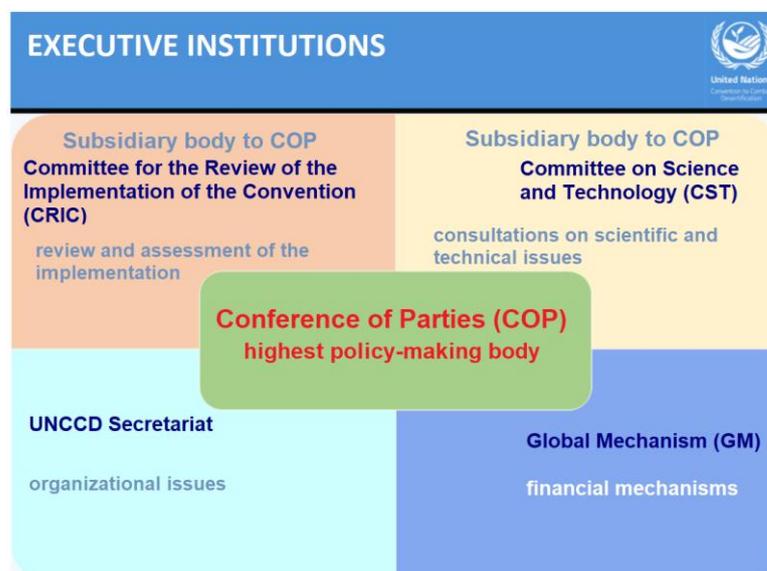
According to the UN, arid lands occupy 30% of the earth's surface in more than 100 countries, and currently 2 billion people live on these lands [31]. With the confirmation of the scenario proposed by the UN, taking into account the current rate of desertification, by the year 2025, every fifth inhabitant of the Earth will reside in a drought-prone area [32]. To date, over two billion hectares of productive land have been degraded around the world, and 12 million hectares of productive land become barren every year due to desertification [33].

The UN Convention to Combat Desertification as a global platform

Established in June 17th, 1994, the United Nations to Combat Desertification (UNCCD) is the sole legally binding international agreement linking environment and development to sustainable land management. The Convention addresses specifically the arid, semi-arid and dry sub-humid areas, known as the dry lands, where some of the most vulnerable ecosystems and peoples can be found.

The 10-year strategic plan and framework to enhance the implementation of the Convention for 2008-2018 (adopted in 2007) outlined a clear vision to forge global partnerships to reverse and prevent desertification and land degradation, coupled with a mission to provide a worldwide framework to support the development and implementation of national and regional policies that contribute to the reduction of poverty and environmental sustainability.

The objectives of the UNCCD include the provision of a global platform to support national and regional strategies, scientific and technical knowledge, inform the general public, lobby and mobilize resources. The UNCCD's governing and subsidiary bodies are: the Conference of the Parties, the Committee for the Review of the Implementation of the Convention, the Committee on Science and Technology, the Global Mechanism in charge of Finance, and the UNCCD Secretariat responsible for organizational matters.



Source: Presentation by Jamal Annagylyjova, UN CCD Secretariat

The UNCCD secretariat is responsible for developing in the methodology and assessing the implementation of the Sustainable Development Goal 15.3 “By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world” [34].

The issue of desertification in Central Asia: status, projection, consequences

Central Asia is a classic example of an arid and sub-arid region, characterized by serious cross-border problems of desertification. As per GTZ publication: “Nowhere else at present is there a whole region with a surface area of more than four million square kilometers that faces a greater threat from desertification than the region between the Caspian Sea and the Pamir Mountains” [35]. At present, arid land occupy more than two thirds of the territory of Central Asia [36]. For example, in Kazakhstan, according to World Bank estimates, 66% of the country's territory is subject to desertification [37].

The consequences of desertification are aggravated by climate change and growing anthropogenic pressures. Central Asia is one of the regions which are highly vulnerable to climate change. In accordance with climate forecasts, a noticeable increase in temperature (up to 2-4 degrees), uneven distribution of precipitation, intensive melting of glaciers (currently 46 large glaciers in the region are prone to melting) - all this in the long term will lead to an intensification of the desertification process. The inadequate use of land during the Soviet era, including intensive irrigation, overgrazing of steppes and deforestation of mountain forests in a vast dry zone with limited ecological tolerance, has caused numerous environmental consequences. Further economic growth has led to increased anthropogenic pressures and, as a result, to land degradation.

Estimates are imprecise due to a lack of research to date, but degradation in Central Asia is observed to be extensive, ranging from 4-10% of cropped land, 27-68% of pasture land and 1-8% of forested land [38]. The causes of land degradation are numerous, complex and various in different countries, but are generally associated with the abuse and overuse of the natural resource base, in particular with irregular and unsustainable agricultural practices, overgrazing of pastures, deforestation, forest degradation and natural disasters. The main forms of land degradation in the region are

- Erosion, salinization and waterlogging;
- Degradation of pasture fertility;
- Decrease in fertility of arable dry lands and steppes;
- Reduction of forest areas and productivity;
- Internal and external impacts of mining;
- Increased risk of landslides and flooding due to poor management of the basin;
- Reducing the stability and functioning of desert, mountain, marsh and coastal ecosystems.

DLDD⁷ related concerns have grown about the significant economic, environmental and social impacts of drought in agriculture and related sectors in Central Asia over the 30 years. As per FAO's report: “The economies of Central Asia countries are still largely based on agriculture which contributes 10 - 38% of GDP and 18-65% of employment, which makes the economies of these countries vulnerable to shocks from drought by reducing farm production; adversely affecting food prices, trade; and market access and decreasing farm income and unemployment” [36]. DLDD directly affects the rural livelihoods, reducing the productivity of land resources and having a negative impact on the stability and functioning of natural systems, as well as services that depend on such systems. Agricultural yields in the five Central Asian countries are reported to have declined by 20–30% across the region since independence, causing annual losses of agricultural production. Regional losses from salinization alone have been estimated to be at least \$2 billion per year [39].

⁷ Desertification, land degradation and drought

Unfortunately, ineffective implementation of policies and weak institutional infrastructure, low technical, administrative and financial capacity of countries, insufficient sharing of information and inadequate hydrometeorological monitoring – all these factors impede combating desertification and disaster risk reduction.

The case of a severe drought in 2000-2001 in Central Asia revealed all the above problems and pointed to the high vulnerability of the region. When drought took over Central Asia in 2000 - 2001, impacts were severe upon agricultural and non-agricultural sectors of the economy, the environment, and the rural population. Drought damaged agricultural output the most in rain-fed areas but also tail ends in irrigated areas were affected. Residents of drought-stricken rural areas lost as much as 80% of income, while poverty rates rose significantly, and malnutrition and water-related diseases became more widespread. As per the World Bank's report: "The direct economic cost of the drought in terms of lost agricultural production for that period is estimated at US\$ 800 million; economic costs were high in all countries; in Tajikistan they were estimated at nearly 5% of GDP [40].

Regional cooperation in the field of combatting desertification

In 2003, recognizing that desertification and drought are the problems of transboundary nature and that joint actions of relevant countries are needed to combat desertification and drought, as well as poverty on a world scale, requiring joint action, and guided by the mechanisms laid down in the UNCCD, the countries of Central Asia agreed and adopted the Sub-regional Action Program of the Central Asian Countries to Combat Desertification within the UNCCD Context. The objectives of this program were to harmonize sub-regional interests, share information and experience, involve donors in the implementation of the CCD, establish synergy in the implementation of multilateral environmental agreements in the sub-region, as well as to develop and implement joint programs aimed at improving socio-economic conditions.

Later, this program served as a platform for the launch of the Central Asian Countries Initiative for Land Management (CACILM). Despite the existing criticism, the creation of CACILM can be considered as an interesting example of regional cooperation in combating desertification: cooperation was established among countries, among donors, as well as among countries and donor organizations. During the first phase (2006-2011), four regional and seven national projects were implemented aimed at improving pastures and agricultural land. The main objective of the second phase (2018-2022) is to strengthen the integrated natural resources management in drought-prone and salt-affected agricultural production landscapes in the countries of Central Asia and Turkey.

Another example of regional cooperation is the analytical project "The Economics of Land Degradation in Central Asia (2014-2016), implemented with the aim of ensuring understanding and enhancing stakeholder awareness of the economic value of productive land on the basis of market and non-market values. The project was implemented under the auspices of the UNCCD with the participation of GIZ, ICARDA, the governments of CA countries and the Regional Environmental Center for Central Asia. According to the publication, it was revealed that cost of action to combat land degradation will be 53 billion in 6 years, while cost of inaction (in 30 years) will be 288 billion. Nevertheless, investment in recovery is profitable – 1 USD spent on land restoration provides 5 USD return rate [38].

In addition, the UNCCD Secretariat initiates meetings aimed at facilitating the sharing of information across the region. For instance, in the framework of the Central Asian International Environmental Forum in Tashkent in June 2018, CAREC, in cooperation with the UNCCD Secretariat, conducted one-day training on the UNCCD reporting. The main objective was to increase the capacity of the Central Asian countries to fulfill their UNCCD obligations, in particular reporting to UNCCD. Training participants from Central Asian countries were able to identify problems and approaches related to issues such as data collection and processing, the contribution of reporting to the SDGs implementation, as indicated in each country, and the use

of reporting data in national processes (national land monitoring systems, reporting on other Rio conventions and environmental obligations, etc.).

National efforts and measures: The Republic of Kazakhstan

Kazakhstan has ratified the UNCCD in 1997. In the same year, the Government of the Republic of Kazakhstan adopted the National Action Plan to Combat Desertification. In January 2005, the Government of the Republic of Kazakhstan approved the National Programme to Combat Desertification in the Republic of Kazakhstan for 2005-2015. In 2008, due to the optimization of the number of sectorial programs of the Government, said Programme was abolished, and only some of the activities of said Programme were included in the Governmental Medium-Term Program on environmental protection - "Zhasyl Damu" Programme for 2010-2014. The concept of transition of the Republic of Kazakhstan to the "green economy" confirms the severity of the desertification problem and proposes adherence to the principles of "green" agriculture such as a) prevention of land degradation and restoration of degraded lands; b) prevention of further grazing of pastures; c) effective use of water; d) rational use of resources; e) waste minimization and reuse/recycle; (e) Carbon capture and storage. A document "Strategic measures to combat desertification in the Republic of Kazakhstan till 2025" was prepared within the framework of the GEF-UNDP project - "Supporting the Updating of the National Action Plan and Reporting and Performance Review Process for the Implementation of the UN Convention to Combat Desertification in Kazakhstan".

National efforts and measures: The Kyrgyz Republic

The Kyrgyz Republic has been a party to the UNCCD since 1997. In 2000, the Government adopted the National Action Programme to Combat Desertification and the National Framework Programme for Sustainable Land Management for 2006-2016. These programmes are aimed at promoting sustainable land use, increasing the productivity of arable lands and reducing poverty in rural areas. Despite the successful implementation of many pilot projects in the field of sustainable land use and best practices in agriculture for 2000-2007, weak changes are slowed down by land degradation, a decline in agricultural production and an increase in rural poverty. Kyrgyzstan should strengthen its actions for the comprehensive implementation of the above programmes. In 2016, with the support of the UNDP-GEF project - "Strengthening of institutional and legal capacities to enable improvement of the national monitoring system and management of environmental information", with the aim of improvement of policy, regulatory and legal acts, as well as coordination of activities in the field of fulfilling UNCCD obligations, an Interagency, Intersectoral Working Group (IWG) on Enhancement of the UNCCD Implementation under the Ministry of Agriculture, Food Industry and Land Reclamation of the Kyrgyz Republic (MoAFILR KR) was established. Meetings of the working group are held on a regular basis under the chairmanship of the UNCCD senior official for the Kyrgyz Republic. During such meetings, participants address burning and emerging issues and promote innovative approaches. So the fifth meeting of the IWG was held in July 2017, where parties discussed the need to introduce and implement the initiative aimed at rolling-out the objectives of the Land Degradation Neutrality (LDN). The UNCCD related reporting and the setting of objectives in relation to the LDN contributes to the achievement of SDG 15, in particular, SDG 15.3. Based on the IWG decision and the National Statistical Committee of the Kyrgyz Republic, with the support of the UNDP-GEF project and the UNCCD Secretariat, for the first time in Central Asia, the national methodology for drafting and measuring the balance sheet for land degradation neutrality tracking, as well as voluntary objectives were formulated. In June 2018, during the IWG meeting, participants were delivered a presentation about recently established UNCCD Information Center in the Kyrgyz Republic.

National efforts and measures: The Republic of Tajikistan

Tajikistan has accessed the UNCCD in 1997. In 2001, the Government adopted the National Programme of Action to Combat Desertification. This Programme aimed at combating environmental degradation and irrational land use. To implement the UNCCD, the Government of Tajikistan adopted the Programme for Economic Reforms of the Agro-Industrial Complex and the Programme for Environmental Education and Awareness of the Public until 2010. The Draft Strategy for Private Sector Development in Tajikistan (2007-2010) focused on ensuring environmentally sustainable growth and promoting rational land use. Tajikistan is one of the most economically vulnerable CA countries to the desertification consequences, given that the socio-economic consequences of desertification threaten the citizens - who may become environmental refugees. In this regard, the country recognizes the need to develop specific pilot projects to combat erosion and desertification.

National efforts and measures: The Republic of Turkmenistan

Turkmenistan was one of the first countries to ratify the UNCCD in 1996. A year later Turkmenistan started to implement the National Action Plan, which was mainly focused on rational use of pastures, forestry development, consolidation and afforestation of mobile sands, improvement of the state of irrigated lands and applied researches. In Turkmenistan, the desert occupies 80 percent of the territory, and both cultivated and natural lands are subject to desertification to varying degrees. The particular attention is paid to degradation of desert and foothill pastures and irrigated lands. The activity of the National institute of deserts, flora and fauna of the Ministry of nature protection of Turkmenistan aimed at the implementation of fundamental and applied researches on problems of biology, ecology, human environment and rational nature use with regard for peculiarities of functioning of arid ecosystem. The National Forestry Development Programme, the National Climate Change Strategy are being implemented in Turkmenistan. Recently, the Government of Turkmenistan has adopted the Law on Pasture. The Water Code and Land Code were recently revised and amended. Government has adopted the National Climate Change Programme and the National Action Programme to Combat Desertification was revisited. Rational use and protection of land resources is one of the priorities of the Turkmenistan's economic, as reflected in 2030-Strategy.

National efforts and measures: The Republic of Uzbekistan

Uzbekistan ratified the UNCCD one of the first among CA countries. The National Strategy to Combat Desertification was developed in 1999. Currently, the draft of the second National Strategy is being prepared. This Programme, as well as the National Strategy for Sustainable Development - are the dominant strategies to combat desertification. In recent years, two state programmes on the Aral Sea have been adopted. Programmes are being implemented to combat desertification, improve water management, including a Programme for enhanced forest management. Combating DLDD in Uzbekistan is carried out through specific measures to improve land reclamation in the framework of the Land Reclamation Programme, use of experience and best practices for the balanced use of land for environment and consumption, the introduction of new innovative resource-saving technologies into the land use system; attract investment in for sustainable land management to ensure, develop, create and maintain sustainable nutrition systems. Uzbekistan's Hydrometeorology Agency is the institution responsible for activities under the United Nations Framework Convention on Climate Change (UNFCCC), including obligations under the UNFCCC and UNCCD. Some of the recent projects are:

- GEF / UNDP Project "Reducing the load on the use of natural resources as a result of the competing exploitation of non-irrigated dry lands in the mountain, semi-desert and desert landscapes of Uzbekistan" (2014-2018),

- GEF / WB Project “Sustainable Agriculture and Climate Change Mitigation”, including 1.2 M USD to combat desertification,
- GEF / FAO Project “Decision Support for Mainstreaming and Scaling up of Sustainable Land Management (2014-2016)”

5. The UN Convention on Biological Diversity: Analysis of CA stakeholders

Biodiversity is defined as “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.” [41].

Biodiversity is a key element of the environment and the foundation of people's well-being. Despite the recognition of this fact, losses are increasing all over the world - natural ecosystems rich of species face overexploitation, are being disturbed for the sake of mining or are replaced by simple, artificial systems which are more efficient from the perspective of food production, energy generation and meeting other needs of the growing population. This simplification and disappearance of unique biodiversity reduces human culture, destroys the generated sources of livelihoods and destroys genetic diversity [42]. People are changing ecosystems more rapidly and more extensively than over any other period in human history. Climate change adds yet another pressure on natural ecosystems. Many species will simply be unable to adapt quickly enough to the new conditions, or to move to regions more suited to their survival. [43].

The UN Convention on Biological Diversity as a global platform

The Convention on Biological Diversity provides a global legal framework for action on biodiversity. The Convention has three main goals including: the conservation of biological diversity (or biodiversity); the sustainable use of its components; and the fair and equitable sharing of benefits arising from genetic resources [44]. There are two protocols to the CBD: the Cartagena Protocol on Biosafety and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization.

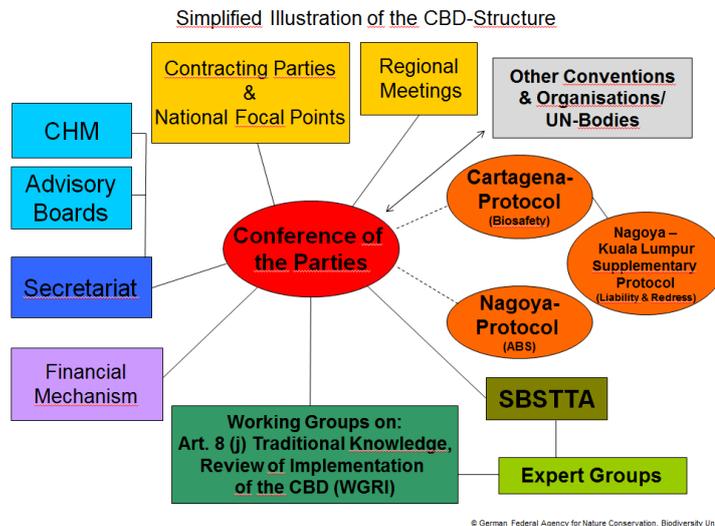
The Convention's governing body is the Conference of the parties (COP) - it brings together the Parties in the Conference of the Parties (COP) which is the Convention's governing body that meets every two years, or as needed, to review progress in the implementation of the Convention, to adopt programmes of work, to achieve its objectives, and provide policy guidance.

The COP is assisted by the Subsidiary Body on Scientific, Technical, and Technological Advice (SBSTTA), which is made up of government representatives with expertise in relevant fields, as well as observers from non-Party governments, the scientific community, and other relevant organizations. SBSTTA is responsible for providing recommendations to the COP on the technical aspects of the implementation of the Convention.

Other subsidiary bodies have been established by the COP to deal with specific issues as they arise. These are called “ad hoc open-ended Working Groups” because they are established for a limited mandate and period of time, and because they are open to all Parties as well as the participation of observers. Current Working Groups are:

- The Working Group on Access and Benefit-Sharing (ABS) is currently the forum for negotiating an international regime on access and benefit sharing;
- The Working Group on Article 8(j) addresses issues related to protection of traditional knowledge;
- The Working Group on Protected Areas is guiding and monitoring implementation of the programme of work on protected areas;
- The Working Group on the Review of Implementation of the Convention (WGRI) examines the implementation of the Convention, including national biodiversity strategies and action plans.

- Open-ended Ad Hoc Intergovernmental Committee (ICNP) for the Nagoya Protocol on ABS was established as an interim governing body for the Nagoya Protocol until the first meeting of the Parties to the Protocol at which time it will cease to exist.



Source: German Federal Agency for Nature Conservation, Biodiversity Unit

In 2010, Parties to the Convention on Biological Diversity adopted the Strategic Plan for Biodiversity 2011-2020. Inter-alia, the Strategic Plan for Biodiversity 2011-2020 comprises of twenty ambitious yet achievable targets known as Aichi Biodiversity Target. The CBD encourages all Parties to develop National Biodiversity Strategies and Action Plans (NBSAP) aimed at ensuring achievement of Convention goals at all levels and across all sectors of country's economy.

The issue of biodiversity conservation in Central Asia: status, projection, consequences

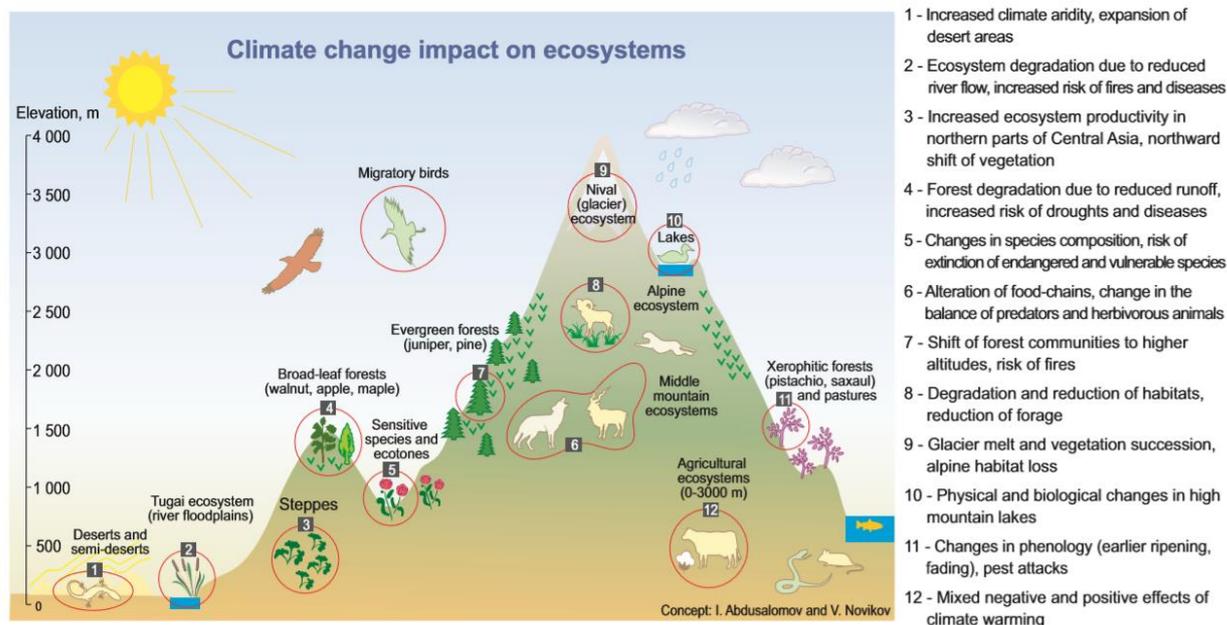
Central Asia possesses unique importance for the Earth's biodiversity. It is in the heart of the Eurasian landmass, it contains a very wide variety of landscapes and climates, and the ecosystems and different species it harbors are immensely varied. Many of them are of global as well as regional importance. Both the historical record of impacts on its ecosystems and current trends in the changes affecting them today show that Central Asia's water ecosystems and those affected by agriculture, together with forests, are the features most vulnerable to a mix of human influences [45].

The Mountains of Central Asia Biodiversity Hotspot consists of two of Asia's major mountain ranges, the Pamir and the Tien Shan (The Critical Ecosystem Partnership Fund). The hotspot's 860,000 square kilometers include parts of seven countries: southeastern Kazakhstan, most of Kyrgyzstan and Tajikistan, eastern Uzbekistan, western China, northeastern Afghanistan, and a small mountainous part of southeastern Turkmenistan. Hotspot is a home for the almost half of snow leopard population, as well as 500 bird and 5000 plant species, including globally significant fruit-and-nut forests comprising walnuts, almonds, pears, apples, cherries and pistachios [46].

Regional biodiversity problems became apparent 50 years ago with the disappearance of tigers, and a number of alarming trends have followed. The Aral Sea ecosystem has essentially died, and Issyk-Kul Lake in Kyrgyzstan has experienced a collapse of its fisheries over the past 10 years, and is highly endangered. The teresken bush in the Tajik Pamirs, an important food source for both wild and domestic animals, faces eradication as a result of overgrazing and fuel wood

harvesting. Overexploitation of this kind is one of five pressures on biodiversity in Central Asia: the other four are climate change, pollution, habitat fragmentation and invasive species [45].

Thus, environmental stress is rapidly increasing for the initially vulnerable species of sensitive flora and fauna of Central Asia, which are subject to significant anthropogenic impact in the face of the climate change impacts and desertification. Further degradation of ecosystems can lead to irreversible environmental and socio-economic consequences. Unfortunately, at present there are no comprehensive calculations of economic losses associated with aggravating the problem of biodiversity conservation in Central Asia.



Source: Zoï Environment Network. 2012.

Regional cooperation on biodiversity conservation

In the absence of a regional biodiversity programme adopted by Central Asian countries, regional cooperation in the field of biodiversity is being promoted through regional projects. In accordance with the recommendations of the Secretariat of the Convention on Biological diversity (CBD), countries within the framework of Aichi Global Targets should consider the possibility of introducing new arrangements / tools for funding generation, such as biodiversity offset, payments for ecosystem services, positive and negative taxes, and subsidies. A global UNDP project called "The Biodiversity Finance Initiative (BIOFIN)" is being implemented in two CA countries – Kyrgyzstan and Kazakhstan, aimed at helping countries in identifying tendencies for funding national efforts on biodiversity conservation and enhance investments in the field of conservation, sustainable use and equitable sharing of benefits from ecosystems and biodiversity.

The project "Enhancing cooperation in Multilateral Agreements and Indicators in National Biodiversity Strategies and Action Plans (NBSAP) for the Pan-European Region" is being implemented to strengthen the implementation of NBSAP through the identification and development of common indicators for the Pan-European region with an emphasis on transboundary issues in the sub-regions of the South-Eastern Europe, Eastern Europe (including Russia), the South Caucasus and Central Asia. The project is exploring the possibilities of harmonizing biodiversity indicators within each sub-region, including Central Asia [46].

The FLERMONECA project "Forestry and environmental biodiversity governance, including monitoring of the state of the environment (2013-2015)" facilitated the improvement of administrative structures, legislation and its application in the forest sector (the FLEG process), conservation and management of ecosystems and biodiversity (ERCA), and the improvement of

environmental monitoring, reporting and data sharing in the Central Asian countries and in the region as a whole (MONECA) [47].

Biological resources are the basis of food security; therefore, the FAO project called "Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security in Central Asia" is being implemented in the region.

This year, UNDP, together with other international partners, has launched a regional initiative to rescue the snow leopard in 12 countries, including CA countries. As part of this activity, during the first Conservation Summit project stakeholders adopted the Global Programme for the conservation of the snow leopard; later on a Secretariat was established in the Kyrgyz Republic. In 2017, the UNDP-GEF regional project "Transboundary Cooperation for Snow Leopard and its Ecosystem conservation", implemented by the Snow Leopard Trust (SLT), was launched. The Critical Ecosystem Partnership Fund (CEPF) and the Regional Office of the International Union for Conservation of Nature (IUCN) for Eastern Europe and Central Asia have started their activities in the region. The CEPF funding strategy - for protecting the hotspots of biodiversity in the mountainous regions of Central Asia - starts with the conservation of species and habitats and focused at responding to threats posed against priority species and ecosystems. The IUCN Regional Office was established in 2015 to support IUCN members and implement the IUCN Programme in most countries of the Statutory Region of the Eastern Europe, North and Central Asia.

From August 6 to 10, 2018, Bishkek hosted an International Conference "Mainstreaming Conservation in Changing Asia", organized by the Biodiversity Conservation Society. Participants from 44 countries, including CA countries, had discussed issues in the field of biodiversity conservation and shared their experience in implementing various projects and initiatives.

National efforts & measures: The Republic of Kazakhstan

Conservation and effective management of ecosystems are considered amongst priority areas within the Concept on transition of the Republic of Kazakhstan to the "green economy" [48]. The conservation of biological diversity in Kazakhstan is ensured through following laws and regulations: the Environmental Code; the Law on Environmental Protection dated July 15th, 1997; the Law "Concerning Specially Protected Natural Areas" dated July 15th, 1997; the Concept for the Development and Location of Specially Protected Natural Areas until 2030; the Law "On Protection, Breeding and Use of the Animal World" dated October 21st 1993; the Forest Code of the Republic of Kazakhstan dated January 23rd, 1993, the Law of the Republic of Kazakhstan "On Environmental Expertise" dated May 11th, 1999; There have been a number of changes and amendments in environmental legislation of Kazakhstan, and in 2016 parliamentary hearings were held on "Actual Issues of Legislative Support in the field of Biodiversity Conservation in the Republic of Kazakhstan". However, national legislation does not pay particular attention to the conservation and balanced use of flora, genetic resources, regulation of transboundary movement and use of living modified organisms.

A draft Concept for Conservation and Sustainable use of Biological Diversity of the Republic of Kazakhstan until 2030 was developed within the framework of UNDP/GEF/MEPWR "National Biodiversity Planning to Support the implementation of the CBD 2011-2020 Strategic Plan in Republic of Kazakhstan" and in support of fulfilling CBD obligations of Kazakhstan and in accordance with the Action Plan for the implementation of the Concept on transition of the Republic of Kazakhstan to the "green economy" [49].

National efforts & measures: The Kyrgyz Republic

Environmental protection aspects for sustainable development, including biodiversity conservation, are considered in the National Sustainable Development Strategy of the Kyrgyz

Republic for the period 2013-2017 [50]. As of law and regulations, following shall be specified: Laws "On Environmental Protection (1991)", Law "Concerning Specially Protected Natural Areas (1994)", Law "On the Protection and Use of Wildlife (1981)", Law "On the Accession of the Kyrgyz Republic to the Convention on Biological Diversity (1996)", Law "On Fisheries" (1997), Law "On the protection of traditional knowledge" (2011), The Forest Code, Law "On rates of payment for the use of natural bodies of flora and fauna in the Kyrgyz Republic (2008)", Resolution "On approval of rates for calculating the amount of penalties applied against legal entities and individuals for damage to flora and fauna bodies, shilajit-containing mineral raw material and fungi. "

The National Strategy of the Kyrgyz Republic until 2023, including the Snow Leopard Conservation Action Plan, was adopted in order to ensure conservation and study rare species and their populations. Currently, a UNDP/GEF project "Conservation of Globally Important Biodiversity and Associated Land and Forest Resources of Western Tian Shan Forest Mountain Ecosystems to Support Sustainable Livelihoods" is being implemented in the Kyrgyz Republic. This project is focused to support the Kyrgyz part of the Special Protected Natural Areas in Tian Shan with a particular focus on 2 pilot parks and enhancing regional cooperation in the field of Snow leopard conservation and its ecosystems within the 22 priority landscape as defined by the Global Snow Leopard and Ecosystem Protection Programme.

The Kyrgyz Republic implements a National Programme for Development of nut-bearing cultures until 2025, with an eye for recovery of valuable relict arrays of nut-bearing ecosystems. Currently, the Forest Development Concept is being finalized. The Kyrgyz Republic, as a pilot initiative within the System of Environmental-Economic Accounting, has selected forest accounts which have provided real inputs of the forestry in country's GDP, exceeding the official statistics by 25 times. Further integration of forest accounts into national accounting system will be carried out within the framework of World Bank funded projects - Wealth Accounting and the Valuation of Ecosystem Services (WAVES⁸) and Integrated Forest Ecosystem Management.

Biodiversity and ecosystem services are integrated into the country's strategic documents, including the Concept for green economy promotion, adopted by the Parliament of the Kyrgyz Republic in June 2018. In addition to that biodiversity and ecosystem are included into curricula for non-core specialties of higher education institutions. For key ecosystems economic valuation of ecosystem studies were conducted; results of such studies were included into the regional reviews on the economics of land degradation (ELD), and provided the basis for the development of a methodology for the valuation of ecosystem services.

As a part of CBD obligations, the Kyrgyz Republic is preparing its Sixth National Report of the CBD, which will be covering implementation of the National Biodiversity Strategies and Actions Plan for the period 2015-2018.

National efforts & measures: The Republic of Tajikistan

The legal basis for biodiversity conservation in Tajikistan is reflected in the following acts: Law "On Environmental Protection (2011)", Law "On Protection and Use of Flora (2004)", Law "On Wildlife (2008)", Law "On Specially Protected Natural Areas (1996)", Law "On harvesting, conservation and rational use of the genetic resources of cultivated plants", Law "On Biological Safety", Law "On Environmental Expertise", Law "On Environmental Monitoring", Law "On Pastures (2013)", Law "On Seed Production (2008)", Law "On Fisheries", Forest Code (2011), Land Code (1996) and etc. [51].

Several programs had been adopted at the national level - the State Program for the Development of the Special Protected Areas for 2005-2015, the Forestry Development Program for 2006-2015,

⁸ WAVES - Wealth Accounting and the Valuation of Ecosystem Services

the Environmental Monitoring Program for 2013-2017, the Fisheries Development Program for 2009-2015.

The State Environmental Programme for 2009-2019 is aimed at ensuring the development of forest management works, streamlining (regulating) hunting activities in the territory of hunting farms, conducting biotechnical measures for the conservation and protection of wild animals and birds, stocktaking of wildlife and maintaining the state cadaster of wildlife, as well as revisiting the status of reserves.

National efforts & measures: The Republic of Turkmenistan

Conservation of biodiversity is one of the priority actions of Turkmenistan's environmental policy. In 2002, the Ministry of Nature Protection of Turkmenistan jointly with UNDP designed the "Strategy and Action Plan for the Conservation of Biodiversity of Turkmenistan", which served as basis for preparation of an Action Plan - a set of specific measures for the conservation of biodiversity, for the period 2002-2010. The strategy sets the main goal - to preserve, restore and rationally use the country's biological diversity for present and future generations. Said Strategy has 12 national quantitative goals [52].

The Strategy and the CBD's Strategic plan for 2011-2020 were updated within the framework of a MNTP/GEF/UNDP joint project "National Biodiversity Planning to Support the Implementation of the CBD 2011-2020 Strategic Plan (2013-2015)". The 2nd National Strategy focuses on 5 primary areas:

1. strengthening control over the implementation of environmental legislation on biodiversity;
2. sustainable use of biodiversity and habitats under human influence;
3. maintaining a balance between economics and biodiversity in the development of extractive industries;
4. development of protected natural areas in order to improve nature protection and socio-economic benefits of biodiversity; and
5. understanding and awareness about the importance and benefits of biodiversity and ecosystem services

National efforts & measures: The Republic of Uzbekistan

The legal and legislative framework for environmental management includes more than 130 laws and by-laws, most of which are directly or indirectly related to biodiversity: the Law "On Nature Protection (1992)", Law "On State Sanitary Surveillance (1992)", Law "On Water and Water Use (1993)", Law "On the Atmospheric Air Protection (1996)", Law "On the Protection and Use of the Flora (1997)", Law "On the Protection and Use of the Animal World (1997)", Land Code (1998), Law "On the State Land Cadaster" (1998), Law "On the Forestry (1999)", Law "On public cadasters (2000)", Law "On Environmental Expertise (2000)", Law "On Protected Areas (2004)", Law "On Environmental Supervision (2013)" [53].

The National Strategy and Action Plan for Biodiversity Conservation was developed and approved in Uzbekistan in 1998 as a first step towards fulfilling the CBD's obligations. Currently, within the framework of CBD's obligations, namely in accordance with Article 6 of the Convention and decision X / 2 of the Conference of the Parties (COP), the Government of the Republic of Uzbekistan, in cooperation with the GEF and UNDP, is updating the National Strategy and Action Plan for Biodiversity Conservation. The basis for updating the Strategy is to develop national strategic goals and targets aimed at the conservation and sustainable use of biodiversity, maintenance of ecosystem products and services, and integration of biodiversity aspects into sectorial planning.

Conclusion

This brief review is the first of its kind related to the analysis of the implementation of MEAs in Central Asia. The review reflected the challenges attributed to climate change, desertification and biodiversity conservation at the global and regional level, highlighted case studies from regional cooperation and presented national measures within CA countries. In the future, it is planned to prepare materials that will highlight the challenges and needs for implementation of conventions by CA countries, as well as requirements / requests from the Secretariats of the relevant Conventions.

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For cooperation on the preparation of analytical materials, please contact:

Mrs. Zhanel Karina, Environmental Management Programme Specialist, CAREC -
zhkarina@carececo.org

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Annex 1. Status of ratification of the MEA in Central Asia

No	Name of the MEA/Convention	KZ	KG	TAJ	TM	UZ
Climate/air/ozone layer						
1	United Nations Framework Convention on Climate Change (UNFCCC)	+	+	+	+	+
2	Kyoto protocol to UNFCCC	+	+	+	+	+
3	Paris agreement within the framework of UNFCCC	+		+	+	
4	Vienna Convention on the Protection of the Ozone Layer	+	+	+	+	+
5	Montreal Protocol on Substances that Deplete the Ozone Layer	+	+	+	+	+
6	Convention on Long-range Transboundary Air Pollution (LRTAP)	+	+			
Water						
7	Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention)	+			+	+
8	Protocol on Water and Health to the Water Convention		+			+
Biodiversity						
9	Convention on Biological Diversity (UN CBD)	+	+	+	+	+
10	Cartagena Protocol on Biosafety to the Convention on Biological Diversity	+	+	+	+	
11	Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of the Benefits Arising out of their Utilization to the Convention on Biological Diversity					
12	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	+	+	+		+
13	Convention on the Conservation of Migratory Species of Wild Animals (CMS)	+	+	+		+
14	Convention on Wetlands of International Importance Especially as Waterfowl Habitat	+	+	+	+	+
15	World Heritage Convention	+	+		+	
16	the African-Eurasian Migratory Waterbird Agreement (AEWA)					+
Pollutants and wastes						
17	Basel Convention on the Control of the Transboundary Movements of Hazardous Wastes and their Disposal	+	+	+	+	+
18	The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	+	+			
19	Stockholm Convention on Persistent Organic Pollutants	+	+	+		
20	Minamata Convention on Mercury					
Soils/Land use						
21	United Nations Convention to Combat Desertification	+	+	+	+	+
Governance						
22	Convention on the Transboundary Effects of Industrial Accidents	+				
23	Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention)	+	+			
24	Protocol on Strategic Environmental Assessment.					
25	Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the Aarhus Convention)	+	+	+	+	
26	Protocol on Pollutant Release and Transfer Registers to the Aarhus Convention			+		

Annex 2. Intended Nationally Determined Contributions of CA countries

	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
Emission reduction					
Baseline year	1990 (267,298 Gg CO ₂ -equivalent)	-	1990 (25.5 mt CO ₂ -equivalent)	2000 (49,426 Gg CO ₂ equivalent)	2010
Unconditional goal (own efforts)	GHG emission reduction: by 15% by 2030 r. (40,094.7 Gg CO ₂ eq.)	Emission reduction from 11.49% to 13.75% by 2030 r.	Emission reduction by 10-20% by 2030 (from 2.55 to 5.1 mt CO ₂ eq.).	-	-
Conditional goal (foreign aid)	GHG emission reduction: from 25% to 34% by 2030 (from 66,824.5 Gg CO ₂ equivalent to 90,881.32 Gg CO ₂ equivalent)	GHG emission reduction: from 29.00-30.89% by 2030	GHG emission reduction: from 25 to 35% by 2030 (from 6,375 to 8,925 mt CO ₂ equivalent)	-	Emission reduction by 10% by 2030
Sectors and greenhouses	1. Energy 2. Agriculture 3. Waster 4. LUCF CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆	1. Energy 2. Industrial processes; solvents and etc. 3. Agriculture 4. Waster 5. LUCF CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , NF ₃	1. Energy and water resources 2. Industry and construction 3. LUCF and biodiversity 4. Agriculture and horticulture 5. Transport and infrastructure CO ₂ , CH ₄ , N ₂ O	1. Energy 2. Industrial processes 3. Agriculture 4. Waste CO ₂ , CH ₄ , N ₂ O	1. Energy 2. Agriculture and water resources 3. Industry 4. Transport and infrastructure
Resilience	-	Long-term goal – Prevention of climate change induced losses	Long-term goal – Reduce climate change induced vulnerability		Long-term goal - - enhance climate resilience in order to reduce the climate change induced risks faced by the economy
Priority sectors	-	- Water resources - Agriculture - Energy - Public health - Natural disasters - Forestry and biodiversity	- Water resources - Agriculture - Energy - Public health - Natural disasters - Forestry and biodiversity	- Water resources - Agriculture - Public health - Ecosystems and forestry - Natural disasters	- Water resources - Agriculture - Social sphere (health and education) - Industry
Long-term RISKS		- Energy security - Food security - Natural disasters - Human health and safety	- Energy security - Food security - Natural disasters - Human health and safety	- Energy security - Food security - Natural disasters - Human health and safety	- Energy security - Food security - Natural disasters - Human health and safety