CRITICAL ECOSYSTEM PARTNERSHIP FUND

Ecosystem Profile

Mountains of Central Asia Biodiversity Hotspot

Extended Technical Summary

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1. INTRODUCTION

The Mountains of Central Asia are a biodiversity hotspot but the region must first be considered from a political and cultural perspective. Within the region, "Central Asia" is typically understood to mean the whole of five former Soviet republics: Kazakhstan; Kyrgyzstan; Tajikistan; Turkmenistan; and Uzbekistan. In the past, from the perspective of Central Asia, China's Xinjiang Uyghur Autonomous Region (which borders four of the five former Soviet republics) and Afghanistan were "hinterland," far from the main economic centers and transport hubs. Today, however, with massive investments in trade and infrastructure, and with greater movement of people and knowledge, it makes increasing sense to understand the region in terms of at least parts of seven countries.

Central Asia has a long history as a crossroads between East and West. In the past, it was home to the great commercial and cultural centers of the Silk Road. Today, the modern equivalents include China's One Belt-One Road initiative and the ten-country Economic Cooperation Organization (ECO) stretching from China's borders to the Caspian, Mediterranean, and Red Seas. For centuries, the region was a major contributor to the arts, sciences, medicine, and trade. With the mixing of agrarian, nomadic, and industrial societies, it is a mosaic of cultures, languages, and political systems. Moreover, only 25 years ago, five of the countries -- Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – were part of the Soviet Union, which has added a further layer of complexity and interest to the region.

After the break-up of the Soviet Union in 1991-1992, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan joined the Commonwealth of Independent States (CIS), and Turkmenistan took an official observer status with a policy of neutrality. Cooperation among these five countries plays a major role in coordinating environmental protection, hydrometeorological monitoring, industrial safety, and other areas related to the natural resources management. New cooperation forums in the region – including the Shanghai Security Cooperation Organization, the Eurasian Economic Union, the Custom Union, and the aforementioned ECO and One Belt-One Road initiative further integrate these countries. These economic unions are driving infrastructure and development in a way that will inevitably have major impacts on the environment.

Conflict and unrest have also been a reality in the region, as each of the former republics transitioned to new forms of government, and as different groups in each of the seven countries have sought greater prosperity or self-determination. Difficult topography, remote geography, and ethnic divisions have been and remain a challenge. Afghanistan, in particular, has suffered from thirty years of conflict, and the current Islamic Republic is now trying to establish effective governance and security outside the main urban areas. Tajikistan's civil war in 1992 was started, in part, due to a power struggle between groups from the eastern, southern, and central parts of the country. In Kyrgyzstan, political power centers are split to the east and west. Moreover, due to a policy of decentralization, local community "jamaats" can challenge decisions at the national level and apply they own rules, including to natural resources.

Much of the biodiversity and natural ecosystems are in the remote mountains, whose ridges form many of the international borders. As a result, many protected areas sit across borders from one another, raising a question of bilateral or regional cooperation. Such cooperation existed within the five former republics during the Soviet era, and attempts have been made more recently with the Central Asian Mountain Information Network, a regional Red List to coordinate assessments and set up a database of threatened species, and the cross-border Western Tien Shan and Pamir-Alai conservation and environmental initiatives.

Several international donors and partners are actively involved in conservation in the region. The Global Environment Facility (GEF), the European Union, and the governments of China, Japan, Germany, Switzerland, Finland, Norway, Russia, China, Korea and the United States support programs on sustainable natural resource use and environmental projects.

Civil society organizations (CSOs) are in a unique position to influence people's choices, habits and behavior because they are based in or work with communities. Unlike governments, CSOs have no power to compel people to change. Instead, they influence behavior of stakeholders through education, incentives, demonstration of best practice, and direct assistance. Several major international environmental NGOs are active in the region, including World Wide Fund for Nature (WWF), Wildlife Conservation Society (WCS), Fauna & Flora International (FFI), and BirdLife International and its network partners, and to varying degrees, local CSOs are, or are in a position to become, active in conservation.

The Mountains of Central Asia Hotspot is centered on two of Asia's major mountain ranges: the Pamir; and the Tien Shan. 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 montane part of southeastern Turkmenistan. Hotspot delineation is based on the Global 200 eco-regions[1] (Olson, D. M. and Dinerstein, E., 2002). With a relatively large amount of remaining natural habitat, high endemism, and increasing threats, the region is important for investment by CEPF.

Figure 1. Map of Mountains of Central Asia Hotspot

[1] http://wwf.panda.org/about_our_earth/ecoregions/ecoregion_list/

2. BACKGROUND

Over the period of May 2016 to March 2017, Zoï Environment Network of Geneva, Switzerland, led the process to prepare the ecosystem profile, with contributions from numerous national partners. This process engaged experts from numerous disciplines, as well as government agencies, nongovernmental organizations, donor organizations and other stakeholders. The profiling team reviewed existing analyses from BirdLife's Important Bird and Biodiversity Areas (IBAs), WWF's ECONET for Central Asia, the IUCN Red List and national Red Lists, published books and atlases, reports and papers describing species and habitats in the mountains of Central Asia, as well as unpublished reports and publicly available information. The profiling capitalized on priority-setting processes that had already taken place in several countries, such as National Biodiversity Strategies and Action Plans (NBSAPs), national protected areas strategies and expansion plans, and national biodiversity gap analyses. The profiling team analyzed up-to-date information on drivers and threats affecting biodiversity conservation in the hotspot, and current levels, geographies, and themes of conservation investments.

The profiling team began the process by formally notifying the GEF Operational Focal Points in each country of the work ahead. The team then conducted a desk review, began the process of identifying Key Biodiversity Areas (KBAs) with local and international scientists, and publicly sought the input of a diverse group of stakeholders. Because both CEPF and the KBA concept are new to Central Asia, the profile team designed and used cartoons as an accessible way for stakeholders to understand the purpose of the exercise.

The team held 10 formal, government-attended meetings in China, Kazakhstan, Kyrgyzstan, and Tajikistan between May and December 2016. While there were no formal meetings in Afghanistan, Turkmenistan, or Uzbekistan, stakeholders did travel from those countries to the other events and were also consulted directly by phone and electronic mail. In all, 256 unique participants attended the public meetings or were consulted directly (Table 2.1).

Table 2.1. Contribution of Different Stakeholders to the Consultation Process

Country	CSOs	Private sector	Government	Research	Donor and int. org	Total
Afghanistan	2	2	2	2	2	10
China	4	4	2	8	4	22
Kazakhstan	25	7	17	6	4	59
Kyrgyzstan	40	4	5	6	4	59
Tajikistan	35	4	4	8	6	57
Turkmenistan	10	2	4	2	2	20
Uzbekistan	15	3	3	4	4	29
Total	**131**	**26**	**37**	**36**	**26**	**256**

The final public event was a regional consultation in Almaty on 12 December 2016, International Mountain Day. This meeting brought together a cross-section of senior participants from previous meetings, including representatives of GEF Focal Points, to finalize KBA priorities and the investment strategy.

3. BIOLOGICAL IMPORTANCE OF THE HOTSPOT

Geography, Climate, and History. The Mountains of Central Asia hotspot consists of two of Asia's major mountain ranges: the Pamir; and the Tien Shan. The total area covered is about 860,000 square kilometers. The highest peak, Kongur, in the Chinese Pamir, rises to 7,719 meters, and some 20,000 glaciers cover between 25,000 - 35,000 km^2.

The mountains were mainly formed by folding due to tectonic movements during the Caledonian, Hercynian, and Alpine orogenic (or mountain-building) periods. Some features also result from faulting and from volcanic activity. The central parts of Pamir have a mean elevation of over 4,000 meters and parts of it are plateau-like in character. The western and eastern parts of Pamir, by contrast, are characterized by sharp ridges and steep slopes cut by deep valleys and gorges. They have great variation in elevation and typical alpine relief. The Pamir includes the Fedchenko Glacier, which is more than 70 kilometers long and one of the longest non-polar glaciers in the world.

Glaciers cover four percent of Kyrgyzstan and six percent of Tajikistan, but spread throughout the mountains. Melt water is the source of 80 percent of total river runoff in the region, and they are crucial to maintaining water flow during the hot and dry summer months. The climate is arid with most rain falling in the winter and spring. Arable lands occupy less than 0.5 percent of the total area in the Tajik Pamir, and pastures another 12 percent. In the Tien Shan Mountains of Kyrgyzstan, the proportion of pastures and arable lands is higher. Only half of Kyrgyzstan's land area and less than one third of Tajikistan's land area is suitable for agriculture, mainly for grazing. Croplands and gardens occupy less than 7 and 5 percent of their land areas, respectively.

Habitats and Ecosystems. The predominant vegetation types in the hotspot are desert, semi-desert, and steppe on all the lower slopes and foothills and in some of the outlying ranges and major basins. Patches of riverine woodland forest, called *tugai,* survive along the Amu Darya, Zeravshan, Syr Darya, Chu-Talas, and Ili rivers and a few other places. At higher altitudes, steppe communities dominated by various species of grasses and herbs occur, while shrub communities are widespread in the lower steppe zone. Spruce forests occur on the moist northern slopes of the Tien Shan, while open juniper forest occurs widely between 1,000 and 2,800 meters. Meadows typically occur at higher elevations. At the very highest and coldest elevations, there is limited vegetation cover and diversity, with cushion plants, snow-patch plants, and tundra-like vegetation as well as glaciers.

The hotspot contains ancestors of domestic fruit and nut varieties: apricots, plums, cherries, apples, pears, cherry plums, grapes, pistachios, almonds, walnuts, and pomegranates. In addition, the wild crop relatives of many cultural herbaceous plants – wheat, barley, oats, rhubarb, sorrel, anise, coriander, onions, garlic, tulips – are still found here, making the region an important storehouse of genetic diversity.

Desert, semi-desert, and arid steppe vegetation types predominate on all the lower slopes, foothills, and in some of the outlying ranges. Common plants here include species of widespread genera such as *Artemisia, Salsola,* and *Ephedra*, as well as annual grasses such as *Poa* and *Festuca* spp. **High steppe** communities, dominated by various species of grasses and herbs, occur at higher altitudes. A distinctive type of tall-grass steppe, characterized by *Elytrigia trichophora* and *Hordeum bulbosum*, occurs in the western Tien Shan and Pamir. Shrub communities are widespread in the lower steppe zone and may form dense thickets in gorges. A type of **wild walnut-fruit forest** unique to Central Asia grows above the steppe zone in warm, sheltered places in the Pamir and Tien Shan. These are diverse and are composed

of walnut (*Juglans regia*), almonds (*Amygdalus communis* and *A. bucharensis*), pears (*Pyrus korshinskyi* and *P. regelii*), plums (*Prunus sogdiana* and *P. ferganica*), cherry (*Cerasus mahaleb*), and apple (*Malus sieversii*), along with maples (*Acer turkestanicum* and *A. semenovii*). **Spruce forests** occur on moist northern slopes of the Tien Shan, the only coniferous forest type in the mountains of Central Asia. These occur sporadically along most of the range, east as far as the Karlik Tag. They grow in a broad altitude band between 1,700 meters and 2,700 meters and are dominated by the endemic Schrenk's spruce (*Picea schrenkiana*). Open **juniper forest** occurs widely between 1,000 meters and 2,800 meters. In the Tien Shan it grows above the spruce belt and is composed of *Juniperus seravschanica, J. turkestanica, and J. semiglobosa* (Mittermeier *et al.* 2004).

Subalpine and alpine meadows occur from 2,000-4,000 meters and above, mainly in the northern and western more humid parts of the hotspot. Plant cover is high, with a tight sward made up of grasses such as *Poa alpina*, sedges (*Carex and Kobresia* spp.) and carpeted with a rich variety of herbs including many endemic species. **High-elevation vegetation** is less diverse due to harsh conditions.

Species Diversity and Endemism. The hotspot harbors significant numbers of wild crop relatives and around 5,000 species of vascular plants, almost one quarter of which are endemic.

Table 3.1. Species Diversity and Endemism in the Hotspot by Taxonomic Group

Taxonomic Group	Species	Endemic Species
Plants	5,000-6,000	1,500
Mammals	140	10-20
Birds	c.500	1
Reptiles	60-80	10-20
Amphibians	10	2
Freshwater Fishes	30-60	5-10

Ecosystem Services. Tajikistan holds 40 percent and Kyrgyzstan 30 percent of the water resources serving the five former Soviet republics. Uzbekistan, with the largest share of population in the hotspot, is the biggest water consumer, in large part because of an economy based on irrigated agriculture. Uzbekistan and Turkmenistan, with 90 percent of their water resources coming from mountains located outside their country borders, are highly vulnerable to water shortages.

4. CONSERVATION OUTCOMES

CEPF identifies conservation outcomes at three scales, which are collectively needed to conserve global biodiversity:

1. Globally threatened species on the IUCN Red List.
2. Sites that contribute signficiantly to the global persistence of biodiversity (i.e., Key Biodiversity Areas or KBAs).
3. The conservation landscapes necessary to maintain the ecological and evolutionary processes upon which those sites and species depend.

To track and evaluate the effectiveness of its investments (in synergy with other projects and funding), CEPF sets quantitative targets and monitors the performance of its grants and portfolios towards these

targets. To this end, conservation outcomes are measured in terms of “species extinctions avoided,” “KBAs protected,” and “ecological corridors created”.

Species Outcomes

Species outcomes comprise those species that regularly occur in the hotspot and are classified as globally threatened (Table 4.1). The identification of these species is based on the IUCN Red List and includes species in categories Critically Endangered (CR), Endangered (EN) and Vulnerable (VU). CEPF purposefully excludes extinct taxa and threatened species that occur in the hotspot countries but not within the hotspot limits. Selected species, included ones classified as Data Deficient (DD) and Near Threatened (NT) and national endemics that meet the IUCN Red List criteria for a global threat category, are listed as candidate species outcomes. If, during the CEPF investment, they are formally assessed as globally threatened on the IUCN Red List, they could be recognized as priorities for research or conservation action.

Table 4.1 Synthesis of globally threatened species in the hotspot

Group	CR	EN	VU	Total
Vertebrates (total)	4	9	23	36
Mammals	*1*	*3*	*5*	*9*
Birds	*1*	*4*	*12*	*17*
Reptiles	*0*	*0*	*2*	*2*
Amphibians	*0*	*1*	*0*	*1*
Fishes	*2*	*0*	*4*	*6*
Invertebrates	0	0	3	3
Plants	15	10	4	29
Total	**19**	**19**	**30**	**68**

Site Outcomes – Key Biodiversity Areas

Site outcomes comprise KBAs: sites of importance for the global persistence of biodiversity. KBAs are identified for biodiversity elements for which specific sites contribute significantly to their global persistence, such as globally threatened species or ecosystems. The identification of KBAs uses multiple criteria and sub-criteria, each with associated quantitative thresholds (IUCN, 2016). Sites are identified as KBAs when they meet at least one of the following criteria:

- A1: presence of a significant proportion of the global population of one or more globally threatened species.
- A2: presence of a significant proportion of a threatened ecosystem.
- B1 to B4: presence of geographically restricted biodiversity (which may not necessarily be threatened), including individual species, co-occurring species, assemblages of species, and ecosystem types.
- C: ecological integrity: sites that hold wholly intact ecological communities with supporting ecological processes.
- D: exceptional biological processes, including demographic aggregations, ecological refugia, and source populations essential for the survival of the species.

- E: irreplaceability: sites identified as having through quantitative analysis of complementarity between sites that confirms a very high irreplaceability for the global persistence of biodiversity through a complementarity-based quantitative analysis of irreplaceability.

In consultation with CEPF and international advisors, the ecosystem profiling team at Zoï Environment Network and in-country experts focused on a subset of these criteria, in response to limitations of time, and information.

KBAs are sites, meaning that they have a boundary that can be shown on a map. The aim of KBA delineation is to develop boundaries that are ecologically relevant yet practical for management. Thus, delineating the boundary of a site requires both spatial data and expert judgment on the likely limits of the ecosystems, ecological communities or individual trigger species for which the site is identified. It also requires pragmatic judgment so that, for example, it may make sense to use an existing boundary of a protected area or an administrative boundary or other type of management unit, such as a mining or hunting concession, forest management unit (known as *leshoz* in the five countries of Central Asia) or water protection zone, where this appears to coincide with the ecological boundary of the site.

A total of 167 KBAs, covering a combined area of 180,495 square kilometers, were identified during the ecosystem profiling process. All the countries of the hotspot have KBAs within their borders. Tajikistan and Uzbekistan have the most by number, with 38 each, while China has the greatest combined area of KBAs, equivalent to 31 percent of the total. Afghanistan and Turkmenistan have the fewest KBAs, due to the relatively small area of these countries included within the hotspot boundaries. Because of the data limitations discussed in the previous section, there is no doubt that further desk research and fieldwork as part of projects or targeted research grants would improve the quality of KBA delineation and identify additional global KBAs in the hotspot.

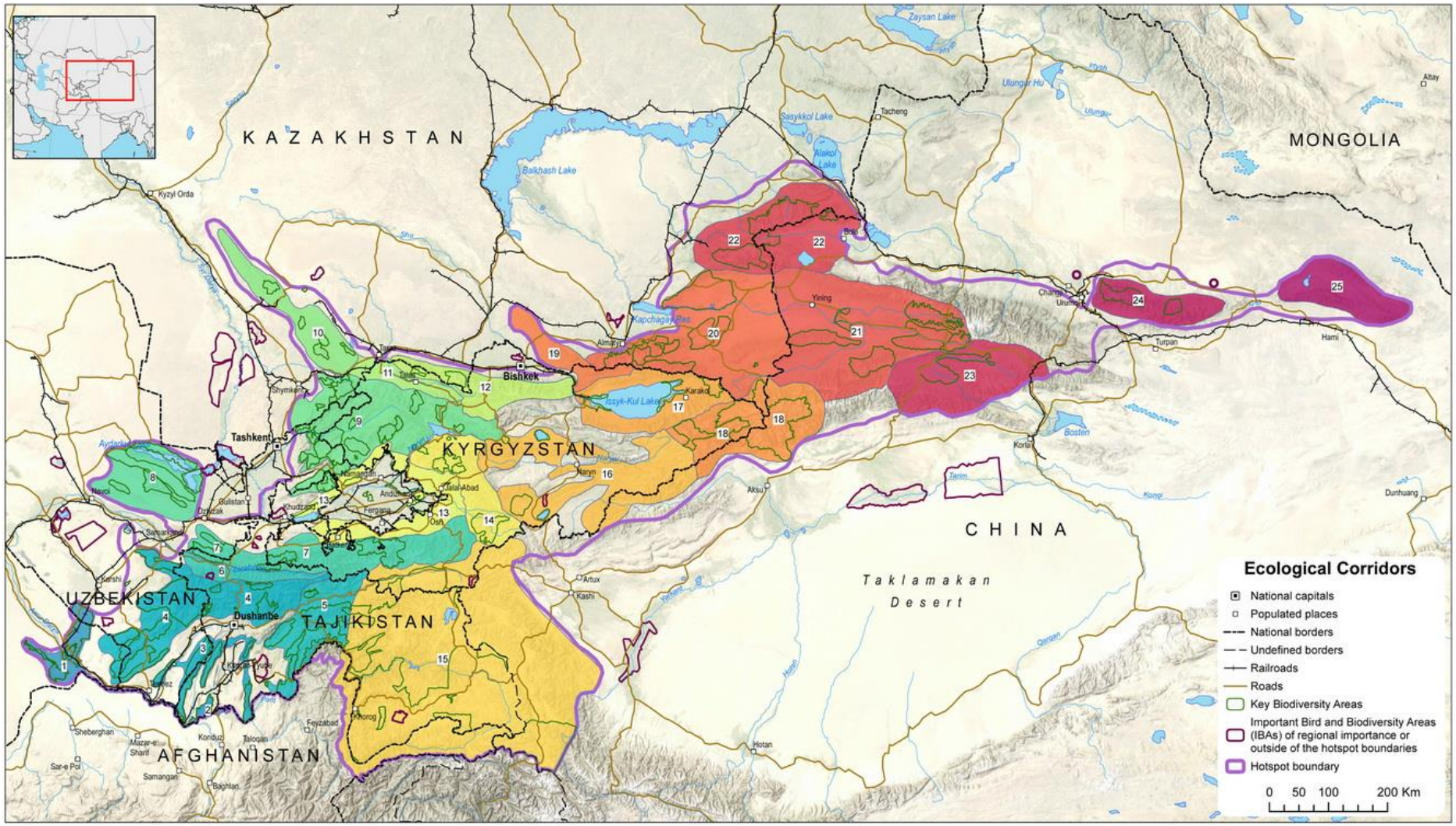
Of the 167 KBAs identified during the ecosystem profiling process, 144 are confirmed global KBAs (Table 4.2). These cover an area of 149,130 square kilometers, equivalent to 18 percent of the total area of the hotspot. The remaining 23 KBAs support globally threatened species, restricted-range species or other elements of biodiversity relevant to the KBA criteria but the available data are insufficient to determine whether they meet the thresholds for the global KBA criteria.

Table 4.2. Number and area of KBAs in the hotspot

Country	Number of confirmed global KBAs	Total area of confirmed global KBAs (km^2)	Number of KBAs with global/ regional status not confirmed	Total area of KBAs with global/ regional status not confirmed (km^2)	Number of IBAs with global/ regional status not confirmed (within the hotspot)	Number of IBAs outside the hotspot (global/ regional status not confirmed)
Afghanistan	1	10,000	1	1,000	0	2
China	14	28,400	15	28,085	0	4
Kazakhstan	23	21,380	2	175	1	8
Kyrgyzstan	32	20,610	0	0	2	2
Tajikistan	35	38,950	3	2,035	8	0
Turkmenistan	3	2,960	0	0	0	0
Uzbekistan	36	26,830	2	70	5	8
TOTAL	**144**	**149,130**	**23**	**31,365**	**16**	**24**

Figure 4.1. Overview map of KBAs in the Mountains of Central Asia Hotspot

Figure 4.2. Overview map of conservation corridors in the Mountains of Central Asia Hotspot



Corridor Outcomes

Conservation corridors are large-scale spatial units necessary to maintain ecological and evolutionary processes. Corridors were identified with a view to: meeting the area requirements of wide-ranging species; maintaining ecological connectivity among KBAs; ensuring the uninterrupted delivery of key ecosystem services; and enhancing resilience of ecosystems to climate change. Twenty-five conservation corridors were identified during the ecosystem profiling process, covering a combined area of 576,800 square kilometers, equivalent to two-thirds of the area of the hotspot (Figure 4.2). The 25 corridors include 154 of the 167 KBAs identified in the hotspot. The remaining 13 KBAs mostly comprise isolated islands of habitat, such as wetlands.

5. SOCIOECONOMIC CONTEXT OF THE HOTSPOT

The hotspot is a fragmented and sensitive region politically and socio-economically, but all the countries share deep cultural links laying on the Silk Route, while the five former Soviet republics share a common communication language (Russian) and cultural, political, and economic history. There are obvious differences in economic power and stability when comparing countries across the hotspot, from China to Afghanistan. As a whole, the populations are relatively young and rapidly growing. Urban populations are growing across the region, and particularly in China; nonetheless, more than half the people of Afghanistan, Kyrgyzstan, and Tajikistan live in rural areas and are directly dependent upon natural resources.

Table 5.1. Population in the hotspot, 2015

Country	Population within hotspot (million)	Density per km^2	Annual population growth (percent)	Population increase 2000 - 2015 (percent)	Rural population as percent of total*
Afghanistan	0.05	1-2	2.4	no data	100
China	17.5-20	16-20	-1.1	15	56
Kazakhstan	6-7	8-16	1.1	20	50
Kyrgyzstan	6	30	1.6	20	64
Tajikistan	8.5	60	1.9	30	73
Turkmenistan	0.05	10	1.3	20	90
Uzbekistan	22	50-500*	1.1	20	50
Total	**60-63.5 m**	**70**			

Source: national and local statistics

* The high density and broad range in Uzbekistan is due to populations in the Ferghana and Zeravshan Valleys and the city of Tashkent

During the 1950s and the 1970s, the Soviet Union orchestrated the resettlement of the mountain dwellers of Tajikistan to the lowlands for the purposes of land development and cotton cultivation. Some of the migration was forced, and some voluntary, but in any case, whole mountain communities were abandoned for many years. At the time of independence, about half of the forced migrants from the resettlement program returned to their old villages. Migration back to mountain communities in Tajikistan was further spurred, beginning in the 1990s, by civil unrest, lack of arable land, and scarcity of fuelwood in the lowlands (University of Central Asia *et al.* 2012).

Income. Post-independence in the 1990s led to rapid changes and overall economic decline in the region, and at the same time, there was civil war in Afghanistan. However, in the 2000s, the countries stabilized and benefited from global economic growth. The countries with fossil fuels grew even more, leading to increased incomes in related sectors such as manufacturing. Labor movement and new economic relationships also led to new services in banking and trade. By the period of 2013-2016, with a drop in the prices of commodities, oil, and gas, state income in Kazakhstan, Turkmenistan, and Uzbekistan became constrained, led to a greater national focus on job creation. Meanwhile, Afghanistan focuses on security, peace, and stability, with the related impact on employment and household welfare.

Table 5.2. Economic statistics for the countries in the hotspot

Country	GDP per Capita 2015	Percent Annual GDP Growth, 2010-2015	Net ODA Received, 2014 (millions)	Net ODA Received as % of GNI, 2014
Afghanistan	$600	1-2	S4,823.3	23.3
China - Xingjian	$14,300	8-12	S-960	0
Kazakhstan	$10,500	1-5	S88.4	0
Kyrgyzstan	$1,100	3-8	S624.1	8.6
Tajikistan	1,000	4-7	S356.3	3.1
Turkmenistan	$6,900	6-10	S34.2	0.1
Uzbekistan	$2,100	8	S24.4	0.5

Sources: World Bank and national statistics

With the fall of the Soviet Union, **poverty** in the region rose to as high as 75-80 percent (UNDP Kyrgyzstan 2002; UNDP Tajikistan 2012; UNECE 2013). Donor support was critical at the peak of the poverty and humanitarian crisis, especially in the Tajik Pamir. Subsequently, poverty has rapidly declined, but Afghanistan, Kyrgyzstan, and Tajikistan are still worse off than their neighbors (in part due to conflict, and in in part due to the countries lacking major natural resources and relying on small-scale industry and agriculture). Poverty levels in Kazakhstan and Turkmenistan are below 5-10 percent (UNECE 2013) and in Uzbekistan, poverty has been almost halved over the past fifteen years to fifteen 15 percent (UNDP 2016).

Table 5.3. Poverty and human development indicators in the hotspot countries

Country	Human Development Index Rank, 2015 (out of 188)	Life Expectancy (Years)	Percent in Poverty (2012-2015)	Adult Literacy Rate (percent)	Gender Inequality Index Rank, 2014 (out of 185)
Afghanistan	171	51	36	38	152
China	90	75	no data	96	40
Kazakhstan	56	70	10	100	52
Kyrgyzstan	120	70	35	100	67
Tajikistan	129	67	38	99	69
Turkmenistan	109	70	5	100	No data
Uzbekistan	114	73	14	100	No data

Sources: UNDP, World Bank

Reliance on Natural Resources

Agriculture. With independence, the five Central Asian governments transitioned collectively-owned farms to quasi-private ownership and long-term private rental. As a result, the number of formal farming units skyrocketed: over 350,000 private farms in Kyrgyzstan and 130,000 in Tajikistan. This also led to an income gap between those who had sufficient arable land and those who did not. In turn, agricultural cooperatives have been formed to collectively own machinery for more efficient planting, harvesting, and processing.

Mineral Resources and Mining. In terms of revenue, if not employment, mining is most notable in Kyrgyzstan, Tajikistan, and China. In Kyrgyzstan, most of the large mineral reserves are in the high mountains (above 2,500 meters), as they are in Tajikistan, where the mining reserves are less developed and the resources are not as well known. Mining and metallurgy contributes up to 50 percent of the national export earnings in Tajikistan (aluminum and gold) and up to 30 percent in Kyrgyzstan (mainly gold). Kyrgyzstan has purposefully created conditions favorable to mining operators by enacting economic reforms and by allowing access to geological information. Kazakhstan, Kyrgyzstan, Tajikistan, and Afghanistan participate in the Extractive Industries Transparence Initiative (EITI). This effort promotes more participation in tenders and financial disclosure showing who is receiving the benefits of mining operations. However, EITI does not currently require disclosure of data on the environmental and social impact of mining on local communities.

Energy. Kyrgyzstan and Tajikistan have the largest hydropower potential, and both countries are actively seeking to exploit this. Currently, Kyrgyzstan has 2,700 MW of installed hydropower and Tajikistan 5,000 MW, combined less than ten percent of their technically feasible hydropower potential. Ongoing development and planning is taking place on Kyrgyzstan's Naryn and Sary-Djaz rivers and in Tajikistan's Vakhsh, Panj, and Zeravshan.

Forest management. The percent of forest cover in the region is low, whether one looks at forests under national boundaries or at more limited data for forest cover within the portions of each country that fall within the hotspot. Most natural forests and plantations are state owned, although individuals and associations can enter long-term leases with the state.

Table 5.4. Forest cover

Country	Total Forests (2015)		Forests within the hotspot
	Km^2	Percent of land area	Km^2
Afghanistan	13,500	2.1	No forests in Wakhan
China	2,100,000	22	23,350 (Xinjiang)
Tajikistan	4,080	2.9	4,080
Kyrgyzstan	8,360	4.4	8,360
Kazakhstan	34,220	1.3	No data
Turkmenistan	41,270	8.8	Marginal
Uzbekistan	30,450	7.2	No data

Source: World Bank, FAO, national statistics

Fuel wood is the principal source of energy for cooking and heating in the mountains, due to the lack of affordable alternatives. Forest certification schemes do not yet exist, although the Forest Stewardship Council has initiated efforts to promote sustainable, "eco-friendly" use and management of non-timber forest products.

Tourism. With the exception Afghanistan, international and domestic tourism within the region is common, with destinations based around hot springs, ski resorts, mountaineering, rock climbing, major lake-based resorts, and cultural heritage sites. Hunting tourism is particularly important in Kyrgyzstan and Tajikistan. Nature parks – lakes, forests, view-sites – are all extraordinarily popular and frequently suffer from too little investment in relation to the number of visitors. Standards for ecotourism have not yet matched the need for the same.

Cultural Distinctions

Ethnic, religious, and linguistic distinctions are captured in the table below. The dominant religion is Islam and Russian remains the international language of the region. Russian is less dominant in Tajikistan and Uzbekistan. English language skills are generally lacking, particularly in rural populations, in government institutions and local CSOs.

Table 5.5. Ethnic Groups, Religions, and Languages within the Hotspot

Country	Main Ethnicities	Other Ethnicities	Main Languages	Main Religions
Afghanistan	Wakhi, Kyrgyz	Badahshi, Tajik, Uzbek	Wakhi, Kyrgyz, Dari, English	Islam
China – Xinjiang	Han, Uyghur	Kazakh, Hui, Kyrgyz, Mongol	Mandarin, Uyghur, Kazakh, Kyrgyz	Islam, local regions
Kazakhstan	Kazakh	Russian, Uyghur	Kazakh, Russian, Uyghur	Islam, Christianity
Kyrgyzstan	Kyrgyz	Uzbek, Russian, Dungan, Tajik	Kyrgyz, Russian, Uzbek	Islam, Christianity
Tajikistan	Tajik	Uzbek, Russian, Kyrgyz, Turkmen	Tajik, Russian, Uzbek	Islam
Turkmenistan	Turkmen	Uzbek	Turkmen, Russian, Uzbek	Islam
Uzbekistan	Uzbek	Tajik, Russian, Kazakh, Uyghur	Uzbek, Russian, Tajik	Islam

6. POLICY CONTEXT OF THE HOTSPOT

Environmental Governance

The primary government agencies responsible for conservation in each country are as follows:

- Afghanistan: National Environmental Protection Agency
- China: Ministry of Environmental Protection
- Kazakhstan: Ministry of Agriculture and Ministry of Energy
- Kyrgyzstan: State Agency on Environment and Forestry
- Tajikistan: Committee on Environmental Protection / National Biodiversity and Biosafety Center
- Turkmenistan: Committee on the Protection of Nature and Land Resources under the Ministry of Agriculture and Water
- Uzbekistan: State Committee for Nature Conservation

Policy and legislation among each of the countries is robust and clear, but implementation is conducted by a diverse array of government agencies that may not be coordinated or motivated.

Protected Areas

Formal protected land within the hotspot varies by country from four percent in Turkmenistan to 22 percent in Tajikistan, with protected areas ranging in size from the 1,200 hectare Gongliuyehetao Chinese Walnut Reserve to the massive Tajik National Park in Tajikistan (2.6 million hectares).

1. Species management areas – locally known as *zakaznik* – correspond to IUCN category IV. These are the most numerous protected areas in the hotspot, but most of them are actually "paper parks."
2. Forestry management areas – locally known as *leskhoz* – apply to most forest lands in the former republics and set regimes for fire management, pest control, grazing, and timber harvest.
3. Hunting concessions are supervised and licensed by the state environmental authorities, and increasingly, are managed privately.
4. Mountain forests and riverbank forests are protected by law (typically the Forest and Water Codes) and their use for commercial activities is restricted. Most are state property under national government control, although some belong to municipalities or communities.
5. Water protection zones – essentially rivers themselves, their riverbanks, and associated groundwater reserves (with sizes varying depending on the importance for drinking water supply or other purposes) – are legally controlled by government entities.

Regional and International Environmental Agreements and Initiatives

Table 6.1. Membership in international conventions and regional conservation initiatives

Country	CBD	CITES	Ramsar	CMS	CACILM	GSLEP	CAMI	UNFCC
Afghanistan	X	X		X		X	X	X
China	X	X	X			X	X	X
Kazakhstan	X	X	X	X	X	X	X	X
Kyrgyzstan	X	X	X	X	X	X	X	X
Tajikistan	X	X	X	X	X	X	X	X
Turkmenistan	X		X		X		X	X
Uzbekistan	X	X	X	X	X	X	X	XX

Table 6.2. Membership in regional environmental agreements and cooperation mechanisms

Country	Caspian Sea convention	Aral Sea basin IFAS	UNECE Water	UNECE Aarhus	EU-CA platform
Afghanistan					
China					
Kazakhstan	X	X	X	X	X
Kyrgyzstan	X	X	X	X	X
Tajikistan		X		X	X
Turkmenistan	X	X	X	X	X
Uzbekistan		X	X		X

Within the five former republics, the International Fund for Saving the Aral Sea (IFAS) maintains the Inter-State Commission on Sustainable Development (ICSD). This is the main body within the five countries tasked to coordinate regional cooperation on environment and sustainable development. Each country has three representatives on the ICSD: the head of the national environmental authority, a representative from an economic affairs ministry, and a representative from the scientific community. ICSD allows for civil society to participate. ICSD has mountain ecosystem conservation as a mandate. While the entity has bureaucratic issues not atypical of international bodies, it is still an important body for sharing of information and promulgation of approach, particularly for KBAs.

Under the Convention on Biological Diversity, each country has revised a National Biodiversity Strategies and Action Plans. The NBSAPs are summarized in the full Ecosystem Profile.

7. CIVIL SOCIETY CONTEXT OF THE HOTSPOT

The trend in the region is one of greater government control over CSOs, particularly since a high point of civil society engagement following the dissolution of the Soviet Union. The reasons for this are many and can be sensitive, but include issues of democratic governance, ethnicity and religion, and perceived and real threats from abroad and from within countries. The end result is that there are now more requirements for organizational and project registration than in the recent past. Nonetheless, CSOs are generally welcome to engage at the local level, particularly for biodiversity monitoring, environmental education, public awareness, and to import “best practice” from abroad.

Comparing across countries, Turkmenistan and Uzbekistan have the strictest rules for the engagement of CSOs via support from international donors. Scientific institutes in these two countries have high standards and adequate funding from national authorities, while CSOs play a role in protection of flagship species and education. In both countries, funding from international entities to local NGOs must be first approved by appropriate authorities.

Engagement of civil society in Xinjiang is proscribed in various ways. Academic and scientific organizations, such as the Academy of Science and universities, receive the most funding and have the greatest ability to conduct field work, especially compared to smaller and independent groups, which are underrepresented.

Perhaps at the next level are Tajikistan, then Kazakhstan. Tajikistan’s environmental CSOs are largely based in Dushanbe, or in Khorog, in the heart of the Pamir Mountains. A significant amount of climate change money coming into the country flows to CSOs to work on adaptation and disaster risk reduction. Local CSOs and public groups are also active in species surveys, support for protected areas, conservation of agro-biodiversity, and sustainable development and forestry projects. Kazakhstan has numerous CSOs in its various large ecosystems (e.g., northern steppes, southern deserts, mountains). Those focused on the mountain environment are in Almaty and south-east Kazakhstan, in the foothills of the Tien Shan Mountains. Many have offices in the capital city, Astana, outside the hotspot, to maintain links to the government and donors. Kazakh CSOs play an active role play an active role in environmental regulation and legislation, implement field projects, and conservation efforts and maintain regional and international relations.

CSOs in Kyrgyzstan and Afghanistan can engage in the broadest array of activities. CSOs in Kyrgyzstan have played a significant role in shaping biodiversity legislation and strategies, and in improving the network of protected areas. However, there is a growing conflict between conservation aims and

development aims, particularly around the Ferghana Valley and the western and central Tien Shan, and this is reflected in the types of CSOs operating, respectively in Osh, Jalal-Abad, and Batken. Afghanistan is perhaps a special case, coming off a period of transition, with so many new governance structures and so much decentralization, that there are numerous roles for CSOs to fill. However, compared to the other countries in the region, national-based CSOs in Afghanistan have the lowest capacity and suffer the most from geographic distance and instability.

Each of the countries has CSOs which can be described as "local," covering smaller parts of the country, "national," covering the majority of the country, "regional" with offices or partners in multiple countries, and "international," based outside the hotspot. These CSOs face similar challenges, to varying degrees:

- National government controls, limitations monitoring, and inspections.
- Limited technical and organizational capacity.
- Lack of recurrent or sustainable funding.
- Differing and challenging donor requirements, including different major languages (English, Russian, Chinese) and donor expectations.

Regional CSOs of note include the University of Central Asia, based in Bishkek, which hosts the Mountain Partnership Central Asia, consisting of 40 organizations from eight countries – the seven in the hotspot plus Pakistan. Also of note is the Central Asia Regional Environmental Center (CAREC). Established in the early 2000s by the five Central Asian countries and international donors, including the EU and USAID, CAREC is headquartered in Almaty and has offices in each of the five capitals, as well as a project office in Kabul.

8. THREATS TO BIODIVERSITY IN THE HOTSPOT

Key threats and their root causes, as well as barriers to effective conservation within the hotspot boundary were identified through the various workshops held as part of the process. The workshops confirmed efforts from previous exercises per Table 8.1.

Table 8.1. Threat Trends by Ecosystem

Ecosystem Type	Habitat Change	Pollution	Overuse	Climate Change	Invasive Species
Evergreen forests	↘	→	→	↗	
Wild fruit and nut forests	↘	→	↗	↗	↗
Desert forests	↘	→	→	↗	
Tugai and riparian forests	→	→	→	↗	
Deserts and semi-deserts	→	↗	→	↗	
Steppes	↘	→	→	↗	
High mountains	↗	↗	→	↗	↗
Rivers and lakes	→	↘	→	↗	→
Agroecosystems	↗	↘	↗	↗	↗

Changes in land use, the modification of natural river flows, and the withdrawal of water from rivers are the most common examples of **habitat change**. This region suffers from land conversion to agriculture and pasture, irrigation schemes, construction of hydropower dams, and threats from infrastructure,

Illegal hunting and poaching have reached an epidemic level in the region, despite strict legislation on species protection or listing of species in national Red Books. This applies particularly to high-value mountain ungulates ("trophy" species), falcons that are exported to the Middle East, and the Central Asian tortoise. During the Soviet era, with greater state control, poaching was less of an issue. Today, with decentralization of government and limited national revenues, enforcement is rare. Similar to excessive hunting, the **unregulated collection of plants** is a threat for endemics for sale (e.g., various tulip species) and for household use (e.g., medicinal plants).

In Xinjiang, serious **overgrazing** and pasture degradation began as early as the 1970s (Zhang 2002). In the former Soviet republics, with the fall of the Soviet Union, domestic livestock production initially declined, but as economies stabilized, the herding of sheep and goats increased sharply, especially in the foothills and lower slopes (800-2,000 meters). **Human-wildlife** conflict is primarily a threat in the Wakhan Valley, where there is retaliatory killing, trapping, and poisoning of snow leopards by herders trying to protect livestock. In the other countries, the fines and criminal penalties for killing a snow leopard seem to serve as sufficient deterrent. However, for other predators, such as wolves, authorities encourage an even reward trapping and hunting.

Invasive and alien species (IAS) and pollution are a serious threat to freshwater ecosystems like Lake Issyk Kul Kyrgyzstan and like those found in the Ferghana Valley and the Ili Basin.

Indirect threats stem from demographic pressure, the demands for socio-economic growth, and weak institutions.

Primary threats can be summarized by country as:

- **Afghanistan – Wakhan Valley:** overgrazing, poaching of wild sheep for meat; threats borne of extreme poverty, geographic isolation, surrounding geographies of political instability.

- Threats in **Xinjiang, China** are from extractive industries, infrastructure development, and increasing consumption that comes with the rapid creation of a middle class.

- **Kazakhstan:** overgrazing, illegal hunting, over collection of wild plants, increasing tourism, and agricultural expansion.

- **Kyrgyzstan:** over-exploitation of forests containing fir, juniper, and trees bearing wild fruits and nuts; over-exploitation and degradation of Lake Issyk-Kul; freshwater pollution; and degradation of steppes, foothills, and grassland corridors.

- **Tajikistan:** declining knowledge base in science and academia; low capacity of state actors responsible for conservation; rapid population growth combined with poor economic prospects of communities in forest and pasture areas; agricultural expansion right to the borders of protected areas; and lack of clear title to land.

- **Turkmenistan:** in the hotspot region of the Koytendag Ridge expansion of agriculture, overexploitation of certain species, and recreational tourism.

- **Uzbekistan:** Loss of habitat, agricultural expansion, agriculture-related pollution, unregulated tourism, and infrastructure development are also major threats.

9. CLIMATE CHANGE ASSESSMENT

National and regional climate projections expect increases in temperatures and precipitation across the hotspot and as much as a fifty percent loss in glacial cover by mid-century. Glaciers ensure continuous waterflow for these water-deficit countries. The climate effects on water regimes are highly variable. As glaciers retreat and snow cover patterns change, the hydrological changes in small and medium rivers in the high mountains are becoming noticeable. The flow in rivers fed by glaciers and snowmelt are expected to increase, especially in summer, for example in the Sary-Dzjaz and Aksu in the Tien Shan Mountains (Kundzewicz et al, 2015; Krysanova et al, 2015).

Impact on human health. More extreme weather events are expected (IPCC, 2012), as are flash floods, which are very destructive given the heavy sediment and rock content of the rivers. Another type of flooding is when rain falls on snow or frozen ground in flat areas, leading to standing water and damage to infrastructure. Project warming will likely affect the stability of mountain permafrost and glacial moraines, which may lead to an increased risk of glacial lake outburst floods.

More frequent and longer droughts are expected, with expected conflicts over competing economic uses for limited water and a demand for more reservoirs and water-related infrastructure. Agricultural phases may also change, with earlier blooming and changing times of harvest.

According to the Global Climate Risk Index, in 2014, Afghanistan was the second most climate change-affected country in the world, with most impacts occurring in Badakhshan Province, home to the Wakhan Valley.

Impact on biodiversity. Various studies expect mountain forests and pastures to move up in elevation and to decrease in size, but it is not known if higher elevation soils will support these ecosystems. Productivity of mountain forests is expected to decline for slow-growing juniper forests (*Juniperus turkestanica*). Climate change is also bringing new species to the region, including gray crane (*Grus grus*), *Pandion chaliaetus, Larus hyperboreus, Stercorarius longicaqudus,* and *Lanius senator*. Table 9.1 summaries information from the studies and the Profile team's stakeholder consultations.

Regional responses. Several organizations at the regional level have the potential to contribute to Central Asia's collective capacity to respond to climate change. As the only regional organization with all five Central Asia states as members, the International Fund for Saving the Aral Sea (IFAS) serves as a political structure for discussion and management of regional environmental issues. The organization has launched regional climate assessments and has sponsored the Fedchenko glacier research, but its efforts to secure international donor support for climate funding have not been as successful as hoped.

Since 2016, the Climate Adaptation and Mitigation Program for the Aral Sea basin (CAMP4ASB), designed with support of the World Bank, hosted by the IFAS, and implemented by CAREC, has been the main (but not only) regional climate cooperation and policy coordination platform. As this Profile was

being written, CAMP4ASB was in the inception and planning phase of regional and country-specific responses.

Table 9.1. Climate Change Effects on Biodiversity

Possible effects	Likely indicators and consequences
Earlier bird arrival, earlier appearance of insects	New wintering areas for some birds: avocet (*Recurvirostra avosetta*), ruff (*Philomaxis pugnax*), wood sandpiper (*Tringa glareola*), redshank (*Tringa totanus*) and earlier spring arrival. New wintering places for the Common crane, little bustard, waterfowl genus, Ruddy shelduck and other species in the Central Asian region (Kreuzberg-Mukhia 2002).
Shift in habitat extent for some plant species and animal ranges	Elevation changes in the spread of the mountain forests and changes in bird and mammal habitats (*Juniperus turkestanica, Malus sieversii*, *Juglans regia*, *Cursorius cursor*, *Phalacrocorax pygmaeus*)
Increase in pressure levels for threatened species, endemic species, and unique ecosystems	Climate change combined with fragmentation and overuse of the mountain ecosystems has already driven gazelle (*Gazella subguttarosa*) and bustard (*Otis tarda*) off the Western Tien Shan Mountains. Other species, including tortoise (*Agriocnemis horsfieldi*), corsac (*Vulpes corsac*), jerboa (*Allactaga jaculus, A.severtzovii*, *A.vinogradovi*) diminished in numbers and extent of occurrence.
Changes in water quality and quantity and impacts on freshwater species and ecosystems	Reduction of water quality in small mountain rivers (Karjantau, Nuratau). Severe impacts of water deficit and low water impacts on delta ecosystems. Increase in irrigation demand due to higher evaporation and, consequently, higher stress on available water resources.

Other regional responses are being hosted by IFAS for hydrology, CAREC for training, UNESCO for glaciers, the Regional Mountain Centre of Central Asia (part of the ICSD and the Kyrgyz State Agency on the Environment) for mountain ecosystems, and the Bishkek-based Central Asia Institute of Applied Geosciences (CAIAG) for monitoring.

Each of the countries has some form of **national response**, and other than Uzbekistan, all the hotspot countries have submitted their intended nationally determined contributions (INDCs) to the UN Framework Convention on Climate Change, with China and Turkmenistan being the most recent countries in the hotspot to ratify the 2015 Paris Agreement

10.ASSESSMENT OF CURRENT CONSERVATION INVESTMENTS

Consultations with stakeholders suggest, across all sources of domestic, international, and private funding, that between $20 million and $30 million per year is allocated to biodiversity conservation and related topics (e.g., watershed management, forestry, research, monitoring, etc.). Table 10.1 shows an assessment of the relative level of funding by country and donor with a scale, from greatest to least, of predominant, medium, minor, marginal, and negligible.

Afghanistan is noted for its dependence on foreign donors for conservation but even in Tajikistan and Kyrgyzstan, with higher amounts of foreign funds, major gaps still exist. Funding for conservation in Uzbekistan can be difficult to assess in terms of the hotspot boundary, because large amounts go to the Aral Sea region (i.e., outside the hotspot) or for economic development in the Ferghana Valley (i.e., inside the hotspot but not necessarily for conservation). International funding for China, Kazakhstan and Turkmenistan ebbs and flows. Sometimes, their GDP is high enough that they do not request, or are not eligible for, donor assistance, or else their economies are massive in relation to the

amount of foreign funding. Nonetheless, all are eager to accept technical assistance and introductions new technologies or best practice.

Table 10.1. Indicative Proportions of Investments to Biodiversity Conservation in the Hotspot

Country	Domestic Public Sector	International Donors	Private Sector
Afghanistan (Wakhan)	Marginal	Predominant	Negligible
China (Xinjiang)	Predominant	Marginal	Marginal
Kazakhstan	Predominant	Marginal	Minor
Kyrgyzstan	Minor	Minor	Marginal
Tajikistan	Minor	Moderate	Marginal
Turkmenistan	Predominant	Marginal	Negligible
Uzbekistan	Predominant	Minor	Marginal

Not properly accounted for here is Chinese investment into the other six countries. The Asian Infrastructure Investment Bank and the One Belt-One Road initiative will both invest money into infrastructure and energy, perhaps with some of this being used for impact assessments, biodiversity surveys, or land or funding offsets.

A different way to assess country dependency on sources other than public revenue is the OECD's statistics on country programmable aid (CPA; Table 10.2).

Table 10.2. Country Programmable Aid Dynamics, Aid dependency, and Outlook

Country	2008 (USD million)	2014 (USD million)	Aid per capita, 2014 (USD)	CPA per GNI, 2014	2019 (projected USD million)
Afghanistan	40	30	126	20.2%	25
China	2149	886	1	0.01%	1300
Kazakhstan	336	109	6	0.06%	100
Kyrgyzstan	377	572	100	8.4%	600
Tajikistan	300	350	42	4.5%	370
Turkmenistan	3850	4000	6	0.08%	4000
Uzbekistan	189	360	12	0.5%	570

Source: OECD.

It is difficult to fully assess the amount of public revenue or domestic funding for conservation. Not all the countries make such information readily available. Indications of levels of public funding for biodiversity by country are provided in Table 10.3.

Protected areas and forested areas are major recipients of public finance, with the bulk of this funding for staff salaries and basic operating costs, such as patrolling. The BIOFIN analysis indicates the gaps and scenarios for change (e.g., how much funding could be raised by increasing trophy fees or collection from fines). Across the hotspot, governments provide only nominal amounts for civil society to become engaged in conservation activities.

Table 10.3. Indicative Levels of Public Funding for Biodiversity Conservation

Country	Protected areas I-II (nature reserves and national parks)	Protected areas III-V (*zakazniks* and nature management areas)	Forest protection and reforestation	Landscapes and non-flagship species
Afghanistan	Marginal	No funding	Marginal	No funding
China	Sufficient	Limited	Sufficient	Limited
Kazakhstan	Sufficient	Marginal	Sufficient	Limited
Kyrgyzstan	Limited	No funding	Limited	Marginal
Tajikistan	Limited	No funding	Limited	Marginal
Turkmenistan	Sufficient	Marginal	Sufficient	Limited
Uzbekistan	Sufficient	Marginal	Sufficient	Limited

Multilateral and Bilateral Donors

The major single source of international aid for conservation in the region is the GEF working via its implementing agencies, which include UNDP, UNEP, FAO, and the World Bank. This includes both funding for outright conservation as well as for biodiversity-related elements of climate change projects. Whereas the vast majority of GEF funding goes to national government entities, the GEF Small Grants Programme (SGP) is targeted at civil society. The SGP makes grants of up to $50,000 and is active in each of the hotspot countries other than Turkmenistan. Challenges facing CSOs seeking access to SGP funds are varying requirements for matching funds and application procedures that can be difficult for nascent groups. However, in places like Kyrgyzstan, the SGP provides good outreach via a network of local supervisors. Another challenge is that during implementation, financial reporting must follow national standards for organizations receiving public funds – such standards can be daunting for smaller groups.

The SGP in Kazakhstan will have a particular overlap with CEPF in the next two to three years. There, SGP expects to support work in and around protected areas, hunting concessions, and IBAs. In Kyrgyzstan, the SGP intends to direct funding at *jamaats* (i.e., community-based organizations) in the southern parts of the country. Across the hotspot overall, there are possibilities for CEPF and the SGP to collaborate on grant-making or find procedural synergies (e.g., in Uzbekistan).

Table 10.4 summarizes GEF-6 STAR Allocations, including SGPs and multiple major projects, and Table 10.5 provides an overview of funding via multilateral agencies.

Table 10.4. GEF-6 STAR Allocations for Hotspot Countries (USD millions)

Country	Climate Change	Biodiversity	Land Degradation	Total	Fully Flexible
Afghanistan	3.00	3.91	4.39	11.30	no
China	126.00	58.55	9.95	194.50	no
Kazakhstan	11.81	5.04	5.13	21.99	no
Kyrgyzstan	2.00	1.56	3.04	6.60	yes
Tajikistan	2.00	1.50	2.78	6.28	yes
Turkmenistan	4.99	1.81	3.29	10.09	no
Uzbekistan	11.46	1.78	5.12	18.37	no

Over the period of 2010-2015, the majority of bilateral funds for conservation in the five former Soviet republics came from Germany, Switzerland, Japan, and the European Union, while the United States, via its Agency for International Development (USAID), has been the major provider in the Wakhan Valley of Afghanistan. Meanwhile, as part of the One Belt-One Road initiative, China established the Central Asian Centre for Ecology and Environment, hosted in Urumqi by Xinjiang Institute of Ecology and Geography, with satellite offices and monitoring stations in Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan.

Table 10.5. Overview of Investments by Multilateral Agencies

Donor	Countries	Areas of support
FAO (with GEF funds)	Kyrgyzstan, Tajikistan, Uzbekistan, Afghanistan	Agricultural reforms, forestry and land sector, climate resiliency, CACILM-2
World Bank (with GEF and CIFs)	Kyrgyzstan, Tajikistan, China, Uzbekistan, Afghanistan	Sustainable agriculture and landscapes, CAMP4ASB, water management, agricultural reforms, hydrometeorological monitoring network modernization
ADB (with GEF and CIFs)	Kyrgyzstan, Tajikistan, Uzbekistan, Afghanistan	Combating land degradation, water reforms, disaster risk reduction, pilot program for climate resilience (PPCR in Tajikistan)
EBRD (with GEF and CIFs)	Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan	Energy efficiency and renewable energy, waste management improvements, infrastructure, and rural development (PPCR in Kyrgyzstan)
GEF, including the Small Grants Program	All countries of the hotspot	Medium-sized biodiversity-related projects; small grants to local CSOs for: sustainable use of natural resources; support to protected areas; access to clean energy; awareness raising; and ecotourism

Table 10.6. Overview of Conservation-Related Investments by Bilateral Agencies

Donor	Countries	Areas of support
China	Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan	Research and training, environmental monitoring, infrastructure
European Union / European Commission	All countries of the hotspot	Regional environmental cooperation, water management, disaster risk reduction, forest and pasture improvements, river basin management (Zeravshan Basin in Tajikistan), clean-up of the hazardous waste and toxic legacies, education
Switzerland (SDC)	Kyrgyzstan, Uzbekistan, Tajikistan	Water reforms, mountain development, disaster risk reduction, health and sanitation, waste management, education
Germany (BMZ, BMUB via GIZ + KfW)	Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan	Sustainable pasture, land, forest and wildlife management, education, health, energy, basic infrastructure
United States (USAID)	Afghanistan, Kyrgyzstan, Kazakhstan, Tajikistan	Wildlife conservation (via WCS and WWF), agriculture, food security, water and sanitation, education, capacity building
Russia	Kyrgyzstan, Tajikistan	Uranium waste rehabilitation, education, capacity building
Japan (JICA)	China, Kyrgyzstan, Tajikistan, Afghanistan	Sustainable natural resource use, disaster risk reduction

The European Union is the leading donor in Central Asia with overall assistance for 2014-2020 budgeted at €1 billion. The EU is now working on a strategic approach for conservation in all of Asia, with a volume dedicated to Central Asia being prepared by WCS. The regional approach, called "Larger than Tigers," is intended to guide the programming of EU funding related to biodiversity. The authors of this profile and the Central Asia "Larger than Tigers" team have coordinated in the development of these strategies.

The World Bank has implemented work throughout the region, including the Western Tien Shan biodiversity conservation project in Kazakhstan, Kyrgyzstan, and Uzbekistan; the Dashtijum biodiversity conservation project in Tajikistan; and major pollution clean-up efforts in Kyrgyzstan and Kazakhstan. Major ongoing projects include the Environmental Land Management and Rural Livelihoods project in Tajikistan ($5 million), the Integrated Forest Ecosystem Management in Kyrgyzstan ($16 million, with partial GEF financing), the East-West International Transit Corridor Project between Almaty and Korgos, China, and several agricultural, road and water projects in Uzbekistan. The World Bank also supports regional efforts, such as the Central Asia Climate Adaptation and Mitigation Project for the Aral Sea Basin (CAMP4ASB) and capacity building programs in Tajikistan and Uzbekistan designed to promote information exchange and coordinated ecosystem adaption efforts. The World Bank also supports national hydrometeorological service modernization projects and regional disaster risk management efforts. Finally, the World Bank also supports the Extractive Industries Transparency Initiative in Kyrgyzstan, Kazakhstan, Tajikistan, and Afghanistan, which could lead to improved collaboration with national mining associations and individual companies.

Japan supports work throughout the region, but its biodiversity focus is in Kyrgyzstan. It has supported a program called "One Village, One Product" around Lake Issyk-Kul to develop unique agricultural products or handicrafts in a sustainable manner. Japan also supports university students and professional from Afghanistan and the five republics to study abroad. In Afghanistan, JICA is supporting improved hydrological and land use management in the Panj-Amu River basin.

A significant regional initiative is the **Global Snow Leopard and Ecosystem Protection Program (GSLEPP).** Its partner and funding entities include the GEF, World Bank, UNDP, and several other donors, and implementers, who via the program, have joined under the banner of the governments of all the snow leopard range countries (i.e., 12 countries overall, including all the hotspot countries other than Turkmenistan). Together, they support a common agenda (the Bishkek Agenda of 2013), which has identified desired portfolios in each country (i.e., identified programs that require funding). Fully implementing the GSLEPP portfolios will require tens of millions of dollars. The CEPF program purposefully considers GSLEPP and, in various areas, complements its approach or helps to achieve its objectives.

Assessment of Funding Opportunities and Gaps

In terms of funding for civil society in the conservation space, CSOs receive money to work on "safe" activities like environmental education, training, and awareness, with money used for posters, leaflets, lectures, information campaigns, websites, and popular outreach methods. There has also been funding to CSOs for rural development and forest, pasture, and water management. There has been relatively less money to support CSOs in field-based conservation of KBAs, however.

In terms of funding for species and site conservation, most money has gone into planning (the plans are quite robust) but less has gone into actual implementation of these plans. Thus, there are well-developed plans from GSLEPP, the Argali action plan, and the Central Asian Mammal Initiative (CAMI). In

theory, donors can select from the menu of options that these plans present. Within the countries of the hotspot (albeit outside of the hotspot boundaries) are several ongoing species-focused conservation efforts targetting at saiga, kulan (*Equus hemionus kulan*), and sturgeons, all of which can provide models and lessons for work within the hotspot.

There are a few examples of "innovative" financing mechanisms in the region. Payment for ecosystem services (PES) is understood and has been piloted in China, Kazakhstan, Kyrgyzstan, and Tajikistan. With the exception of China, these pilots have been limited in terms of scope and scale. There are also examples like the "Archa Initiative" that promote public-private partnerships, in this case around botanical gardens and *ex situ* conservation. Newer still to the region is promotion of certification and eco-labeling of sustainable forest and agricultural products, to incentivize biodiversity-friendly land management practices and/or create revenue streams for conservation. A final example that may be promising is from micro-finance and the establishment of revolving funds to support small enterprise and household needs. These are common worldwide but are now being proposed specifically for conservation enterprises tied to particular KBAs or landscapes in the hotspot.

11.CEPF NICHE FOR INVESTMENT

CEPF's investment niche for the hotspot is defined by the KBA methodology, with prioritization of KBAs that are in trans-border areas, those that allow for resilience to climate change, and those that allow for linkages across productive landscapes. The niche is also defined by the operational environment for grant making in hotspot each country, taking into account political realities and issues of peace and stability. Furthermore, the niche allows for purposeful synergies with possible future funders, as well as adaptive responses to emerging threats. Finally the niche is designed to ensure that biodiversity conservation fully supports local and national economic development agendas.

CEPF's investment niche is to promote a common agenda among decision-makers/politicians, private developers, and civil society, to complement the work of public sector managers of protected areas via civil society engagement, and to build the capacity of CSOs to engage in conservation in the hotspot.

12.CEPF INVESTMENT STRATEGY

Priority Species

National consultations and the processing of the stakeholder questionnaires provided the basis for prioritization of the species outcomes. The list of priorities includes highly threatened species, includes both high profile species, such as snow leopard, for which CEPF may only provide complementary funding, and less well-known species, such as Strauch's toad agama (*Phrynocephalus strauchi*), for which CEPF may be the only source of investment. While CEPF focuses on globally threatened species, the national consultations identified some taxa in need of conservation attention that are not currently recognized as such. Some are close to being assessed as globally threatened, some are particularly distinctive sub-specific taxa, and some are geographically distinct populations. If any of these taxa are recognized as globally threatened on the IUCN Red List, they will be automatically added to the list of species outcomes, and will be candidates for inclusion on the list of priority species, when it is next updated (for instance, at the mid-term assessment of the CEPF investment program).

A total of 33 species outcomes were selected as priorities for CEPF investment (Table 12.1). A little more than half are plants, while the others are animals, mainly mammals and birds. The priority species are found in all seven hotspot countries, with at least nine species in each country. This creates opportunities for civil society organizations across the hotspot to engage in species-focused conservation actions.

Table 12.1. Priority species for CEPF investment

No.	Scientific Name	Common Name	Global Threat Status			Distribution by Country						
			Critically Endangered	Endangered	Vulnerable	Afghanistan	China	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
	MAMMALS											
1	*Cervus hanglu*	Bukhara Deer		EN		+	+	+		+	+	+
2	*Marmota menzbieri*	Menzbier's Marmot			VU			+	+	+		+
3	*Ochotona iliensis*	Ili Pika		EN			+					
4	*Ovis orientalis**	Urial			VU	+		+		+	+	+
5	*Panthera uncia*	Snow Leopard		EN		+	+	+	+	+		+
	BIRDS											
6	*Anser erythropus*	Lesser White-fronted Goose			VU			+			+	+
7	*Aquila heliaca*	Eastern Imperial Eagle			VU	+	+	+	+	+	+	+
8	*Aquila nipalensis*	Steppe Eagle		EN		+	+	+	+	+	+	+
9	*Columba eversmanni*	Yellow-Eyed Dove			VU	+	+	+	+	+	+	+
10	*Neophron percnopterus*	Egyptian Vulture		EN		+	+	+	+	+	+	+
11	*Vanellus gregarius*	Sociable Lapwing	CR			+		+	+	+	+	+
	REPTILES											
12	*Phrynocephalus strauchi*	Strauch's Toad Agama			VU					+		+
	AMPHIBIANS											
14	*Ranodon sibiricus*	Semirechensk (Xingjian) Salamander		EN			+	+				
	FISHES											
14	*Aspiolucius esocinus*	Pike Asp			VU			+	+	+	+	+
15	*Pseudoscaphirhynchus kaufmanni*	Amudarya Shovelnose Sturgeon	CR			+				+	+	+
	PLANTS											
16	*Amygdalus bucharica*	Wild Almond			VU				+	+		+
17	*Armeniaca vulgaris*	Wild Apricot		EN			+	+	+			+
18	*Betula talassica*	birch species		EN				+				
19	*Betula tianschanica*	birch species		EN			+	+	+			+
20	*Calligonum calcareum*	smartweed species	CR						+			+
21	*Crataegus darvasica*	hawthorn species	CR							+		

No.	Scientific Name	Common Name	Global Threat Status			Distribution by Country						
			Critically Endangered	Endangered	Vulnerable	Afghanistan	China	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
22	*Crataegus knorringiana*	hawthorn species	CR						+			
23	*Crataegus necopinata*	hawthorn species	CR							+		
24	*Malus niedzwetzkyana*	wild apple species		EN				+	+	+		+
25	*Malus sieversii*	wild apple species			VU		+	+	+	+		+
26	*Polygonum toktogulicum*	smartweed species	CR						+			
27	*Populus berkarensis*	poplar species	CR					+				
28	*Pyrus cajon*	wild pear species		EN						+		
29	*Pyrus korshinskyi*	wild pear species	CR						+	+		+
30	*Pyrus tadshikistanica*	wild pear species	CR							+		
31	*Ribes malvifolium*	currant species	CR									+
32	*Sibiraea tianschanica*	rose species	CR					+	+			
33	*Swida darvasica*	dogwood species	CR							+		

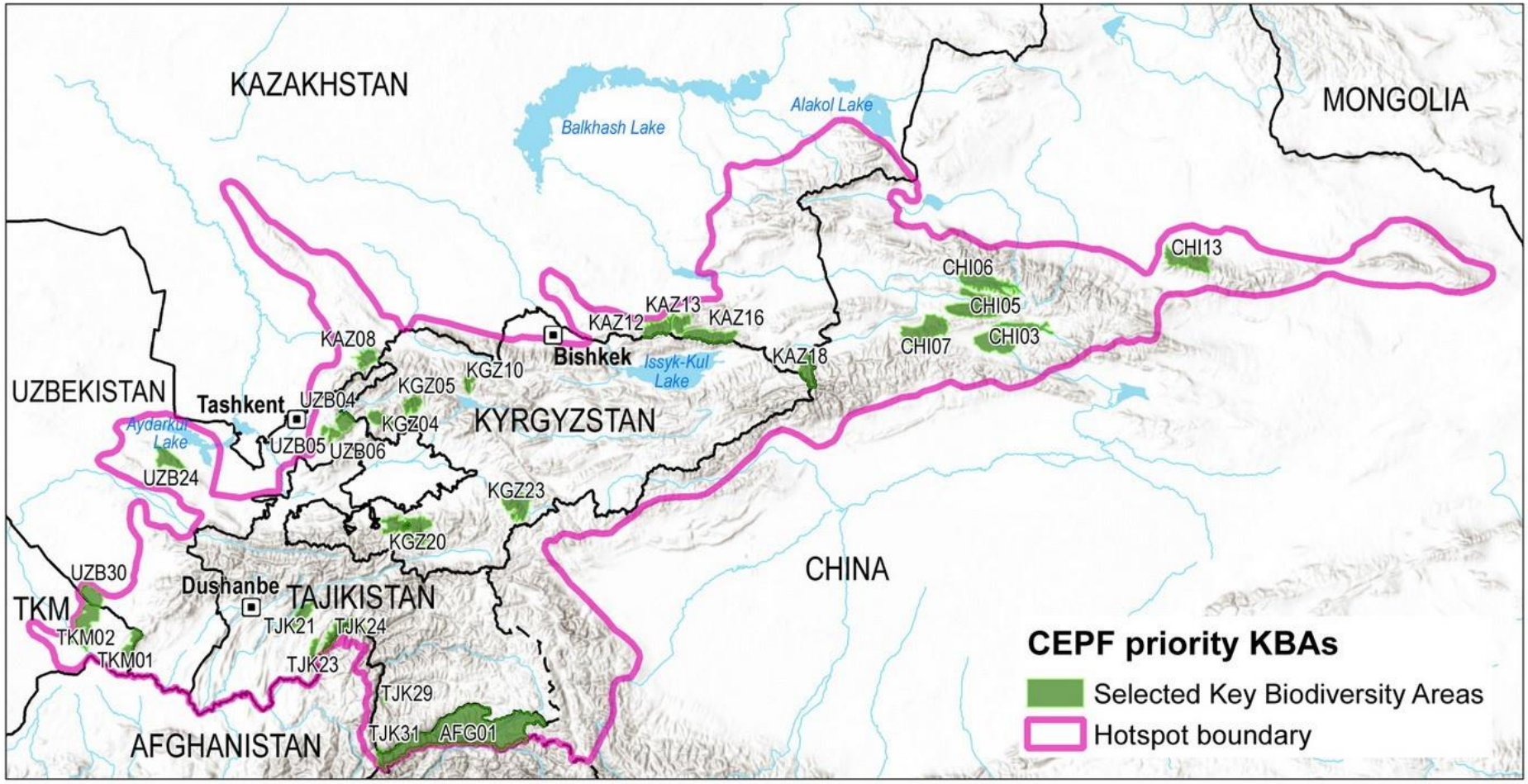
Note: * = includes both Bukhara urial (*Ovis orientalis bocharensis*) and Laddakh Urial (*Ovis orientalis vignei*).

Priority Sites

The initial prioritization of sites was undertaken by participants at the national and regional consultations, who proposed 90 KBAs (out of the 167 confirmed and candidate KBAs) as priorities for CEPF investment. The criteria used for this exercise included biological importance, site-level threats, opportunities for synergies with other initiatives, and feasibility of project implementation (based on considerations of technical challenges, remoteness, security, border zone restrictions, etc.). In view of the expected level of CEPF investment in the hotspot, this shortlist of sites was considered too many, even allowing for some redundancy, which is essential for mitigating the political and security risks that can restrict access to parts of the hotspot. Consequently, the following additional criteria were applied by the profiling team, at the request of the CEPF Secretariat:

- Small KBAs were preferred to very large KBAs, where the impacts of CEPF investments could be diluted by sheer size.
- UNESCO World Heritage sites (or candidate sites) were favored, unless they were too large (see previous criterion).
- Preference was given to KBAs important for highly threatened and narrowly endemic species, unique communities and/or crop wild relatives (that are threatened and/or narrowly endemic).
- KBAs outside or in the buffer zones of protected areas were preferred to strictly protected KBAs that already benefit from a certain level of protection and may present fewer opportunities for civil society involvement
- Particular preference was given to KBAs that presented opportunities for supporting synergistic activities with GEF Small Grants, larger GEF biodiversity projects and investments by other donors at the local level.

Figure 12.1. Map of priority sites for CEPF investment in the Mountains of Central Asia Hotspot



By applying these criteria to the shortlisted KBAs, 28 priority sites were selected (Table 12.2, Figure 12.1). These 28 sites cover a combined area of 38,420 square kilometers, less than five percent of the total area of the hotspot. As with the priority species, the priority sites are distributed across the seven hotspot countries: five each in China, Kazakhstan, Kyrgystan, Tajikistan, and Uzbekistan (to promote programmatic balance), and two in Turkmenistan and one in Afghanistan (reflective of fewer opportunities in those two countries). Priority sites have different combinations of legal protection status, threats and biological values, and require different conservation responses. Table 12.2 summarizes indicative actions for each site, proposed by the participants at the consultations.

Table 12.2. Priority sites for CEPF investment

Code	Name of KBA	Possible actions (indicative only)
Afghanistan		
1	Wakhan National Park	Protection of snow leopard and other species of rare mammals, birds and plants. Biodiversity monitoring and close collaboration and engagement of local communities, diversifying income opportunities and protecting livestock from predation and disease.
China		
3	Bayanbuluke and Kaidu River Valleys *(UNESCO WHS)*	Studies on the number and dynamics of species, suggestions for the optimal natural resources use regime and conservation actions in relation to UNESCO World Heritage site status.
5	Nalati Prairie Nature Reserve	Threatened and endemic species protection and research.
6	Tangbula Forest	Forest protection, conservation of endemic species and genetic resources
7	Gongliu Wild Fruit Forest Nature Reserve	Forest protection, conservation of endemic species and genetic resources.
13	Tianshan Tien Chi Lake (Bogdashan) Nature Reserve *(UNESCO WHS)*	Threatened and endemic species protection and research, and engagement of nature users – especially the tourism sector and infrastructure developers.
Kazakhstan		
8	Aksu-Zhabagly *(UNESCO WHS)*	Threatened and endemic species protection and research, engagement of local nature users and capacity building for more effective functioning of the KBA. Awareness work and cross-border cooperation in relation UNESCO World Heritage site status.
12	Aksay	Threatened and endemic species protection and research, engagement of local nature users and capacity building for more effective functioning of the KBA.
13	Almaty reserve	Threatened and endemic species protection and research, engagement of local nature users and capacity building for more effective functioning of the KBA.
16	Kolsai	Threatened and endemic species protection and research, engagement of local nature users and capacity building for more effective functioning of the KBA. Special focus on sustainable tourism.
18	Narynkol	Protection of threatened and endemic species, wildlife, and engagement of local nature users and capacity building for more effective functioning of the KBA.

Code	Name of KBA	Possible actions (indicative only)
Kyrgyzstan		
4	Kassan-Sai	Protection and responsible management of the riverbed and forest ecosystems, threatened and endemic species with engagement of local nature users.
5	Aflatun-Padyshata *(UNESCO WHS)*	Threatened and endemic species protection and research, engagement of local nature users and capacity building for more effective functioning of the KBA. Awareness work and cross-border cooperation in relation to UNESCO status.
10	Chychkan	Threatened and endemic species protection and research, engagement of local nature users and capacity building for more effective functioning of KBA.
20	Isfairam-Shakhimardan	Protection and responsible management of the juniper forest ecosystems, wildlife and endemic species with engagement with local nature users.
23	Alai-Kuu	Protection of threatened and endemic species, wildlife, and engagement of local nature users and capacity building for more effective functioning of the KBA.
Tajikistan		
21	Baljuvan	Threatened and endemic species protection and research, engagement of local nature users. Reduction of pressures within KBA, including grazing, access to energy, endemic plants collection. Community-managed micro-sites.
23	Dashtijum	Threatened and endemic species protection and research, engagement of local nature users. Reduction of pressures within KBA, including grazing, access to energy. Promotion of community-managed micro-sites.
24	Darvaz	Threatened and endemic species protection, engagement of local nature users. Reduction of pressures within KBA, including grazing, access to energy, unregulated hunting and plants collection. Community-managed micro-sites.
29	Shakhdara	Protection of threatened species and endemics. Genetic resource conservation.
31	Ishkashim	Protection of threatened species and endemics. Genetic resource conservation.
Turkmenistan		
1	Koytendag	Protection of endemic plants, birds of prey and ungulates. Species monitoring and awareness raising among the local population. Reducing pressures from over-grazing and illegal hunting.
2	Tallymerjen	Wetland management focused on the conservation of threatened species. Species monitoring and awareness raising among the local population.
Uzbekistan		
4	Akbulak River Basin (core of Chatkal Biosphere Reserve - *UNESCO WHS)*	Threatened and endemic species protection and research, engagement of local nature users and capacity building for more effective functioning of KBA. Awareness work in relation to UNESCO World Heritage site status, cross-border cooperation.
5	Bashkyzylsay River Basin (part of Chatkal Biosphere Reserve - *UNESCO WHS)*	Threatened and endemic species protection and research, engagement of local nature users and capacity building for more effective functioning of KBA. Awareness work in relation to UNESCO World Heritage site status, cross-border cooperation.
6	Karabau and Dukentsay River Basins	Threatened and endemic species protection and research, engagement of local nature users and capacity building for more effective functioning of KBA.

Code	Name of KBA	Possible actions (indicative only)
24	Nuratau Ridge	Threatened and endemic species protection and research, engagement of local nature users and capacity building for more effective functioning of KBA.
30	Talimarjan Reservoir	Protection of threatened species and globally significant aggregations.

It should be noted that participants at the regional consultation in Almaty agreed in principle to adopt an adaptive approach to site prioritization. It is important to start with a reasonable number of priority KBAs that allows some flexibility to take advantage of opportunities for synergy that may arise, as well as some redundancy to mitigate political risk, while ensuring that CEPF investments remain focused for maximum impact. If there is a significant change to the situation, priorities can be revised by the RIT during the mid-term assessment in consultation with local and regional stakeholders.

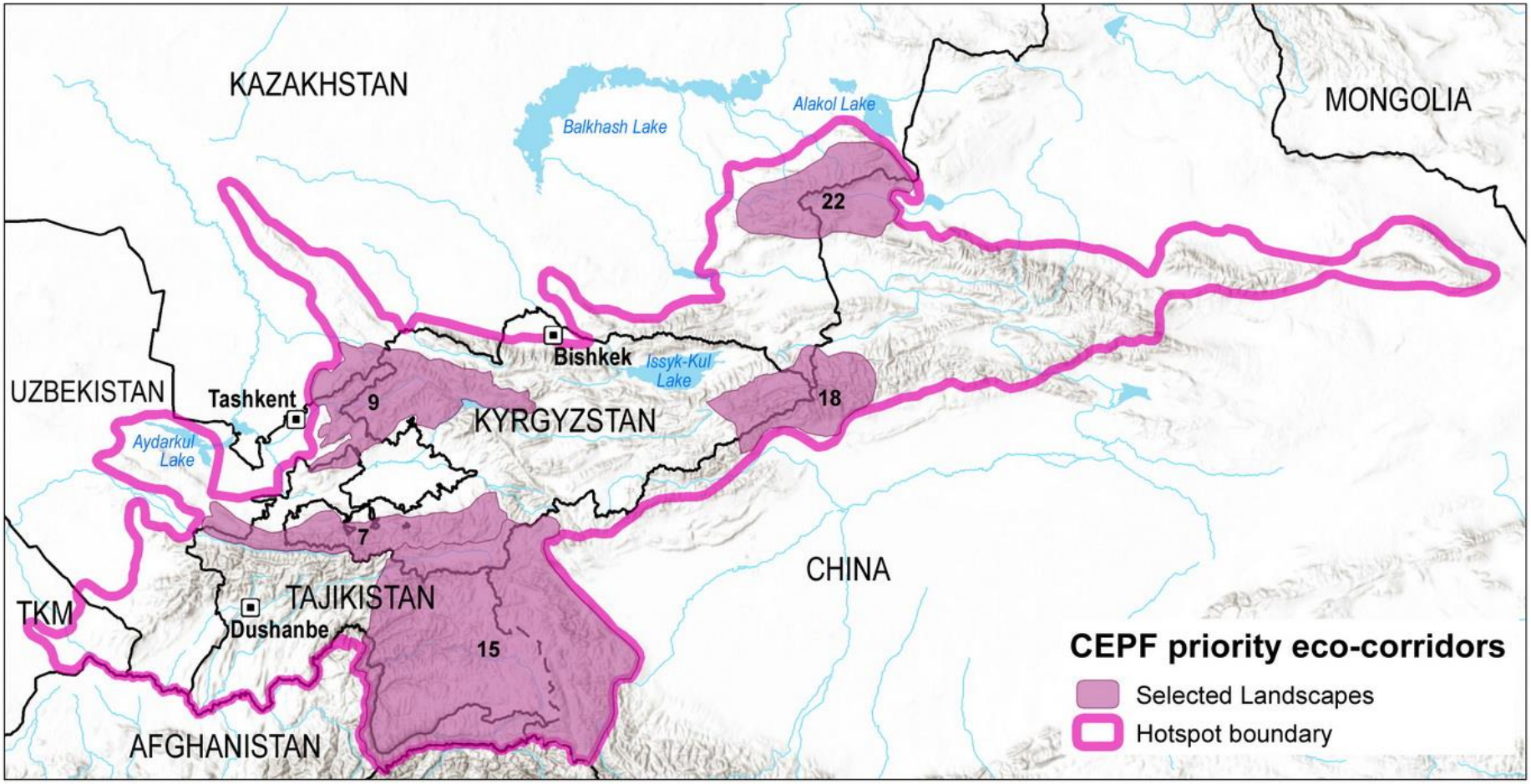
Priority Corridors

As similar approach was used to prioritize conservation corridors as was used for prioritizing KBAs. An initial list of more than 10 (out of 25) conservation corridors was suggested by participants at the national and regional consultations. Again, this was considered not commensurate with the expected level of CEPF funding in the hotspot, and was further refined through the application of additional criteria, including opportunity for synergy with investments by other funders, and opportunity to engage civil society in the conservation and management of mountain forests, which was one of the strategic priorities to emerge from the consultations (see Section 12.4). Through this process, five corridors were prioritized (Table 12.3, Figure 12.2). These corridors cover a combined area of 251,200 square kilometers, equivalent to 29 percent of the total area of the hotspot. The priority corridors connect key sections of the Tien Shan and Pamir Mountains in China with the Central Asian republics, based on biologcal considerations and economic and infrastructure development trends, thereby creating opportunities to engage civil society in landscape-scale conservation actions.

Table 12.3. Priority Corridors for CEPF investment

Code	Conservation corridor name	Area (km2)	Countries
7	Turkestan and Alai Mountains	23,900	KYR, TJK, UZB
9	Western Tien Shan	34,300	KYR, TJK, UZB
15	Pamir-Alai and Wakhan Mountains	122,000	KYR, TJK, AFG, CHI
18	Khan-Tengri and Tomur Mountains	23,600	KYR, KAZ, CHI
22	Dzungaria	47,400	KAZ, CHI

Figure 12.2. Map of priority corridors for CEPF investment in the Mountains of Central Asia Hotspot



CEPF Strategic Directions and Investment Priorities

Stakeholders discussed potential strategic directions (i.e., thematic priorities for investment) extensively during the various workshops. The list of six shown in Table 12.4 originally consisted of nine (with 35 investment priorities), which were then modified or combined for management efficiency, or deleted, because they did not correspond with CEPF's broader aims or operational policy.

Table 12.4. Strategic Directions and Investment Priorities

CEPF Strategic Directions	CEPF Investment Priorities
1. Address threats to priority species	1.1. Improve enforcement and develop incentives and alternatives for nature users and collectors 1.2. Promote improved regulation of collecting, hunting, and fishing 1.3. Support the development of species-specific reserves and conservation programs 1.4. Prevent human-wildlife conflict by addressing killing, poisoning, and trapping 1.5. Maintain populations of priority species beyond those solely affected by collection, hunting, fishing, poisoning, and nature users
2. Improve management of priority sites with and without official protection status	2.1. Facilitate effective collaboration among CSOs, local communities, and park management units to enhance protected area networks 2.2. Develop and implement management approaches to sustainable use in KBAs outside official protected areas 2.3. Build support and develop capacity for identification and recognition of KBAs
3. Support sustainable management and biodiversity conservation within priority corridors	3.1. Develop protocols and demonstration projects for ecological restoration that improve the biodiversity performance and connectivity of KBAs 3.2. Evaluate and integrate biodiversity and ecosystem service values into land-use and development planning 3.3. Support civil society efforts to analyze development plans and programs, evaluate their impact on biodiversity, communities and livelihoods, and propose alternative scenarios and appropriate mitigating measures

CEPF Strategic Directions	CEPF Investment Priorities
4. Engage communities of interest and economic sectors, including the private sector, in improved management of production landscapes (i.e. priority sites and corridors that are not formally protected)	4.1. Engage hunting associations, tourism operators, and mining companies in conservation management and establishing valuation mechanisms for biodiversity and ecosystem services 4.2. Promote mainstreaming of conservation into livestock and farm management practices 4.3. Promote sustainable forest certification and value chains for non-timber forest products 4.4. Engage with the government and private sector to incorporate site safeguards into infrastructure development 4.5. Engage the media as a tool to increase awareness about globally threatened species and KBAs and inform public debate of conservation issues
5. Enhance civil society capacity for effective conservation action	5.1. Enable and enhance communication and collaboration between civil society and communities and government agencies responsible for implementing national biodiversity strategies 5.2. Enhance civil society organizations' capacity for planning, implementation, outreach, sharing of best practice, fundraising, and communication 5.3. Catalyze networking and collaboration among civil society organizations and between them and public sector partners 5.4. Promote greater sources of funding for civil society to become engaged in conservation action 5.5. Support action-oriented environmental education
6. Provide strategic leadership and effective coordination of conservation investment through a Regional Implementation Team	6.1. Build a constituency of civil society groups working across institutional and political boundaries toward achieving the shared conservation goals described in the ecosystem profile 6.2. Act as a liaison unit for relevant networks throughout the hotspot to harmonize investments and direct new funding to priority issues and sites

Strategic Direction 1: Address threats to priority species

Overexploitation can devastate a species even when its habitat is protected. Species with reduced populations are at increased risk of disease, less resilient to habitat disturbance, and less able to compete with invasives. Some species may be able to withstand limited exploitation, and this may be an effective conservation strategy where exploitation rights can be defined, managed and policed. Where a species or product is important for local livelihoods and economies, it may be possible to find

alternatives or to incentivize behavioral change. For many species, however, legal protection and enforcement of bans on exploitation are required. Enforcement of regulations, quotas and other requirements of species action plans is complex and often depends on the cooperation of local stakeholders.

Strategic Direction 2: Improve management of priority sites with and without official protection status

Protected areas are a critical part of the overall effort for the conservation of KBAs, and are likely to become more so as pressure from land-use change increasingly affects them. Protected areas should simultaneously accommodate and respect local customary rights and resource use, although this is often not the case. Some protected areas are the subject of conflicts over land use, mining, or agricultural development, or are poorly managed "paper parks." CEPF will support the improved management of protected areas, which are the backbone of conservation in the hotspot.

At the same time, not all KBAs are within protected areas, nor should they be. Some KBAs are on public land with management designations that offer a degree of legal protection and control over what may and may not happen to them. For example, there are lands designated for catchment protection or sustainable forestry that is not incompatible with conservation. CEPF will support actions that maintain the conservation value of these KBAs by working with regulations, incentives and technical support to encourage stakeholders managing the forest (communities, district forest agencies, license holders, etc.) to incorporate biodiversity into their management practices.

Pressure from unsustainable local natural resource use is a challenge for KBAs across the hotspot. Models of sustainable, community-based management in a variety of situations are important to convince government and local stakeholders that such approaches are possible. Likely activities include identification of links between livelihoods and resources, strengthening of local institutions for management, creating links to markets and economic opportunities that give the sustainable management greater value, and building networks of support for the community-based initiatives.

Strategic Direction 3: Support sustainable management and biodiversity conservation within priority corridors

A defining feature of this hotspot is its large, uninhabited landscapes across which roam iconic ungulates and carnivores. The hotspot is also home to wild relatives of cultivated fruit and nut trees, including apple, pear, walnut, apricot, and pistachio. Corridors of forested areas not only allow movement of threatened species but provide resource-dependent communities with energy, food, income, livelihoods, secure water supply, and protection against natural disasters. Throughout the hotspot, forests are formally owned by the state but may be leased by communities or concessions. Managing these corridors for local human well-being, national economic interest, and conservation is an important goal of CEPF.

Strategic Direction 4: Engage communities of interest and economic sectors, including the private sector, in improved management of production landscapes (i.e., priority KBAs and corridors that are not formally protected)

KBAs are defined spatial units that can be managed for biodiversity conservation. KBAs can be either formally protected or not. By definition, any place outside of a protected area is, conceivably, a "production landscape": a place where the primary goal might be economic. A production landscape

could be as small as an individual farm or as large as a mining concession, as openly managed as a communal mountain grazing area or as controlled as private hunting estate. Under this strategic direction, CEPF will support activities that demonstrate that economic activities need not be in conflict with sustainable management. Work will take place in priority KBAs, in areas that affect priority KBAs, or in the arena of decision-making about productive practice, and could include discussions of agricultural lands (pasture and crop and plantations); forested areas (timber production, non-timber forest products); concession lands (hunting, mining, tourism); and lands set aside for infrastructure development (roads, canals for irrigation, water reservoirs, rail, power transmission lines, pipelines and urban expansion). Work will have a direct impact on priority species, sites, and corridors.

Strategic Direction 5: Enhance civil society capacity for effective conservation action

The profiling process identified a need among CSOs in the hotspot for strengthened management, fundraising ability, and technical skills, and also noted that they often lack the knowledge and experience to tackle some of the most important threats to the biodiversity in the hotspot. Furthermore, many CSOs working on issues indirectly related to conservation, such as pasture management, disaster risk reduction or community development, have difficulty making the link between their work and environmental considerations or benefits for conservation. Creating sustained improvements in civil society capacity for conservation is an important aim of CEPF, alongside direct conservation impacts. CEPF will support capacity-building to ensure that local CSOs make effective use of grants, and that their actions have a sustainable impact.

The scope for engagement of CSOs is not equal throughout the countries of the hotspot. Kyrgyzstan has a diverse collection of local CSOs that operate independently from the government, and in the Wakhan Valley of Afghanistan (where capacity of local groups is low) there are few legal limits how they can be involved. Kazakh and Tajik CSOs also are welcome to introduce ideas into the policy arena and can collaborate with public sector authorities on areas of mutual interest (e.g., in a protected area) provided they act appropriately with government mores. Uzbekistan has a strong cadre of CSOs that promote conservation: these organizations either support government initiatives officially, or act as an unofficial arm of the government to build community support for government projects. There are independent CSOs, as well, though access to funding is complicated. In China and Turkmenistan, the strongest CSOs are related to academia, geographic and nature protection societies or associations of forest users, hunters and fishermen.

Strategic Direction 6: Provide strategic leadership and effective coordination of conservation investment through a Regional Implementation Team

CEPF Regional Implementation Teams (RIT) support comprehensive, vertically integrated portfolios such as large anchor projects, smaller grassroots activities, policy initiatives, governmental collaboration and sustainable financing. The RIT converts the plans in the Ecosystem Profile into a cohesive portfolio of grants that exceeds in impact the sum of their parts. The RIT will consist of one or more civil society organizations active in conservation in the region. For example, a team could be a partnership of civil society groups or could be a lead organization with a formal plan to engage others in overseeing implementation, such as through an inclusive advisory committee.

The RIT will be selected by the CEPF Donor Council based on an approved terms of reference and selection process. The team will operate in a transparent and open manner, consistent with the CEPF mission and all provisions of the CEPF Operational Manual.