Long-Term Strategic Vision for Graduating Civil Society from CEPF Support

Cerrado Biodiversity Hotspot

This publication was produced by Instituto Internacional de Educação do Brasil, the regional implementation team of the Critical Ecosystem Partnership Fund (CEPF). CEPF is a joint initiative of l'Agence Française de Développement, Conservation International, the European Union, the Global Environment Facility, the Government of Japan and the World Bank. A fundamental goal is to ensure civil society is engaged in biodiversity conservation.

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EXECUTIVE SUMMARY

CEPF is a global initiative that provides grants to engage and strengthen civil society organizations in the conservation of biodiversity within the global biodiversity hotspots.

CEPF is not intended to be a permanent presence in each hotspot. Rather, it works toward an end point at which local civil society "graduates" from its support with sufficient capacity, access to resources, and credibility to respond to future conservation challenges. Consequently, CEPF prepares long-term strategic visions that establish what the end point for CEPF investment in each hotspot looks like and determine how to get there. The content of each long-term strategic vision reflects the idea that "graduation" can be determined when five conditions related to conservation, civil society, financing, public policy, and the ability to respond to new issues are met.

In April 2019, after three years of implementation of the first phase of CEPF investment in the Cerrado Biodiversity Hotspot, CEPF, the regional implementation team (RIT) and invited local experts together with grantees proposed priorities for the long-term vision in the hotspot.

The vision is built around the following three main priorities:

- The first and most important is the protection of ecosystem services and the promotion of their benefits and functions among different users in the hotspot.

- The second is the protection of species, recognizing that CEPF is the only fund supporting species conservation in the Cerrado.

- The third is engagement with civil society organizations, producers and traditional and Indigenous communities to protect biodiversity and ecosystem services.

Therefore, to graduate civil society working towards the conservation of the Cerrado Biodiversity Hotspot from CEPF support, it is suggested to focus on the following strategic directions:

(1) Promotion of the best management of water resources, with adaptation of agricultural practices, maintenance of aquatic and terrestrial ecosystems critical for water stability, improvement of governance over water, establishment of climate change adaptation strategies for water and promotion of new financial models to promote nature-based solutions.

(2) Support for the creation/expansion of other protected area management concepts, such as private reserves and territories preserved by Indigenous and local communities, and for the effective management of protected areas and sustainable landscapes.

(3) Support for investment in sustainable small and medium enterprises and supply chains to give traditional people and Indigenous populations income generation opportunities linked to conservation.

(4) Support for the restoration of ecosystems delivering services and water to the urban centers of the Cerrado as a mean to reconnect urban populations with the hotspot, and for the production of native seeds for restoration.

(5) Support for the implementation of National Action Plans (PANs) for priority threatened species, with a focus on habitat management and protection.

(6) Strengthening of the capacity of civil society organizations to promote better management of territories and of natural resources and to support other investment priorities in the hotspot.

To have a meaningful impact within the constraints imposed by limited financial resources and timeframe, a more restricted geographic scope is recommended (Figure 1). By concentrating efforts on the central-northern part of the hotspot, spreading across 98 million hectares and encompassing the four priority corridors of the first CEPF investment plus the Araguaia and RIDE DF – Paranaíba – Abaeté corridors, the future investment would focus on areas where: the agricultural frontier is expanding; there are limited investments considering best management practices or responsible landscape management practices; one can find the most pristine areas of the hotspot; and the states are in need of more assistance to implement the Forest Code or other pieces of legislation enforcing good landscape management. Work on species conservation and management of their habitats should remain at hotspot level, however, due to the lack of other dedicated funds for species conservation in the Cerrado.

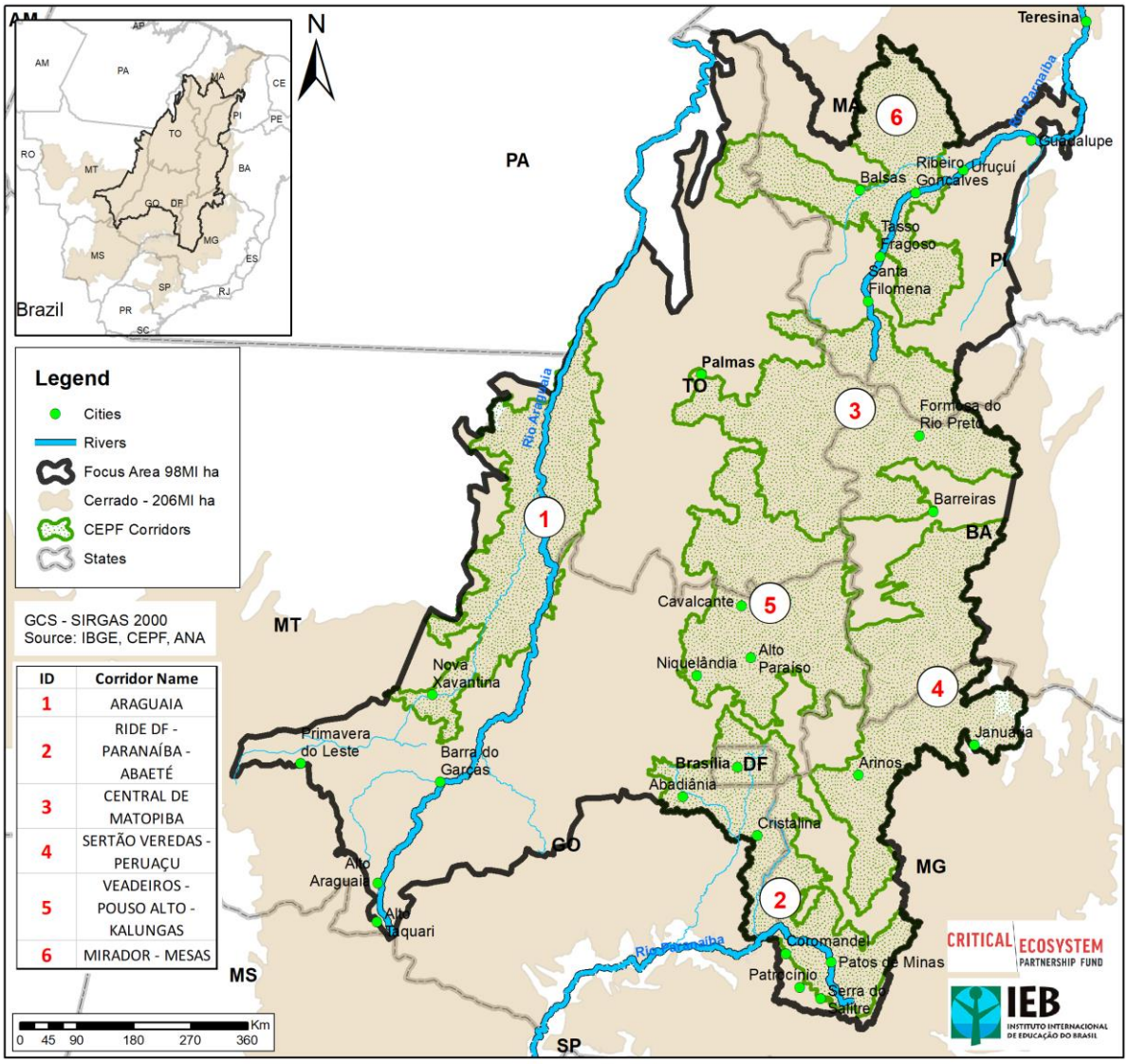

Figure 1: Proposed geographic scope within the Cerrado for the long-term vision

Considering the above geographic and thematic suggestions for the long-term vision and further operational considerations for the long-term structure responsible for coordinating this effort, the financing plan presents two options: one for US$8.5 million

over a five-year period; and another for US$5.3 million over three years. The latter would concentrate on consolidating the achievements of the first phase. Over the first three years of the first CEPF investment phase, a strong network of grantees has already been built and the long-term vision provides the basis for continuity, building on conservation results achieved so far. The strategies of several major donors in the Cerrado are considered, to avoid duplication of effort and to foster complementarity.

1 CONTEXTUAL INFORMATION

1.1 The Critical Ecosystem Partnership Fund

The Critical Ecosystem Partnership Fund (CEPF) enables civil society to protect the world's biodiversity hotspots: Earth's most biologically rich ecosystems that are essential to humanity, yet highly threatened. The fund is a joint initiative of l'Agence Française de Développement (AFD), Conservation International (CI), the European Union (EU), the Global Environment Facility (GEF), the Government of Japan and the World Bank. Currently, CEPF works in nine hotspots, including the Cerrado. Since its creation, it has worked in 25 of the 36 global biodiversity hotspots, focusing on developing countries and countries with economies in transition.

In 2013, CEPF's donors selected the Cerrado as a hotspot for investment. Following this decision, the "ecosystem profile" for the Cerrado was developed between October 2014 and October 2015 by the Instituto Sociedade, População e Natureza (ISPN) and CI-Brazil. The ecosystem profile sets out a five-year strategy for investment in civil society organizations, informed by a detailed situational analysis. Preparation of the ecosystem profile involved the participation of more than 170 people representing 130 private and public organizations. It also involved an extensive literature review, data analysis, and lessons from the UNDP-GEF Small Grants Program. A group of senior experts from universities, government, civil society organizations (CSOs), multilateral institutions, and the private sector was invited to provide strategic guidelines and review the approach, the methods and the draft ecosystem profile. Criteria, including government priority, conservation urgency, opportunity, native vegetation cover, protected areas, and strength of CSOs, were used to select priority themes and geographies for investment within the hotspot:

- Four corridors (Mirador-Mesas, Central of Matopiba, Veadeiros-Pouso Alto-Kalungas, and Sertão Veredas-Peruaçu) were prioritized out of the 13 identified.

- Within these four priority corridors, certain site-level investments were targeted at 62 priority sites, based upon a prioritization of Key Biodiversity Areas (KBAs) according to biological, socioeconomic, and ecosystem services criteria.

- Six strategic directions were defined for CEPF investment in the Cerrado:

    1. Promote the adoption of best practices in agriculture in priority corridors;

    2. Support the creation/expansion and effective management of protected areas in priority corridors;

    3. Promote and strengthen productive chains associated with sustainable use of natural resources and ecological restoration in the hotspot;

    4. Support the protection of seven threatened species in the hotspot;

    5. Support the implementation of tools to integrate and share monitoring data to better inform decision-making processes in the hotspot;

    6. Strengthen the capacity of CSOs to promote better management of territories and natural resources and to support other investment priorities in the hotspot.

The first strategy, which focused on agribusiness, permeated both technologies and sustainable finance, covering the issue of economic incentives to improve production.

The second worked with the concept of landscape and shared management, passing through Conservation Units (UCs), Indigenous lands, quilombola (Afro-Brazilian slave descendant) community lands and Private Natural Heritage Reserves (RPPNs). The third strategy supported work involving non-timber products and natural resources, policies to encourage these activities, and restoration work. The fourth, focused on species conservation and the implementation of National Action Plans (PANs). The fifth strategy aimed at generating data on vegetation cover and on quality/quantity of water resources. Finally, the sixth strategy ranged from strengthening CSOs to participate in commissions (such as Environmental National Council - CONAMA, and Municipal Council for Environmental Development - CONDEMA) to building their technical capacity and fostering networking processes and information dissemination.

1.2 Implementation of the Investment Strategy

CEPF works in close partnership with a regional implementation team (RIT) in each hotspot where it operates. RITs work directly on the ground, helping to build local capacity and implement CEPF's strategy in the hotspot. In the Cerrado Biodiversity Hotspot, the Instituto Internacional de Educação do Brasil (IEB) was selected to play this role, and has coordinated the implementation, execution and monitoring of the CEPF investment strategy since July 2016. The investment phase is scheduled to end in early 2022, and has a total spending authority of US$ 8 million.

As of June 2021, 63 grants have been awarded for a total of US$7.8 million. The portfolio includes 33 large grants for a total of US$7.0 million and 30 small grants for a total of US$0.9 million. The maximum grant size for small grants was initially US$20,000 but this was later raised to US$50,000. Ninety-six percent of the grants awarded went to local (Brazilian) organizations.

As part of every CEPF investment, a mid-term assessment is carried out halfway through implementation. The objectives of this consultative process are to evaluate achievements towards the targets set out in the ecosystem profile, potentially revise the strategy considering changes in donor landscape, political situation, etc. and to evaluate the grant making process. In the Cerrado, the mid-term assessment workshop took place in April 2019 with 65 participants from various institutions, most of which were CEPF grantees. During this workshop, various challenges and opportunities were discussed, including:

- There is a classic dilemma of scale, such that KBAs covering vast areas do not dialogue with the more limited geographical scope of the projects addressing their conservation. Only a few institutions use the concept of KBAs actively, and its use is difficult to achieve since the hotspot covers an area greater than 2 million km^2. In addition, the KBA concept is not easily assimilated by the local communities involved in the projects.

- A social network analysis carried out by the RIT on all entities that submitted applications revealed that specific activities could be developed with entities having similar themes or geographic areas. Other analyses were made during the workshop on the financial resources within each major theme, on the profile of grantees (large participation of CSOs), as well as on grouping organizations by geographic territories (Federal District/Goiás, North of Minas Gerais, Matopiba, Mato Grosso do Sul/Mato Grosso and the Cerrado at large). The question of communication was also evaluated during this exercise. The RIT has sought to stimulate information exchange among grantees both using geographic hubs and thematic focuses.

- An analysis of projects was carried out to verify their positive impacts and expected contributions towards the Sustainable Development Goals (SDGs). To facilitate interpretation of each project's contributions, the "wedding cake" diagram developed by Rockstöm and Sukhdev (2016) was adapted to characterize the contributions of the CEPF portfolio in the Cerrado to the SDGs. This analysis underscored the fact that, due to the interrelationship among the SDGs, it is impossible to pursue one goal in isolation.

- Issues related to how to strengthen projects in relation to SDGs, strengthen organizations, increase links between projects, strengthen communication actions, create markets for specific products, hold seminars (e.g., baru nut), etc., were emphasized. Among the topics discussed were: the role of traditional communities in the conservation of the Cerrado; other priority areas for projects; and the gap in CSOs working on issues related to the major driving forces operating in the hotspot (e.g., agribusiness).

- On operational issues related to the grant making process, participants mentioned the need to speed up and simplify the contracting process, to provide more training to facilitate their application process, and to invest in larger projects and/or offer larger grant awards.

1.3 Biodiversity Importance and Climate Change

The Cerrado Biodiversity Hotspot supports an extreme abundance of endemic species, and is home to 12,070 catalogued native plant species. The great diversity of habitats gives rise to remarkable transitions among different vegetation types. A total of 251 species of mammal live in the Cerrado, along with a rich avifauna comprising 856 species. Fish (800 species), reptile (262 species) and amphibian (204 species) species richness is also high. For those reasons, the Cerrado is considered one of the biologically richest tropical savanna regions in the world (Mittermeier *et al.* 2004), supporting highly diverse biological communities with many unique species and varieties. The Cerrado's rupestrian grasslands have one of the highest levels of plant endemism in the world but, at the same time, have also experienced some of the highest rates of habitat conversion due to mining, tourism, and infrastructure development (Fernandes *et al.* 2018). Considering the concept of rare species (i.e., species with an area of occurrence of less than 10,000 km^2), the Cerrado is Brazil's second most important biome with regard to key areas (176) for rare plants, and the largest area (30 percent) considering all key areas for rare plant species in Brazil (Kasecker *et al.* 2009). According to Martinelli *et al.* (2014), the Cerrado is home to 578 rare plant species. Many of the species and varieties are endemic not only to the hotspot but also to single sites within it. Such species are highly vulnerable to habitat loss, hunting, poaching, pollution, and other pressures.

The Cerrado Biodiversity Hotspot also includes the headwaters of three of South America's major river basins (Amazon/Tocantins, São Francisco, and Plata), thus highlighting its importance for both water security and biodiversity. It is in the Cerrado that most of the main Brazilian rivers have their headwaters, such as the Xingu, São Francisco, Tocantins-Araguaia, Parnaíba, Tapajós, tributaries to the right margin of the Paraná River, and all rivers forming the Pantanal. Of the 12 Brazilian hydrographic regions, as defined by the National Water Agency (ANA), eight are in the Cerrado (Lima 2011).

It is important to point out that the Cerrado is threatened by a deforestation rate 2.5 times higher than that of the Amazon (Strassburg *et al.* 2017). In regions like Matopiba, an area of about 73 million hectares that expands across the states of Maranhão, Tocantins, Piauí and Bahía, which is known as Brazil's current agricultural frontier, the scenario worsens. By 2010, 60 percent of the original vegetation cover had been

converted into pasture and monocultures (MMA 2015). Nevertheless, the deforestation rates in the Cerrado are receiving much less attention than deforestation of the Amazon and Atlantic Forests (Colli *et al.* 2020).

Recently, 13 articles were published in a special issue of the journal Biodiversity and Conservation about the recent advances and old challenges in the Cerrado. These publications reflected the enduring nature of some old challenges, such as the meager coverage of protected areas and the lack of studies involving invertebrates, fungi, and microorganisms (Colli *et al.* 2020). The Cerrado ecosystem profile listed 1,593 terrestrial and freshwater species classified by the International Union for Conservation of Nature (IUCN) as globally threatened and/or by Brazilian environmental authorities as nationally threatened, as well as rare fish and rare plant species. For many species, the key to conservation is the protection of adequate areas of appropriate habitat. To this end, the ecosystem profile identified 761 KBAs in Brazil and four Important Bird Areas (IBAs) in Bolivia and Paraguay where these threatened species are known to occur. In some cases, the protection of discrete areas of habitat within a KBA may not ensure the survival of a species, especially where the species ranges widely over the landscape or occurs at a very low density. These large areas play a vital role in ensuring connectivity among KBAs. In doing so, they also play an important role in maintaining ecosystem functions important for nature and for human livelihoods in the Cerrado, other hotspots and neighboring countries, or even the whole planet, in the case of climate change.

Projections indicate that Brazil will be affected by climate change, with an average temperature increase of 2 to 3º C by 2070, reaching mainly the Midwest, North, and Northeast regions. A significant reduction in rainfall is also expected, with an increase in drought events, mainly in the eastern Amazon, the Cerrado, and the Caatinga. This decrease in precipitation could trigger savannah processes in the Amazon, desertification in the Caatinga, and expansion of the Atlantic Forest towards the Pampa (Bustamante *et al.* 2019).

There remain few studies analyzing the effects of changes to Brazil's climate on species, ecosystems, and the services provided by them. A study on the Cerrado flora projected substantial declines for most tree species in the next 40 years (Siqueira and Peterson 2003). Considering both conservative (0.5 percent per year atmospheric CO_2 increase) and less conservative emission scenarios (1 percent per year), 10 to 32 percent of the 162 analyzed tree species could end up without habitable areas in the Cerrado region or become extinct by 2055. By predicting the rupestrian grasslands distribution under different climatic scenarios, Fernandes *et al.* (2018) estimated a catastrophic loss of 82 percent of their range, impacting ecosystem services, including water and food security in some of the most populous regions of Brazil.

It is hard to quantify how severe the impacts of climate change in the Cerrado will be. On average, precipitation in the Cerrado decreased by 8.4 percent (125 mm) between 1977 and 2010, while southerly and northerly regions experienced 10.6 and 4.7 percent reductions, respectively (Campos, 2020).

To examine the present and future trends related to climate change in Brazil, the Brazilian Panel on Climate Change (PBMC) was established in September 2009. The findings of the first PBMC reports indicate a complex scenario by the year 2100 (Domingues *et al.* 2012). The main indicators identified for the Cerrado were:

a) a 1°C increase in air temperature, with a decrease of 10 to 20 percent in precipitation over the next three decades (by 2040);

b) by mid-century (2041-2070), an increase of between 3 and 3.5°C in air temperature and a reduction of between 20 and 35 percent in rainfall; and

c) at the end of the century (2071-2100), an increase in temperature between 5 and 5.5°C and a more critical downturn in rainfall of between 35 and 45 percent.

As for impacts, vulnerability, and adaptation, the temperature rise projected under any likely future scenario will probably result in a reduction of the photosynthetic process in Cerrado plants, resulting in a decrease in their biomass and a reduction in primary productivity. At the same time, the increase in the length of the dry period can potentially result in increased vulnerability to fire in the Cerrado, as has already been noted in recent years, as captured in the ecosystem profile (CEPF 2016). Given that local trends in desertification are already alarming (Carvalho and Almeida-Filho 2009, Horn and Baggio 2011), there is the risk that these processes could be amplified by the potential negative effects of rising temperature, more frequent burning and decreasing precipitation on Cerrado vegetation, especially considering the historically high rates of deforestation and land degradation (Klink and Machado 2005). If the dry season becomes longer (Marengo *et al.* 2010), less cloud cover would make temperatures rise even higher in the summer, which is now the rainy season. Persistent trends in that direction would lead to reduced flow of water in rivers and dry lakes, potentially reducing potable water supplies (Marengo *et al.* 2009).

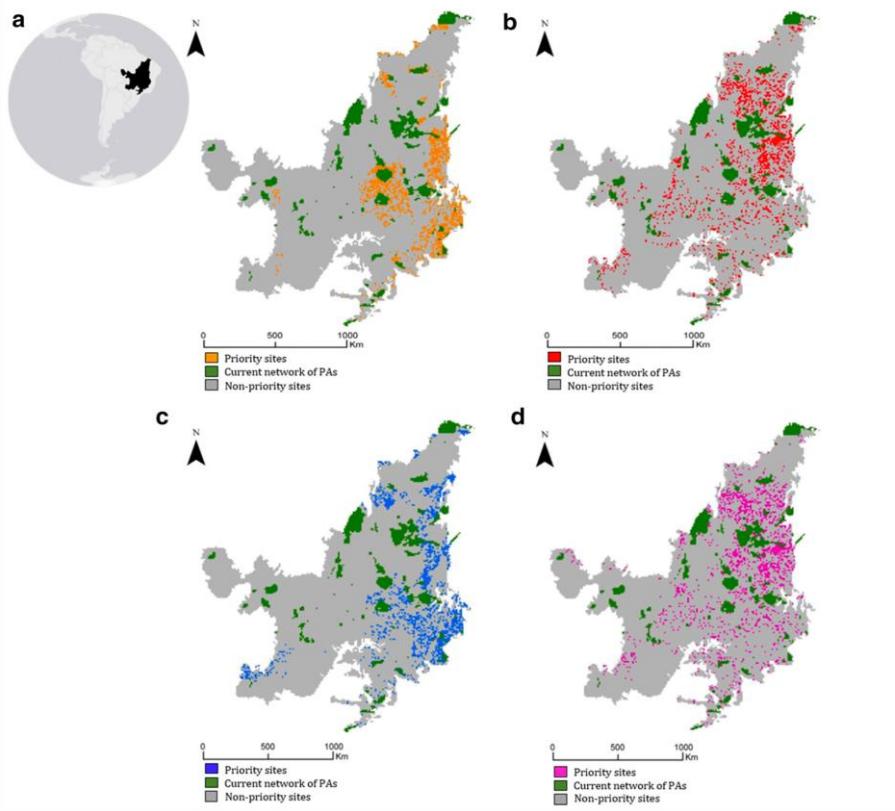

Figure 2: Spatial distribution of priority sites and existing protected areas (PAs) in each of the intervention scenarios across the Cerrado hotspot: a = acting now—maximizing representation, b = acting now—maximizing conservation impact, c = time-step action—maximizing representation and d = time-step action—maximizing conservation impact. Source: Monteiro et al. (2018)

Given that the Cerrado is the main source of water for three of the largest river basins in South America, understanding the socioeconomic and ecological impacts of hydrological changes is critical. The PBMC report lists several studies that already indicate substantial hydrological, geomorphological, and biogeochemical changes in these fluvial systems. Modeling South American future precipitation trends that derive

from Intergovernmental Panel on Climate Change (IPCC) scenarios, Marengo *et al.* (2009) expect extensive salinization and degradation of croplands as well as dropping livestock productivity, reflecting the fact that water availability and food security are closely related.

By comparing a method of sequential implementation of conservation actions to a static strategy applied, Monteiro *et al.* (2018) identified spatial conservation priorities that minimize the risk of land conversion while retaining sites with high value for threatened plants at risk from climate change in the Brazilian Cerrado. To achieve this result, they simulated four scenarios that they assessed against a referential scenario of no further protection and produced a map of priority sites for each of them (Figure 2). The authors found that the scenarios that maximized the impact of conservation (Scenarios b and d) reduced the total loss of vegetation and covered large proportions of species within protected areas and priority sites.

1.4 Importance of Non-Timber Forest Products in the Cerrado

The Cerrado has vast potential for use of its rich biodiversity, which is capable of improving the food security and well-being of its population. Knowledge about the potential uses of native biodiversity in the Cerrado is growing and many Cerrado flora species are already known, used, and traded by traditional communities and many family farmer cooperatives in the region (Carvalho 2007). Family farming in Brazil represents 84 percent of rural ownership, and family-owned farms occupy an area of approximately 81 million hectares (Bortolotto *et al.* 2017). Studies, particularly over the last decade, by the Brazilian Agriculture and Livestock Research Enterprise (EMBRAPA), the University of Brasilia and the University of Campinas have shown the value of fruit and other Non-Timber Forest Products (NTFP) from the Cerrado (e.g., UnB 2010, Marin 2006, Roesler *et al.* 2007).

Unfortunately, climate change is also expected to have impacts on the economically valuable species of the Cerrado. Considering the 16 most popular edible species in the Cerrado and a 'business as usual' climate scenario, research conducted by Oliveira *et al.* (2015) projects large negative effects of climate change on geographical range sizes. Their results indicate a shrinking distribution range for 12 species when comparing present and future (2080) climate scenarios. This would lead to the insulation of edible species richness in the southeastern Cerrado, as this region presented the highest predicted environmental suitability; the degree of edible species loss in other regions is expected to rise with increasing distance from the southeastern area. Focusing on pequi (*Caryocar brasiliense*), a culturally and economically important Cerrado fruit tree, Nabout *et al.* (2011) found that municipalities currently using pequi fruit will have lower production in the future because their regions will be less suitable for this tree, which in turn may affect the local economies. The authors warned that it will be necessary for governments to develop policies to mitigate adverse impacts, enhance positive impacts, and support adaptation to climate change, as well as enhance local food security.

The effects of land use on the Cerrado's native plants of economic and commercial value have been the subject of some studies as well. The land use and management effects upon an endemic palm in the Cerrado were assessed by Sá *et al.* (2020). They showed that regeneration was limited under intensive land use. Therefore, the populations of the palm that are under intensive land use conditions may be doomed, while those that are managed by traditional populations and family farmers may persist.

Native edible plant species are widely used in restaurants, local food, desserts, and ice cream, thus contributing substantially to local economies. If the predicted reduction in suitable habitat and geographical range leads to decreasing availability of these species, there can be a significant economic risk for traditional communities that depend

on native ecosystems for the collection of these plants. The *in situ* conservation of the Cerrado's biodiversity in multiple-use landscapes is certainly achieved through support for traditional populations, small family farmers, and Indigenous people, who are contributing effectively to keeping the Cerrado preserved (Colli *et al.* 2020).

It is essential to link biodiversity conservation and climate change agendas. The central role of the Cerrado in maintaining interregional hydrological balance and relatively constant flows of water to other regions of Brazil, as well as to Bolivia, Paraguay, Argentina and Uruguay, is clearly established.

1.5 Social, Political and Economic Context

The majority of the Cerrado's 43 million people live in urban areas, while around 12.5 million still derive their living from agricultural lands, natural ecosystems, and wetlands.

The major threats to biodiversity in the Cerrado now and in the near future are cattle-raising, annual crops (mainly soybeans, corn, and cotton), biofuel (sugarcane), charcoal, fire, and mono-culture tree plantations. Erosion, invasive species, permanent crops, pig-raising, transportation, and warming (both local and global) are also relevant. This leads to deforestation at the rate of 6,000 km^2 per year. As of 2016, the hotspot had lost approximately 50 percent of its natural vegetation cover. Deforestation in the Cerrado totaled 734,010 hectares in 2020, an increase of 13.2 percent versus 2019 (Chain Reaction Research, 2021). This survey also established that deforestation on private lands accounted for 66.7 percent, while public lands made up 19.2 percent, and the remainder occurred on lands with no legal designation. These findings are consistent with the Mapbiomas Annual Deforestation Report of Brazil (2019), which introduced a new alert system for deforestation in the different biomes in Brazil. This methodology allows a deeper insight on the way deforestation is happening, as well as which kind of impacts deforestation has on protected areas and conservation units.

Table 1 shows the total deforested area in the various biomes according to the Mapbiomas Annual Deforestation Report of Brazil (2019).

BIOME	ALERT INCIDENCE	DEFORESTED AREA (HA)
Amazon	47,269	770,148
Caatinga	523	12,153
Cerrado	7,402	408,646
Atl. Forest	1,390	10.598
Pampa	68	642
Pantanal	215	16,521
BRAZIL	56,867	1,218,708

Table 1: Incidence of alerts and total deforested areas in the biome (2019)

Table 2 compares the number of alerts and the deforested area they represent. It demonstrates that the deforested areas of the Cerrado were most of the time more extensive than in the other biomes (i.e., fewer instances but over larger areas).

	NUMBER OF ALERTS	% OF ALERTS	DEFORESTED AREA (HA)	DEFORESTED AREA %
Amazon	47,269	83.1%	770,148	63.2%
Caatinga	523	0.9%	12,153	1.0%
Cerrado	7,402	13.0%	408,646	33.5% ⚠
Atl. Forest	1,390	2.4%	10,598	0.9%
Pampa	68	0.1%	642	0.1%
Pantanal	215	0.4%	16,521	1.4%
BRAZIL	56,867		1,218,708	

Table 2: Although the Cerrado is responsible for only 13% of the number of alerts, its deforested area represents a third of the total (33,5%).

Tables 3 and 4 refer to the deforestation alerts considering their overlap with protected areas or with areas designated for conservation within private properties, which are the areas of permanent preservation (APPs) and the legal reserves (RLs). After the Amazon, the Cerrado stands out as the second most impacted hotspot in terms of protected areas. The impact on APPs and RLs is even more accentuated in the Cerrado.

	NUMBER	AREA (HA)	% NUMBER	% AREA
Amazon	5,711	100,483	12.1%	13.0%
Caatinga	21	320	4.0%	2.6%
Cerrado	452	44,069	6.1%	10.8%
Atl. Forest	116	767	8.3%	7.2%
Pampa	4	15,951	5.9%	2.5%
Pantanal	–	–	0.0%	0.0%
BRAZIL	6,304	145,655	11.1%	12.0%

Table 3: Alerts with total or partial overlap with protected areas in each biome (2019)

	NUMBER	AREA (HA)	% NUMBER	% AREA
Amazon	17,067	395,395	36.1%	51.3%
Caatinga	145	4,120	27.7%	33.9%
Cerrado	3,756	258,608	50.7%	63.3%
Atl. Forest	614	5,266	44.2%	49.7%
Pampa	32	458	47.1%	71.2%
Pantanal	79	6,807	36.7%	41.2%
BRAZIL	21,693	670,653	38%	55%

Table 4: Alerts with total or partial overlap with areas of permanent preservation (APPs), Legal Reserves (RLs) or headwaters by biome in 2019.

Despite these problems, national and local governments have recognized the importance of the region's natural resources and biodiversity. Brazil has created official terrestrial protected areas in 8.3 percent of the Cerrado, of which 2.9 percent are fully protected conservation units and 5.4 percent are sustainable use conservation units. It has set a goal of 17 percent to meet the Aichi target, as well as ambitious goals to reduce deforestation and emissions. However, the creation of public protected areas is very costly in cases that imply land purchase and expropriation. Alternatively, new protected areas could arise from private landowners with the creation of Private Natural Heritage Reserves (RPPNs in Portuguese). The RPPNs are part of the group of sustainable use conservation units. In September 2019, there were 248 of them in the Cerrado (166 recognized by the federal government and 82 recognized by state governments), corresponding to 16.1 percent of all RPPNs in Brazil, covering a total area of 169,607 ha, which corresponds to approximately 1 percent of the total coverage of protected areas. The Forest Code also requires Legal Reserves on at least 35 percent of the hotspot zone declared as 'Legal Amazon' *i.e.*, all of Mato Grosso and Tocantins states and the western part of Maranhão, and 20 percent in the remaining area. The code also requires APPs on hilltops and steep slopes and along the edges of streams and rivers. LRs are for the preservation of native vegetation, to ensure the ongoing economic use of the property's natural resources in a sustainable manner, with approved management plans. APPs cannot be used at all. Their environmental function is the preservation of water resources. The deficit of LRs and APPs in the Cerrado has been estimated at 4.5 million hectares, which will need to be recovered or compensated for (Observatório do Código Florestal 2015). A recent research mentioned in an article (Mongabay, 2021), focusing on 2,600 kilometers on either side of Brazil's Araguaia and Tocantins rivers, in the Amazon and Cerrado biomes, identified 24,000 rural properties, of which 13,148 have an environmental deficit in LRs and APPs totaling 1 million hectares.

The latest WWF report on deforestation (Pacheco *et al.* 2021) provides a comprehensive analysis of areas with highest deforestation and where a large portion of the remaining forest is at threat. The area overlapping with the CEPF priority corridors of Mirador-Mesas, Central de Matopiba, Veadeiros Pouso Alto Kalungas, and Araguaia, all in the Cerrado, (Figure 3), had the highest deforestation rate (33 percent) between 2004 and 2017 among all the 24 areas described in the report (area #7 in Figure 4).

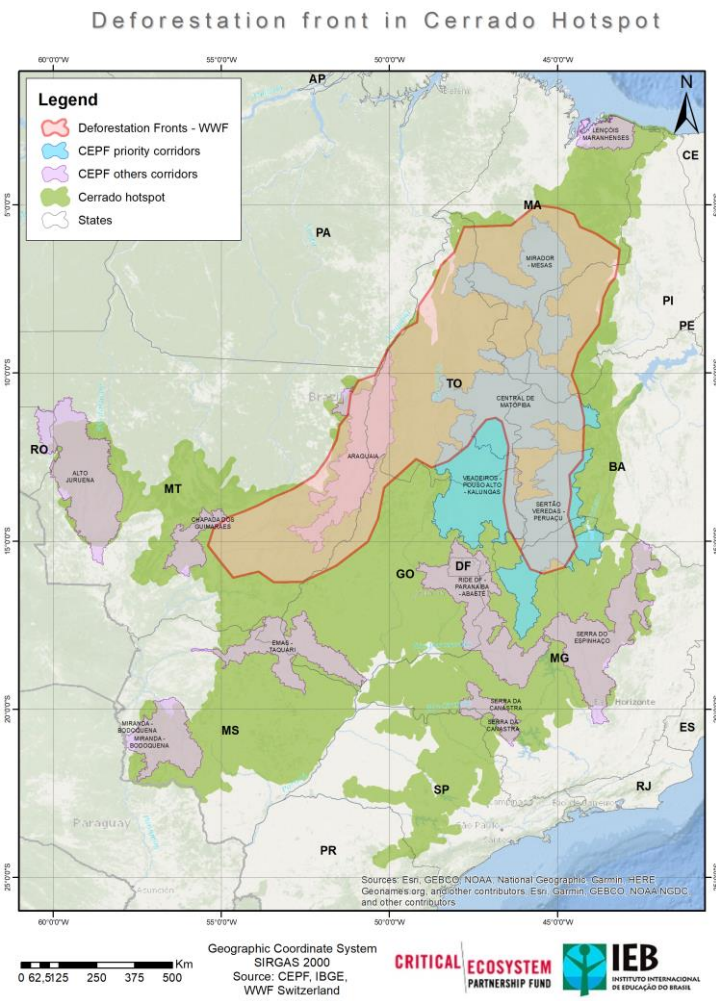

Figure 3: Adapted from Pacheco *et al.* (2021) showing deforestation fronts in the Cerrado.

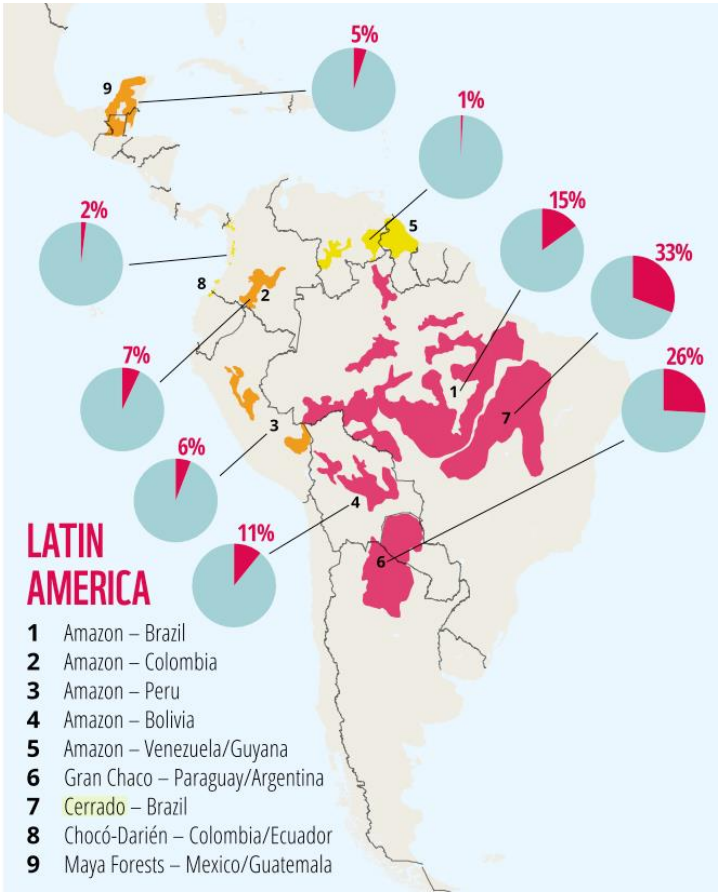

Figure 4: Adapted from Pacheco *et al.* (2021) showing deforestation fronts in Latin America. In red those with annual deforestation in the period of 2000-2018 above 0.5% and as a percentage figure showing the total deforestation as a percentage of the forest area in 2000.

1.6 CSOs Operating Context

The political role performed by civil society is not linked to the control or conquest of power directly (Arato and Cohen 2002 cited in Losekann, 2012). Rather, it is connected to the generation of influence through participation in democratic spaces and open discussions in the public cultural sphere. Therefore, the possibility of influence depends on mechanisms that intermediate the dialogue between civil society and the State.

There are three possible ways to participate in the decision-making process conducted by the State (Avritzer, 2008), namely:

1. Broad inclusion of the public that participates as a grass-roots participatory process.

2. Institutional designs that create spaces for the public or representatives to participate in the decision-making process, and

3. Participatory processes allow the public to ratify decisions already taken.

The broad participatory strategy was used during the first National Conference on the Environment (CNMA) conducted in 2003. This conference had the objective of debating on environmental issues with a vast audience, and was conducted at municipal, state, and federal levels. At the end of the process, 912 delegates were involved. The objective of these conferences was the direct involvement of the population, which meant that, most of the time, the participation was not qualified, and the larger NGOs did not participate. The conferences did not have executive power to deliberate over national environmental policies, but they induced the participatory process and were necessary to mobilize diverse and local CSOs. Unfortunately, these mobilizations also showed that the environmental movement did not have strong social support. It was a new movement steered by a minority and the government.

The second participation modality was introduced with the implementation of the National Environmental Council (CONAMA). Composed of five representative sectors (federal, state and municipal agencies, business sector, and civil society), it has an institutional design of shared participation, limited inclusion, and a high level of effectiveness. Environmental NGOs widely recognized the CONAMA as a space of meaningful involvement of deliberative and normative character. In the CONAMA, the environmental laws were usually regulated, and even though the discussions were held at a federal level, most of the states expected the decisions taken in the CONAMA to be adopted at the state level. Furthermore, it established resolutions and recommendations on general environmental matters and decided on the use of funds raised through fines imposed by the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA).

A study published in 2021 (IMAFLORA *et al.* 2021) provides an overview of the main changes that have occurred since the beginning of 2019 in Brazilian environmental policies regarding transparency and social participation. It shows that social participation in the socio-environmental policy process has reduced, including through the extinction of collegiate bodies aimed at including civil society in decision-making and redefinition of rules that reduce the representation of civil society and hinder its action. Of the 22 national collegiate bodies associated with socio-environmental policies surveyed in the study, four (18.2 percent) have been discontinued, nine (40.9 percent) have been restructured, and only nine (40.9 percent) remained unchanged.

In May 2019, a federal decree redefined the rules of the CONAMA with the reduction of seats for civil society, the loss of the guarantee of representation for traditional populations and Indigenous communities, the reduction of the term of office for representatives to one year, and the replacement of the electoral method by a lottery to define the organizations represented. This reduced the participation of CSOs from 22 seats to only four. The council, which originally had broader participation of 96 councilors from the civil sector, now operates with only 23 members.

The same month, another decree ended the mandate of federal public administration institutions with CSO participation created by federal decrees or lesser normative acts. In the National Biodiversity Commission (CONABIO), the changes included: loss of competencies; reduction in the number of seats assigned to CSOs; and restrictions on the conditions of participation. This action excluded CSOs from certain debates and took from them a means of positively influencing the implementation of national environmental policies and international agreements.

The government decided to recreate some committees to respond to UNFCCC COP-25, which took place in December 2019. For instance, the Control of Illegal Deforestation and Recovery of Native Vegetation (Conaveg), responsible for proposing plans and guidelines and catalyzing strategic actions for prevention and control of deforestation and recovery of native vegetation, was re-established. Unfortunately, while CSOs were invited, they had no voting rights. The National Committee on Wetlands, responsible for proposing guidelines and executive actions related to conservation and management of these areas, was also re-established but with a different composition, where civil society lost four seats.

The National Water Resources Council (CNRH), which promotes mediation among water users, the integration of public policies, and the orientation of transparent dialogue in decision-making processes in the field of water legislation, also changed its composition. The six seats initially reserved for CSOs were reduced to three. By May 2020, there was only one seat reserved for civil society.

There are various inter-sectoral coalitions or fora that combine different types of CSOs and could be relevant for the environment in the Cerrado hotspot. For example:

(a) To influence multilateral negotiations on forests, some companies came together with the Brazilian Business Council on Sustainable Development, the Ethos Institute, the Forest Dialogue, the Climate Observatory and Brazilian CSOs, such as CI, Greenpeace, ISA, IMAFLORA, WRI, and WWF, to create the Brazil Coalition on Climate, Forests, and Agriculture. The coalition’s goal is to promote dialogue among the different stakeholders and the federal government.

(b) The Brazilian Solidarity Economy Forum (FBES) brings together small-scale collective enterprises, civil society, and government authorities related to the sustainable use of biodiversity.

(c) The Brazilian Environmental Education Network (REBEA) allows individual membership rather than restricting participation to organizations, as is the rule in most networks.

(d) The Brazilian Forum on Climate Change (FBMC), created in 2000, brings together government, academia and civil society. Climate has high international visibility and is related to biodiversity through land use, land-use change and forestry (LULUCF).

1.7 COVID-19 Context

In the context of COVID-19, it is important to recall that the conservation of nature represents extra protection for human beings, considering that 60 percent of infectious diseases originate from animals (Slayer, 2017), and 70 percent of emerging infectious diseases originate from wildlife (Machalaba, 2015).

In general terms, the pandemic is widening the gap between the different social strata, making disparities more evident, with a more substantial impact on the poorest. This is true in the context of the Cerrado, particularly when considering Indigenous people and traditional populations. Simple aspects, such as food provisioning, now seem to be highly problematic in some regions due to geographic isolation and market slowdown.

Due to COVID-19, the traditional populations in the Cerrado face greater challenges often exacerbated by more limited infrastructure development and lack of land tenure security. Communication is key to halting the spread of COVID-19 within Indigenous and traditional communities. Unfortunately, investments in communication infrastructure have been insufficient over the years in their territories. Epidemics of infectious diseases repeatedly hit Indigenous communities, their impacts worsened by low access to health services (Pearshouse and Werneck, 2020). Therefore, one mechanism for these communities to stay outside of the reach of the COVID-19 virus has been to isolate themselves inside their territories. However, as Indigenous groups locked down in villages, trespassers took advantage of their absence to grab their land (Pearshouse and Werneck, 2020). Prior to the pandemic, it was anticipated that public policies would recognize over 6,330 Quilombo territories, distributed across 24 federal states in Brazil. To date, however, only 134 of these territories have received official recognition and are under the governance of these traditional communities. Once land tenure is secured with a title deed though, a quilombo territory can no longer be grabbed.

As complex supply chains are disrupted through social distancing measures introduced to combat the spread of COVID-19, so too are simple supply chains of NTFPs, thus affecting producer cooperatives and their work in the Cerrado. CSOs report that it is harder now for them to talk about conservation in the Cerrado, as families participating in conservation efforts through their work with Cerrado seeds or fruits are no longer able to make a living.

The ultimate goal in involving these communities is to preserve the Cerrado with a strong economic rationale that could confront alternative uses of the land. The COVID-19 crisis reinforces the need to support the establishment of local, more resilient supply chains through SMEs, offering further sustainable and economically viable income generation and conservation alternatives in the hotspot. Otherwise, the Indigenous people and the traditional population living in the Cerrado may consider less sustainable options for income generation in their territories or even migrate to cities to guarantee their livelihoods.

The negative impact of the COVID-19 crisis is greatest on the most vulnerable communities in the Cerrado hotspot, meaning smallholders, the traditional population, and Indigenous people (i.e., those who contribute to conservation the most). In the long-term vision for the Cerrado, it is essential not to neglect the COVID-19 pandemic and its negative impacts on the outcomes of projects supported by the first CEPF investment strategy and the relations between grantees and the communities they interact with.

1.8 Public and Private Sector Context

Public Sector

Public sector engagement can be considered at two levels: federal; and state/municipal.

Regarding federal-level engagement, opportunities for CSOs are more limited.

There is a demand from some CSOs for a constitutional amendment to include the Cerrado among Brazil's national heritage sites. The National Campaign for the Defense of the Cerrado ("No Cerrado, no water, no life") aims to raise awareness about the negative impacts of deforestation in the Cerrado, while seeking to value the biodiversity and cultures of traditional peoples and communities.

To contribute to a political dialogue on the conservation of the Cerrado, seizing the opportunity of the 2018 elections, various CSOs (Instituto Centro de Vida (ICV), IEB, Institute for Environmental Research on the Amazon (IPAM), Institute for Society, Population and Nature (ISPN), Socioenvironmental Institute (ISA), Rede Cerrado, and WWF- Brazil) joined forces, with the support of CEPF among others, to offer the candidates and society in general a document on Policy Strategies for the Cerrado. This document, entitled "Responsible Socioeconomic Development, Conservation and Sustainable Use of Biodiversity, Reducing Clearing and Promoting Landscape Restoration (Policy Strategies for the Cerrado, 2018)" was the result of inter-institutional consultations, including a seminar in the Chamber of Deputies in June 2018. In addition to the organizers, various other organizations collaborated in the workshop: ActionAid; the Association of Rural Workers' Lawyers (AATR); the Solidarity and Sustainable Development Association (ADES); 10envolvimento; Wyty-Catë Association of the Timbira Peoples of Maranhão and Tocantins; Xingu Indigenous Land Association (ATIX); Center for Territorial Intelligence of the Federal University of Minas Gerais (UFMG); Mato Grosso Pastoral Land Commission (CPT-Mato Grosso); CI-Brazil; the Federation of Indigenous Peoples of Mato Grosso (FEPOIMT); Greenpeace; Green Initiative; Forest Code Observatory (OCF); and Cerrado Research and Conservation (PEQUI). The analysis of the current and prospective policy situation produced by this group followed three thematic axes:

1. Policies for conservation and sustainable use of Cerrado biodiversity, strengthening an integrated vision of territorial management;

2. Policies to reduce deforestation and restore native vegetation, for dialogue with responsible agriculture and livestock; and

3. Policies for socio-biodiversity and agro-extractivism, aiming for improved socio-environmental governance.

This process resulted in 27 recommendations to inform the construction of a positive agenda for the Cerrado, indicating various policy strategies and priorities for governmental actions. Little has been seen on the implementation of these recommendations so far, however.

On the current legislative agenda is Provisional Measure 910 (MP 910), which amends legislation on land regularization, that is, the mechanism by which the government legalizes informal settlements on federal lands, granting property titles to those occupying the land. MP 910 was published at the end of 2019 but, before being enacted into law, it must be approved by the National Congress. As of June 2021, it is still under analysis by the National Congress. Critics of this measure argue that it would permit the

regularization of areas in the Amazon and the Cerrado that have been illegally deforested and burned, despite the practice being against the Forest Code.

Another recent development at the federal level with potentially serious implications for the Cerrado is the environmental licensing bill PL 3729/2004, which was passed in May 2021. This law exempts 13 activities, such as farming, forestry, extensive, semi-intensive and intensive small livestock farming, and wastewater and water facilities, from environmental licensing. The text stipulates that environmental licensing should only be made for investments on legally recognized land of Indigenous and traditional populations. According to the Socioenvironmental Institute (ISA), 41% of Indigenous lands and 84% of traditional population lands would not be considered for compensations, prevention of negative impact or evaluation. The text also removes unique criteria and parameters, leaving the states free to legislate on their own. Furthermore, it conflicts with the autonomy of municipalities, who can be ignored in cases of large enterprises.

CEPF grantees have managed to work with federal agencies on very specific issues. Work on the species, for instance, is linked to the National Species Plan, and federal agents support these projects. Another positive example of a project supported by CEPF that was related to public policies suggested conditions to enable the implementation of the market that regulates the quota for environmental reserves. This section of the new Forest Code was never implemented by many Brazilian states within the Cerrado. The project, implemented by Conservation Strategy Fund (CSF), made a significant contribution to public discourse on the environmental reserve quota market. It is important to mention that the different States are in charge of implementing the Forest Code. In this sense, the project never conflicted with any directive of the national law or national entities.

At the municipal level, CEPF grantees have been even more productive. CEPF's support has focused on projects working with municipalities, because, at this administrative level, grantees encountered strong collaboration fostered by a desire for enhanced knowledge of the environmental agenda. This is true in the case of the organization of local environmental councils or the mapping of local protected areas in the major cities of the hotspots. This mapping is a successful example, since the subsequent publication was signed off by the National Confederation of Municipalities (CNM), which is an independent, non-partisan and non-profit organization. CNM's main objective is to consolidate the municipal movement, strengthen the autonomy of the municipalities based on political and technical initiatives. The confederation encompasses 5,500-plus municipalities. This has proven to be an effective channel for disseminating local protected areas and private reserves. In both cases, the immediate gain for the municipalities will be tax incentives. CEPF grantees have been promoting ecosystem services and the Cerrado as a whole through this discussion.

Private Sector

Over the first half of the CEPF investment, more than 30 proposals from private sector actors were received under open calls. These proposals were received from companies and rural properties. However, the selection process showed that they were either poorly designed or did not match the priorities set out in the ecosystem profile. Therefore, the expected engagement with the private sector via projects did not occur as expected.

There is one promising exception, though, with the grant to the FUNDACCER Foundation, which followed an earlier grant to Imaflora. Both grants supported the Cerrado Waters Consortium, which works in the municipality of Patrocínio. FUNDACCER is the foundation that represents the coffee-growing region of the Cerrado in the state of Minas Gerais. The total production area is 210,000 hectares, and the 2,000-plus associated farmers deliver coffee to prominent international coffee brands, such as Illy,

Lavazza, Nespresso, and Nestlé. Embedded in the restoration effort of the watershed providing freshwater to Patrocínio, which is the work directly financed by CEPF, is the concept of climate-smart agriculture. The consortium includes the private sector (coffee brands and producers), as well as CSOs like IUCN, which began this initiative before CEPF's engagement.

Various cross-sector coalitions or fora combine different types of CSOs and could be relevant for the environment in the Cerrado Hotspot. As previously mentioned, these include: the Brazilian Business Council on Sustainable Development; the Brazil Coalition on Climate, Forests, and Agriculture; the Brazilian Solidarity Economy Forum (FBES); and the Brazilian Forum on Climate Change (FBMC).

A challenge to engaging the private sector is that, most of the time, there is a need to build up a long-standing relationship before having a more significant impact on the ground. This is true for all the initiatives linked to sustainable soy or beef production in the Cerrado. One also has to consider that the organizations engaging in these discussions have long-standing commitments in terms of funding or were engaged already in some more significant coalitions like that of the Collaboration for Forest and Agriculture (CFA) funded by the Gordon and Betty Moore Foundation. Central to this collaboration, the foundation selected the National Wildlife Federation (NWF), The Nature Conservancy (TNC), and World Wildlife Fund (WWF) as key partners, given their efforts to date working on deforestation-free beef and soy supply chains and their contributions to building this field globally. Both supply chains are significant drivers of deforestation in the Cerrado.

A good example about the challenge to engage the private sector is the Statement of Support for the Cerrado Manifesto. In September 2017, over 60 Brazilian and international NGOs, foundations and scientific institutes published this manifesto after engaging with the industry for more than a decade in different spheres and intensity. It represents a major advocacy result, and it is important now to review the impacts on the ground since it calls for "immediate action in defense of the Cerrado by companies that purchase soy and meat from within the biome, as well as by investors active in these sectors. This includes the adoption of effective policies and commitments to eliminate deforestation and conversion of native vegetation and disassociate their supply chains from recently converted areas".

By the end of 2019, the number of companies pledging to support the statement had reached over 155, and this number has continued to rise. Signatory companies extend beyond membership of the Consumer Goods Forum, including retailers, manufacturers, livestock producers and the financial sector. Investor support for the statement is coordinated by the FAIRR Initiative and represents over US$6.3 trillion in assets.

According to TRASE, most of the participants of the soy supply chain are well mapped (see Figure 5). The challenge is now to establish the connection between the analysis and between the upper and low tiers of the supply chain. In short, it is to talk about implementing sustainability criteria, whatever they are, from certification criteria to Best Management Practices (BMPs). Unfortunately, this is only possible to implement with companies if the organizations have a track record of working with them, since this requires trust and recognition of the effectiveness of such cooperation on both sides. To build this up requires time and flexibility. In addition, several of the organizations operating in this field were already well funded and did not require extra funding from CEPF, which started relatively recently in the Cerrado.

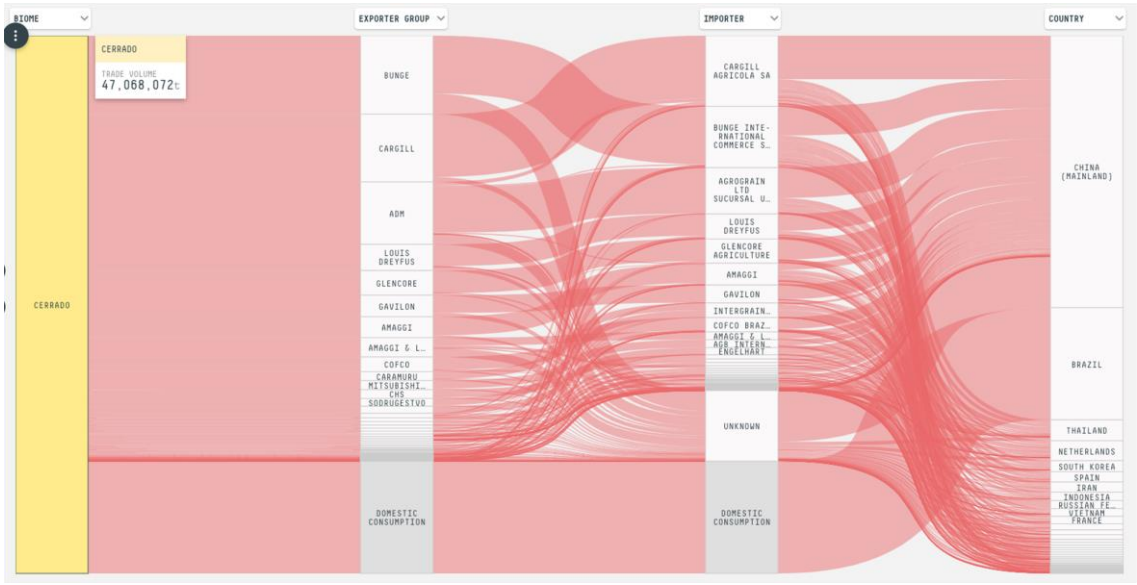

Figure 5: Soy exports from the Cerrado according to TRASE (https://trase.earth/) reached MM 47t in 2018

In the Cerrado, cattle ranching is also a strong sector of the agribusiness industry. It requires a lot of land, is a traditional activity, is export-related, varies in its quality and efficiency a lot, and is an integral part of the landscape.

Although nearly 100 companies are involved in the export of beef from Brazil to China, just four accounted for over 70 percent of all exports by volume in 2017. JBS, the world's largest meat-packing company, was responsible for over a third of all exports (Figure 6). At the start of 2020, JBS signed an agreement with the Chinese WH group to supply meat, including fresh beef, to the Chinese market, so its market share is expected to increase. JBS was one of the companies selected as a sector champion by the former government to reach out for the export market. This does have a major impact in how to have a greater conservation leverage with the private sector players as they dominate the market.

The herd, which at the beginning of the 1990s was only 150 million head, grew nationally at an average annual rate of 1.7 percent and, today, totals 215 million head, making it the largest commercial bovine herd in the world. Meat production grew at even higher rates in that period (6.5 percent per year) (IBGE 2019).

In 2020, 9.9 million tons of carcass equivalent were produced, of which 21 percent were destined for the external market. This has consolidated Brazil as the leading beef exporting country in terms of volume (USDA 2019). It is also important to consider that 79 percent of the beef produced is consumed internally. Brazil's annual per capita beef consumption is one of the highest in Latin America, after Argentina and Uruguay, and is expected to be 38.7 kg in 2019, while the average for the region is 18.9 kg. Brazilian annual beef consumption is expected to rise to 40.3 kg per capita by 2023.

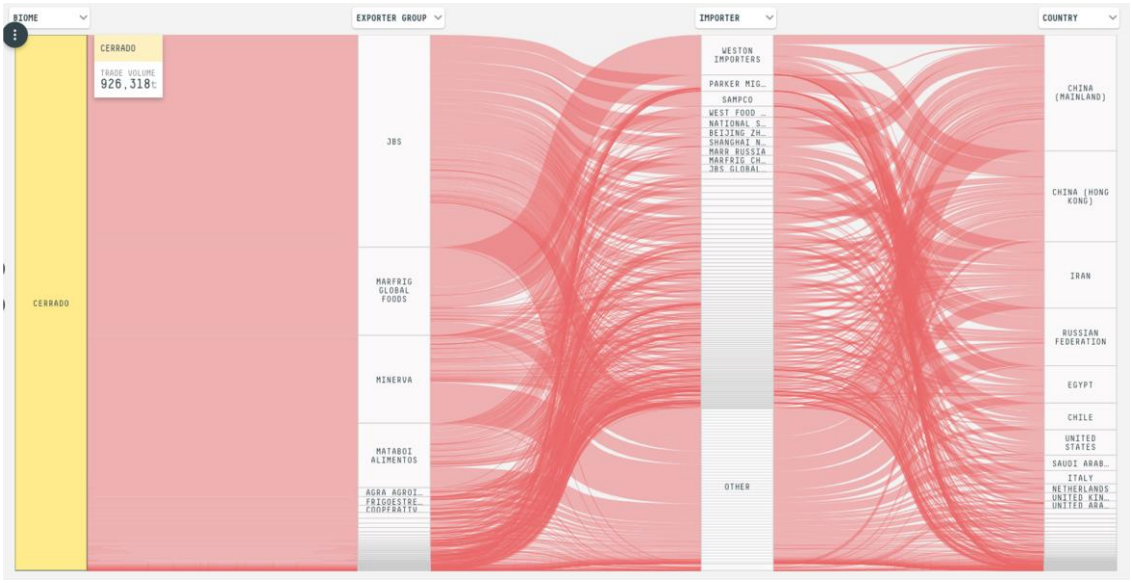

Figure 6: beef exports from the Cerrado according to TRASE (https://trase.earth/) reached 926,000t in 2017

In addition to the high concentration of the sector, the strong internal market influence of the sector working with cattle is also challenging due to its heterogeneity in terms of scale of production, levels of technification and distribution patterns and cultural variability of a hotspot with the dimension of the Cerrado.

Thus, the formulation of possible paths for the future, which aim to make beef cattle raising more sustainable, with a less adverse (or even a positive) impact on conservation, involves understanding different factors that affect the profitability and productivity of the systems and how they are distributed spatially. Finally, it also involves the ability of the producers and ranchers to incorporate innovative techniques that may have a positive impact on conservation. This is also one of the tendencies to 2040 pointed out in a recent study conducted by Embrapa Beef Cattle. In general terms, the sector should get more specialized, with a greater efficiency per hectare and the need for qualified personnel (CICARNE / Embrapa Gado de Corte, 2020). Unfortunately, this does not automatically mean that more land will be freed up for conservation. It can be occupied by other forms of crop, which reinforces the use of traditional grass-fed production like in Brazil (Batista 2020).

Figure 7 gives the best perception about the growth of the beef production in the coming years in Brazil. It shows the change in national herd size (millions of heads of cattle) under different scenarios based on feeding techniques (base=pasture; mix-past; mix-sup; mix-sup+ = pasture with added feed and supplements). These projections are from before the COVID-19 pandemic. Nonetheless, under every scenario, the increase will flatten but not disappear.

For any productive system to be economically feasible, it has to consider aspects of place and scale of production, climate and terrain suitability, size of property, local infrastructure, distance to markets, and input and meat prices (Bowman *et al.* 2012; Gil *et al.* 2015). This condition reinforces the importance of analyzing the problem from a spatial perspective.

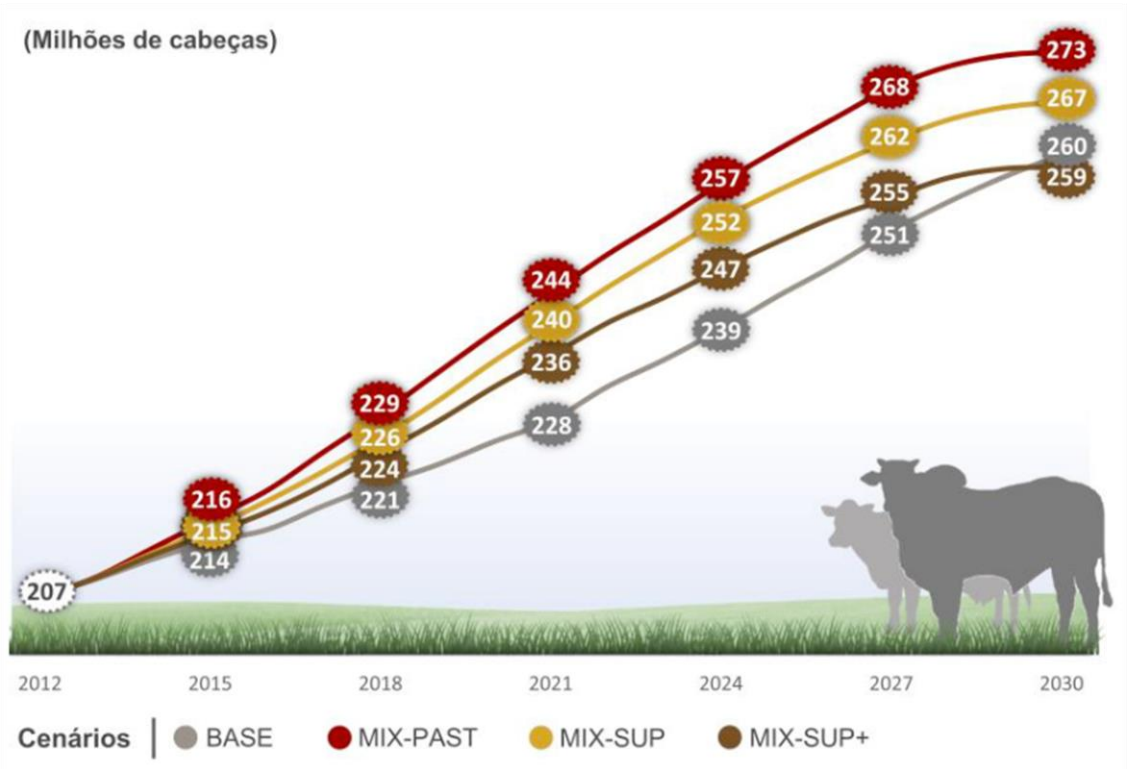

Figure 7: projection of the total number of beef cattle head in Brazil (Batista 2020).

2. ADAPTATIONS FOR THE LONG-TERM VISION

CEPF is not intended to be a permanent presence in each hotspot. Rather, it works toward an end point at which local civil society "graduates" from its support with sufficient capacity, access to resources, and credibility to respond to future conservation challenges. Experience to date shows that, in most hotspots, reaching a point at which civil society graduates from CEPF support will take more than five years, which is the most common duration of a CEPF investment phase.

Consequently, CEPF is preparing long-term strategic visions, which establish what the end point for CEPF investment in each hotspot looks like and determine how to get there. The content of each long-term strategic vision reflects the idea that "graduation" can be determined when five conditions related to conservation, civil society, financing, public policy, and the ability to respond to new issues, are met.

While lessons from other international and national donors' strategies are outside the scope of this long-term vision exercise, the strategies of the several donors are taken into account to avoid duplication of effort and to foster complementarity.

2.1 Discussion with Experts on Graduation Conditions

During the mid-term assessment in April 2019, the challenges responded to by the long-term vision were discussed with the following experts: Ailton Dias of IEB; Andreia Bavaresco of IEB; Mario Barroso of TNC; Isabel Figueiredo of ISPN; Marcos Rugnitz Tito of IUCN; Maria José Gontijo of IEB; Monica Nogueira of University of Brasilia (UNB); Mercedes Bustamante of UNB; and Regina Cavini of UNO-Environment Brasil. Section 5 presents the main fields of expertise of these participants.

During this session, the "graduation conditions" were discussed considering potential criteria and possible targets. It is essential to realize that the group was restricted to some specialists and that the meeting took place during a period of huge uncertainty considering the environmental and political future of Brazil. The country had just elected a new president with a strong agenda towards environmental policies, and the stakeholders in the sector were not sure about what to expect during the coming legislative period. The following sections present each graduation condition in turn, together with the suggested targets and the key points that arose during the discussions among the invited experts.

Although the methodology considers possible scenarios for 2030, most specialists felt very uncomfortable envisioning any possible outcome at such a distant point in time considering the current political context in Brazil. A few scenarios were subsequently proposed based on the authors' knowledge of the Cerrado and the context for conservation there.

Condition 1 - Conservation Priorities and Best Practices

Graduation Condition: Global conservation priorities (globally threatened species, Key Biodiversity Areas (KBAs), reservoirs of natural capital, etc.) and best practices for their management are identified, documented, disseminated and used by public sector, private sector, civil society and donor agencies to guide their support for conservation in the hotspot.

Considering the graduation condition, as seen in sections 1.2 and 1.3 above, there is a general understanding that there is a discrepancy between the international standards for KBAs and threatened species and what is applicable in Brazil. This discrepancy is manifest both at a national level, comparing the IUCN Red List and the national priorities for species conservation, and among CSOs, regarding landscape planning and prioritization tools. Landscape planning has also little adherence to the work of smaller CSOs, which are more likely to implement small-scale projects. As previously mentioned, it is important to keep in mind that the key to conservation of the estimated 12,070 plants species in the Cerrado, 35 percent (4,208) of which being endemic, is the protection of adequate areas. These areas also have an essential role in maintaining ecosystem functions important for nature and for human livelihoods especially in light of climate change.

In Brazil, CEPF could further contribute to the work on the IUCN Red List and the discussions around KBAs as a possible tool to align conservation to watershed management.

Target	Current situation	Scenario for 2025	Scenario for 2030
1.1 Endangered species By 2025, the National Action Plans for 20 percent of the endangered species and for two iconic species of the Cerrado are implemented and reintroduction measures taken.	• Maturity of the scientific community in terms of tools and understanding for assessing the condition of species; • Threatened species agenda lower in priority among federal environmental agencies; • Decrease in the role and leadership of environmental agencies on species conservation; • There are 29 National Action Plans for the Cerrado; • Update of the National Database for Endangered Species in progress by ICMBio and IUCN.	• Instead of focusing only on species, prioritize critical ecosystems for the occurrence of these species, thus integrating priority KBAs and critical ecosystems. This embroidering would be a way to maximize efforts to act with species in KBAs; • Use charismatic species to raise awareness in society; • The IUCN Red List of threatened species is updated based on the National Database for Endangered Species.	• Reintroduction of species will be an integral part of landscape planning and restoration efforts with specific guidelines to guarantee the use of endemic flora species and reserve areas for faunal reintroduction.

Target	Current situation	Scenario for 2025	Scenario for 2030
1.2 Key Biodiversity Areas By 2025, the KBA concept is adapted to national priorities (such as priority conservation areas or hydrographic basins) and more widely adopted by Brazilian institutions	• Review of Brazilian areas resulted in a total of 761 KBAs in the Cerrado; • The Red List of Ecosystems initiative of IUCN being elaborated; • The KBA concept not yet disseminated in Brazil among some beneficiaries of CEPF projects, especially community members; • Concept of KBA still little used as a reference for conservation by environmental policies and organizations in Brazil; • Occurrence of threatened species defines KBAs, as well as their conservation status.	• Dissemination of the concept of KBA promoted among CSOs and government; • An interface found between the landscape planning units already used in Brazil and the KBAs; • Strengthened capacity of states and municipalities to act on the conservation agenda; • Promotion of the adaptation of the various tools and assessment of adherence to national policies.	• KBAs adapted to national conservation needs and governance structure; • Inclusion of priority areas and other information that is already in the national planning sphere in the revaluation and prioritization of KBAs.
1.3 Natural capital By 2025, the concept of KBA+ is strongly connected to 10 of the major cities of the Cerrado emphasizing the value of natural capital and ecosystem services	• A total of 152 KBAs are considered to be of very high importance for ecosystem water services; all are located close to major cities and agricultural activities; • The KBA concept is not integrated into the Brazilian environmental policy management unit, such as the Hydrographic Basins.	• KBA+ used as a tool for governance units in environmental policy, such as watershed management committees; • Watershed management committees have adopted the endangered species identified in the KBAs to guide their performance.	• Major cities and the supply chains located in KBA+ invest in the maintenance and improvement of ecosystem services.

Target	Current situation	Scenario for 2025	Scenario for 2030
1.4 Conservation plans By 2025, at least one new land management concept (like TICCAs[1]) is explored to strengthen good spatial planning.	• Initiative underway (supported by CEPF) to map all Indigenous and traditional communities in the Cerrado.	• Creation of new categories of spatial planning based on the specificities of traditional peoples and communities in the Cerrado.	• The traditional people in the Cerrado own the process of the TICCAs recognition and explore this locally.
1.5 Good management practices By 2030, innovative and profitable solutional are shared between municipalities and the agriculture sector and 60 percent of the municipalities introduce some kind of Nature Based Solutions (NBSs) to adapt to climate change.	• Many biogas and energy for livestock production initiatives in the Cerrado; • Information for new technologies (training – UNIDO – BNDES Cerrado in the small producers sphere); • Mapping always focuses on bad practices, rather than best/good practices; • Impression that there is a long way to go to implement good practices; • Companies have limited legal obligations to implement/adopt best practices but, at the same time, they are being scrutinized more to do so by society.	• Acceleration of new technologies to strengthen the attainment of the SDGs; • Climate change adaptation and mitigation measures based on NBSs piloted; • Urban solutions piloted; • Circular Economy between the cities and the rural areas are incentivized with the help of the Brazil's Micro and Small Business Support Service (Sebrae).	• Good management practices previously piloted and/or aroused are wildly disseminated, and field visits and exchange fostered.

Additional considerations from the experts

List of species and IUCN
• IUCN has a database with a collection of Brazilian species, acquired in partnership with ICMBio (Chico Mendes Institute for Biodiversity Conservation); • It started in 2018, but was built by different groups (at different times); • Surveys need to be undertaken through a validation process to enter the international database;

[1] TICCAs: Territories and Areas Preserved by Indigenous and Local Communities (in Portuguese: Territórios e Áreas Conservadas por Comunidades Indígenas e Locais). The ICCA International Registry is one of the mechanisms developed to raise awareness about the relevance of conservation practices led by indigenous peoples and local communities. The registry is obtained from a series of stages structured and promoted by the ICCA Consortium (https://www.iccaregistry.org/).

- Brazil's database needed to be finalized by 2020 but ICMBio lacked financial resources to meet this deadline;
- The national database is still under construction;
- It is necessary to verify the technologies and tools used to locate species (it has also entered in the GEF Pro-Species);
- There is a shortage of qualified personnel to use this information in the Brazilian public sector;
- The generation and revision of the biodiversity extinction list are underway;
- The political context is uncertain but will likely require adaptation;
- The focus must shift from loss of species to conversion of land use, which is accelerating;
- Academia and the third sector will likely play a greater role, as it was before the creation of ICMBio.

Red List of Ecosystems

- The KBAs need to be revisited, considering the Red List of species;
- University of Sao Paulo researchers are involved with and mobilizing a network to bring the Red List to government and are considering working with CSOs;
- To adapt a list specific for the fund, IEB would need to start from lists that dialogue with species (e.g.: Red List of ecosystems);
- It is necessary to examine issues of other tools and perspectives that work with species;
- At the beginning of the first CEPF investment phase in the Cerrado, the international list of species received did not dialogue with the available national list;
- The Red List of ecosystems would better address the issue of scale and landscape in projects;
- If the national list of species is constantly updated, it can be used for scenarios.

KBAs – Thematic considerations

- In Brazil, only the basin scale is used to define KBAs;
- Priority areas for conservation (which would be the Brazilian KBAs) were born from the discussion of the Red List of ecosystems. Due to the delay of the list, a different methodology was adopted. The third phase has been completed but results are yet to be made publicly available;
- Why use international KBAs if there are priority areas?
- CEPF is alone in the use of the concept of KBAs in Brazil;
- Suggestion of making a map showing areas of intersection among all methodologies;
- If there are too many indicators, it can be negative;
- Any difference among data can be used against conservation;
- Actors who led the discussion and made Brazil's database public (MMA and ICMBio) now have less momentum.

Access to KBAs – Use of the KBA concept

- Experts need to discuss who accesses the information on KBAs (e.g., misuse of lists in attempts to ease the licensing process);

- The list is in English, which many partners do not understand;
- Information about KBAs needs to be more accessible;
- Few partners actually use it, and it does not reach beneficiaries (community);
- There is a need to strengthen the discussion of tools within CSOs;
- Most organizations deal with more immediate demands for the survival of the marginalized people of the Cerrado;
- There is disappearance of councils (basin, environmental) and the associated participation processes;
- It is necessary to verify if chosen and used tools are coupled with the scale of management of Brazilian environmental policies;
- Choice of geographical profiles would foster governance, since KBAs are aligned to the basin scale;
- Water management committees have a mandate to deal with water, not with species. They deal with basin revitalization and land use, having an ecosystem vision. The strategy of projects identifying species per basin can be used, advancing the dissemination of information and acceptance of the concept;
- Focus on river basin, species and KBAs (e.g., Friends of the Cerrado frog river basin committee);
- KBAs+ should focus on KBAs with relevant ecosystem services for water production;
- Committees may use species of KBAs to associate basins with species, which could help raise resources.

Condition 2 – Civil Society Capacity

Graduation Condition: Local civil society groups dedicated to conserving conservation priorities collectively possess sufficient organizational and technical capacity to be effective advocates for, and agents of, conservation and sustainable development for at least the next 10 years.

Besides the possible scenarios until 2025, the experts discussed:

(1) the overall political situation of the CSOs in the Cerrado;

(2) their internal constraints and the possible need for further capacity building;

(3) the need for distinction between grassroots organizations and larger international environmental non-governmental organizations; and

(4) the donor-CSO relationship.

The outcomes of the social network analysis carried out by the RIT and presented under section 1.2 was also reflected upon.

Target	Current situation	Scenario for 2025	Scenario for 2030
2.1 Environmental CSOs: conservation community By 2030, the major conservation organizations in the Cerrado are strengthened, including on the international agenda, and collectively respond to conservation threats.	• Difficulty of CSOs in understanding the demands of CEPF's calls for proposals (link to strategic directions); • Limited ability of some grassroots organizations to develop technical project proposals (those with less administrative structure and less technical staff); • Little ability to speak and understand English; • CSOs' staff turnover; • Local CSOs have little impact on public policies and little connection with companies; • Weaker CSO capacity to interact / mediate with the State.	• Capacity of organizations strengthened to promote more effective dialogue with civil servants; • The role of CSOs in political advocacy strengthened; • Legal support to CSOs established; • Inclusion of Territorial Planning / Land Regularization (of conservation units and territories of local communities) as part of the action strategy for conservation effectiveness; • Greater proximity of civil society to strengthen public ministries; • Greater dialogue between CSOs and the international context to enhance the conservation of the Cerrado; • Strengthened CSO activism with international public opinion (associating environmental conservation, democracy and human rights with social movements, people and traditional communities).	• Well trained local CSOs establish regional and/or international cooperation consortia and connect local need with the international agenda (SDGs and climate change in particular).
2.2 Institutional capacity By 2025, local civil society groups are trained and possess new management skills to address the need for impactful investment and monitoring.	• Few CSOs use monitoring and impact assessment tools; • Incipient risk analysis effort by CSOs; • Administrative and legal weakness of some organizations make them vulnerable.	• Expansion of the institutional capacity for monitoring and demonstrating the impacts of projects with socio-environmental indicators, such as the SDGs (Return on Social Investment) and Aichi targets; • Strengthened CSO management capacity.	• Capacity of organizations to promote effective dialogue with other actors of society strengthened.

Target	Current situation	Scenario for 2025	Scenario for 2030
2.3 Partnerships By 2025, at least four networks will be sustainability supported to encourage active participation of local CSOs.	• There are several active networks; • The networks still lack connection to local initiatives (capillarity) and team structuring, communication and political influence.	• Networks develop concrete actions, enhancing the performance of different organizations and strengthening their resilience; • Coalition(s) with joint action goals agreed among CSOs, universities and social movements; • Local and thematic networks of CSOs mapped to reinforce complementary work; Increased CSO capacity and speed of response to Cerrado conservation challenges; • Collaborative habits reinforced among CSOs.	• Five well-established CSO networks stimulate the exchange of knowledge within a particular issue and reinforce campaigning and political pressure for conservation in the Cerrado.
2.4 Financial resources By 2025, five relevant local CSOs of the Cerrado have access to climate-change-related funding streams for the coming five years.	• There is no investment to monitor effectiveness after projects end; • Funding goes more to the Amazon due to its international profile as a great forest.	• Articulation established with financiers to direct more lasting financing for the conservation of the Cerrado; • Focus on water and climate to compete with the "hype" of the Amazon and be able to raise resources.	• There is a rising understanding within the donor community that the Cerrado plays a vital role in food production and biodiversity and needs to be seen as a conservation priority.

Target	Current situation	Scenario for 2025	Scenario for 2030
2.5 Transforming impacts By 2025, four out of 11 states located in the Cerrado incorporate policies designed with CSOs and supported by the private sector.	• Low interlocution of CSOs with the private sector producing commodities.	• Use of Artificial Intelligence to direct information from networks and conservation of the Cerrado, generating greater reach and capillarity in society; • Expansion of dialogue and partnerships with the private sector that works with commodities seeking adoption of sustainable practices; • Strategic Plan for the Conservation of the Biome considering different experiences and action strategies produced; • Civil society trained to expand its ability to read political contexts; • The capacity of CSOs to positively influence political decisions is strengthened for the conservation and protection of traditional peoples, species, protected areas and mitigation of climate change.	• Local CSOs are considered by the states as significant contributors for local development plans adding environmental and social aspect

Additional considerations from the experts

CSOs - smaller CSOs in the Cerrado

• Political and judicial considerations:
  ○ CSOs are not always recognized as legitimate representatives of civil society;
  ○ Dispute on territory is one of the agendas of the judiciary and, because investigations and legal procedures take time, those CSOs who work on this agenda do not apply for short-term financing;
  ○ CSOs need to be prepared to respond to the processes of political negotiation in a more elaborate way.
• Characteristics of CSOs:
  ○ CSOs should be seen as a whole, not just environmentalists;
  ○ There is a reduced number of CSOs with the technical skills to write good project proposals. This picture was reflected in the number of proposals not accepted under the first CEPF Cerrado call for proposals;

    - It is necessary to strengthen the technical capacity of CSOs so they can submit good proposals and take conservation action;
    - It is necessary to qualify organizations that have problems: large organizations are different from grassroots organizations (smaller structure, number of people, and lower quality proposals with poor logical chain development);
    - CSOs sometimes have technical capacity but are overloaded with other activities and cannot focus on their proposals/projects;
    - There is a continuity problem in CSOs: people work for a limited time (project duration);
    - CSOs have not had a good dialogue with other actors in society;
    - Little impact on public opinion and what they think about the Cerrado;
    - Another issue is how small and medium-sized CSOs can access funds without depending on large ones (e.g.: Amazon Fund);
    - There is a need for legal advice, and few CSOs have anyone hired to do so;
    - CSOs need to get prepared to engage with the Federal/State Prosecution Service;
    - CSOs with more investment in social capital can qualify social and environmental gains, and still adapt language to SDGs;
    - CSOs still make little use of impact monitoring and evaluation tools, which can facilitate dialogue with donors.
- CSO and donor *modus operandi*
    - Many did not understand the processes of the CEPF call: there is a need to decrease the bureaucracy;
    - There is a high work demand to submit a proposal and obtain funding;
    - Technical capacity of CSOs is weak, since in many cases they do not even understand how to submit proposals in Portuguese;
    - IUCN did a training course on how to write projects; this could be adopted by CEPF;
    - CEPF could have a strategy to encourage CSOs to work with the Prosecution Service;
    - Donors need to see the human factor in environmental degradation and conservation: reinforce training; environmental education; and institutional strengthening;
    - Donors care more about protected hectares but recently they have recognized that there are extra issues (such as SDGs);
- Grassroot organizations:
    - Grassroots organizations have a generalized view of larger CSOs but need to understand that there is an attempt to coordinate efforts;
    - Grassroots organizations need capacity building to adjust to the new context as they originated in a conflict context;
    - In the coming years, energy will be used for restraining, not for transformation;
    - Transformation may be in the sense of changing reaction speed and finding common themes in coalitions (response in real time).

Condition 3 - Sustainable Financing

Graduation Condition: Adequate and continual financial resources are available to address conservation of global priorities for at least the next 10 years.

The group developed very few ideas about new financial resources to promote conservation in the Cerrado. Historically, this hotspot received very little attention despite its role as a global producer of soy, meat and other commodities. A lot of effort was made to work with the major drivers of deforestation but very little was invested in the lower tiers of the supply chains, where deforestation impacts people on the ground and the ecosystems we care about.

In general terms, the group missed the financial incentives for the good practices to thrive. This could be in the NTFP sector or even with the more traditional protective sectors of the agribusiness. Little is invested in a more positive agenda like promoting best practices.

Target	Current situation	Scenario for 2025	Scenario for 2030
3.1 Public funding By 2025, the public sector supports the fundraising efforts of at least 10 CSOs in the Cerrado.	• Direction of financial flows - international NGOs (like WWF) attract most international funding and serve as a hub, but not as a multiplier, for resources.	• Creation of new investment mechanisms in the socio-biodiversity chains through the supply chains of non-timber forest products in particular.	• Together with State and Municipal partners, the local CSOs are able to fundraise internationally for the conservation of the Cerrado.
3.2 Financing for CSOs By 2025, additional revenue streams are mapped for the CSOs and at least five business plans are developed.	• CSOs have insufficient resources in the face of the immense demand for conservation funding. • Decline in international investment cooperation in recent years in Brazil, resulting in less investment in conservation.	• Greater investment by large and medium-sized financiers in training processes, environmental education institutional strengthening of CSOs.	• Most CSOs operate in a hybrid form (like via consultancies or selling NTFPs) guaranteeing income from additional sources besides grants.

Target	Current situation	Scenario for 2025	Scenario for 2030
3.3 Donor funding By 2025, other donors are engaged in protecting the Cerrado	• Decline in international investment cooperation in recent years in Brazil, resulting in less investment in conservation.	n/a [The experts agreed that little international and public funding will flow to the Cerrado specifically by 2025, which is why there was no specific scenario proposed for this target.]	• New donors are engaged in the Cerrado because of the linkage between conservation of cerrado by traditional communities and the need to increase social equity within this disadvantaged population
3.4 Public and private funds considering conservation goals By 2030, public and private funding for conservation increase in the priority corridors	• Investment in agribusiness hugely outstrips conservation. Financing is not adequate for the conservation of the biome as a whole. It will never be adequate.	n/a [The experts agreed that little international and public funding will flow to the Cerrado specifically by 2025, which is why there was no specific scenario proposed for this target.]	• The private sector is engaged in conservation with the local CSOs in the priority corridors.

Condition 4 - Enabling Policy and Institutional Environment

Graduation Condition: Public policies, the capacity to implement them, and private sector business practices are supportive of the conservation of global biodiversity.

The discussions for a sustainable supply chain of soy are advancing in the Cerrado. As stated above, many private enterprises are looking forward to sustainably using the land. However, there are many other commodities with a footprint in the Cerrado. For all of them, the private sector does not take a leading role in promoting sustainable practices.

Target	Current situation	Scenario for 2025	Scenario for 2030
4.1 Legal environment for conservation By 2025, the implementation of the Forest Code is supported in two of the four states in Matopiba.	• There are a set of policies that generate incentives for conservation, such as PNGATI, PGPMBio and ABC (Low Carbon Agriculture). ABC is a plan, which does not take the perspective of sustainability, changes in agroecological zoning but focuses on emissions only; • There is a predominance of punitive actions against illicit activities, to the detriment of a prevention and education policy; • Traditional management practices are criminalized, such as the use of fire, cattle in RESEX, farmland in APP, etc.; • The Forest Code can generate economic incentives for restoration in APP and LRs; • There is ignorance about and little use of legal incentives for conservation.	• Maintenance and monitoring of policies that generate conservation incentives such as: PNGATI, PGPMBio, ABC (Low Carbon Agriculture); • Strengthened capacity of municipalities and states to advance the conservation agenda; • Strengthened fulfillment of Brazil's commitments under International Conventions; • Traditional knowledge related to the management of the Cerrado recognized and valued; • New categories of protected area recognized in the context of the Convention on Biological Diversity.	• The Forest Code and the rural cadaster is an open platform and the project of restoration of degraded and altered areas (PRADAs) is defined for all states.

Target	Current situation	Scenario for 2025	Scenario for 2030
4.2 Legal environment for civil society By 2025, five CSOs have legal advisors within their team to monitor and engage in the public policy arena at state or federal level.	• Restricted participation in the socio-environmental policy process for NGOs, social movements and leaders; • Extreme vulnerability of socio-environmental leaders • Discontinuation and reduction of formal spaces for social participation (i.e., committees and councils).	• CSOs valued and recognized by society; • Formal democratic spaces for participation maintained, reinstalled and strengthened; • Autonomous democratic self-management spaces created.	• CSO's leaders valued for their social role, representative-ness, importance in the defense of human rights and the environment.
4.3 Law enforcement There are bodies with clear responsibilities for implementing the laws in force.	• Federal environmental agencies have lower capacities to act; • State and municipal agencies (in general) have fragile structures and low technical capacity to discuss issues relevant to sustainability; • Very complicated current context.	n/a [The definition of a scenario under this criterion seemed to be unrealistic for most of the experts, because law enforcement is not part of the attributes of civil society.]	n/a [The definition of a scenario under this criterion seemed to be unrealistic for most of the experts, because law enforcement is not part of the attributes of civil society.]
4.4 Education and training Domestic programs exist that produce trained environmental managers at secondary, undergraduate, and advanced academic levels.	• Target already achieved. Brazil does have well trained professionals and, therefore, no additional academic support is needed in the field of environmental management.	n/a [Target already achieved.]	n/a [Target already achieved.]

Condition 5 - Responsiveness to Emerging Issues

Graduation Condition: Mechanisms exist to identify and respond to emerging conservation issues.

During this discussion, the experts considered responsiveness to emerging issues as being both external and internal in nature. Regarding the internal aspect, a lot of emphasis was placed on how the CSOs in the Cerrado will be able to cope with an ever-changing environment. Capacity needs were identified in administration and adaptation strategies but also in communication. As the legal framework in Brazil is changing substantially, and spaces for public discussion are reducing, as seen in section 1.6, there was great uncertainty about how to prepare for this institutional restructuring.

Target	Current situation	Scenario for 2025	Scenario for 2030
5.1 Biodiversity monitoring By 2025, all states of the Cerrado and major municipalities are well trained in existing biodiversity monitoring systems.	• There are databases for collecting and organizing information and specific initiatives for monitoring biodiversity.	• Development of indicators with clear application and function for demands and their users, which reflect the effectiveness of conservation actions; • Use of existing data to generate plans.	• Municipalities and states incorporate environmental criteria in regional and local planning initiatives.
5.2 Natural capital monitoring Ecosystem services for the major cities in the Cerrado are assessed by 2025 and assessments are disseminated among the local population.	• Environmental services are not assessed systematically; • The environmental quality of river basins is not properly monitored; • There are carbon inventories by sector.	• Value of standing Cerrado vegetation demonstrated in comparison to monoculture plantations; • Recognition of peoples and communities as maintainers of environmental services.	• Ecosystem services are valued as important component of climate change adaptation strategies.
5.3 Adaptive management Environmental CSOs and environmental managers are prepared to respond to sudden changes.	• CSOs have the capacity to adapt creatively to changes in the operating environment; • There is no systematic methodological approach to adaptive management.	n/a [The experts considered that most CSOs are well prepared to adapt to different political and financial conditions. The evolving socio-environmental context forces smaller organizations to constantly adapt. Therefore, there was no need to add a specific target.]	n/a [The experts considered that most CSOs are well prepared to adapt to different political and financial conditions. The evolving socio-environmental context forces smaller organizations to constantly adapt.]

Target	Current situation	Scenario for 2025	Scenario for 2030
5.4 Public management By 2025, the important public policy indicators will be presented to decision makers and widely discussed at state or national level.	• There was a gradual increase in the discussion of conservation issues in different spheres of public administration. Currently, the influence on the formulation of public policies aimed at conservation is more limited; • Indicators exist, they are not monitored, and there have been many changes since 2000; • Most indicators show the way, but little is invested in actions driven by the indicators' results.	• Setbacks to the conservation agenda (legal framework, management aspects, etc.) avoided; • Urban populations engaged with accessible language and communication strategies.	• A large volume of information is available digitally and shared with the general population.

Additional considerations from the experts

Adaptive management and future necessities for CSOs to be responsive to emerging issues

• At the organization level:
  ○ Flexibility and adaptability of concepts are necessary in the face of sudden changes;
  ○ Organizations have to adapt (e.g., use of Artificial Intelligence by Greenpeace);
  ○ If there is no monitoring, there is no way to adaptively manage: there may be a change of direction based on changes of scenario;
  ○ It is necessary to identify how to do planning based on external themes and the internal context;
  ○ Changes are always surprising: when CSOs were implementing something with community, a different agenda arrived;
  ○ CSOs have adaptive management for survival, not because it is a strategy;
  ○ They adapt to the discourse of donors and their demands, which generate new challenges;
  ○ NGOs working with Indigenous issues have been active for years but have the capacity to reinvent themselves, to retreat, and to adapt;
  ○ CSOs were born at the end of the dictatorship;
  ○ There are many qualified people in the country;
  ○ Campaign, communication and technology are essential for adaptive management: Environmental NGOs 2.0;
  ○ There must be at least a minimum involvement of urban groups, with accessible images and communication strategies;
  ○ CSOs need better ability to work in English, like Amazon CSOs.

- On the external environment:
  - Political, environmental, and conservation trends change (climate change, etc.);
  - The conservation theme has gained importance over the years, mainly with the discussion of the Forest Code, which mobilized the country as a whole;
  - Consumers alone cannot promote rapid change;
  - Campaigns with famous people to speak to the urban public are needed, because consumers are in the urban environment;
  - At the end of the 1980s, organizations translated socio-environmental agendas and created space for action (mediation role). Currently, the mediation role is more limited, and it is necessary to reinvent the institutions (they are delegitimized);
  - The strategy should be to maintain links with communities, to see loopholes in the system and to seek international support (influencing markets, donors, etc.);
  - Changes to the environmental field require a return to basic advocacy and collective training;
  - CSOs need to realize that there is a shift from resource-abundance to scarcity and look inside (self-criticism) to reinvent themselves;
  - The international perception is that the country still has financial resources to support the work of CSOs;
  - There has been a decrease in international funding;
  - CSO evacuation and migration of personnel;
  - There is less investment in the cooperation area than previously;
  - Insufficient financial resources compared with the demand weakens political influence;
  - In addition to strengthening collaborative networks and habits, there is a need for another collaborative strategy to form coalitions capable of quick actions.
- Legal considerations:
  - Some legislation is still active;
  - There is a greater culture of punishment than encouraging investment in good environmental behavior;
  - There is limited legislation investing in behavior change, such as incentives for rural producers, and what there is does not penetrate the whole territory;
  - There is a tendency towards discontinuing and loosening in the legal framework;
  - There is criminalization of traditional management practices (use of fire in Jalapão, livestock in Resex, grazing, etc.);
  - Legal Reserves and Areas of Permanent Protection are incentives within the Forest Code, which could be effective if there was better verification;
  - Most of the organizations are working at the federal level. A better strategy is to work at state and municipal levels;
  - Participation in international conventions led to the emergence of many public policies;
  - It is necessary to create new investment mechanisms (like certification for geographic identification, etc.) for NTFPs;
  - Extreme vulnerability of leaders and of environmentalists;
  - The legal requirements for CSOs are increasing and social participation spaces are reducing;

    - There is a need to strengthen municipal forums, local committees, etc.;
- Monitoring of ecosystems:
    - There are some hotspots monitoring systems for land use, but not for biodiversity (e.g. INPE deforestation, Mapbiomas);
    - Biodiversity has a large database (SISBio, MapBiomas, SISBerc, etc.) but is still without monitoring (lack of knowledge);
    - The list of endangered species and priority areas are inventories "only" and do not provide management guidelines;
    - Many are interested in data collection but not in synthesizing and managing information;
    - It is necessary to connect database of soils and underground water recharging systems to use them as a proxy for decision-making processes of environmental licensing;
    - Need to align biodiversity information system with CAR (Rural Environmental Cadaster);
    - Indicators of conservation effectiveness are demanded by the Aichi Targets;
    - There is a need for funding for activities related to monitoring;
    - Monitoring of the water issue is non-existent. ANA (National Water Agency) has not yet classified all micro-basins and the degree of conservation of basins is not monitored;
    - There are no inventories of recreational services provided by the river basins.

2.2 Geographic Considerations

It is challenging to suggest strategic directions that would have a meaningful impact with limited resources and timeframe across this vast hotspot. Therefore, another geographic approach is proposed for the long-term vision. This approach takes into consideration several aspects of CEPF's work so far and the experience gained supporting CSOs during the first investment phase, as described under sections 1.2 and 1.3.

Considering the geographic scope for CEPF investment, the Cerrado may be roughly divided into two significant sections:

- The central-northern part of the territory is where the agricultural frontier is expanding, and where there are not many consolidated agriculture investments considering BMPs or the adoption of responsible landscape management practices. This is also where one can find the most pristine areas of the hotspot. There, the states need more assistance to implement the Forest Code or other pieces of legislation helping to enforce good landscape management, like watershed committees. This northern part of the hotspot was highlighted as the most severe deforestation front in the Cerrado by WWF's global study on deforestation fronts (see Figure 3).

- The southern part of the hotspot is dominated by consolidated agriculture, and most of the pristine regions are lost. The work with BMPs in agriculture and with climate-smart technics along the supply chains like sugar, ethanol, cotton, and coffee should have shown signs of positive impacts on biodiversity.

Based on the above, it is suggested that future CEPF investment concentrates on half of the original territory of the first investment phase: the northern part (Figure 8a). This area spreads across 98 million hectares and encompasses the four priority corridors from the first phase plus an additional two: the Araguaia and RIDE DF – Paranaíba – Abaeté corridors. This represents 49 percent of the Cerrado Biodiversity Hotspot and encompasses 469 KBAs of the 765 KBAs defined for the hotspot (761 KBAs in Brazil, plus one in Bolivia and three in Paraguay) as per Figure 8b.

Figure 8c highlights the projects supported by CEPF during the first investment phase. Strengthening civil society further in those areas is needed and will have a positive effect on nature conservation. As can be noted, there is a need to increase the density of CSOs in the states of Mato Grosso, Goiás, Maranhão, Tocantins, Piauí, and Bahia.

The rationale behind the selection of the four priority corridors from the first phase, and the inclusion of the Araguaia and RIDE DF – Paranaíba – Abaeté corridors a little further south, is the need to work on the conservation of water resources. In all these areas, agriculture depends a lot on the Cerrado's water resources. The expansion of irrigation districts in those areas is exemplified by Figure 9a and 9b.

It is also important to mention that a governmental program plans to work on the restoration of several hectares along the Araguaia River and its headwaters. In the state of Goiás alone, preliminary studies have identified 208,671 hectares destined for different restoration measures. There is an opportunity for CEPF to help these efforts by supporting restoration practices and building on the experiences gained in the coffee sector (the project is located near Patrocínio, in the very south of the new geographic scope, and established BMPs for the climate smart coffee plantations).

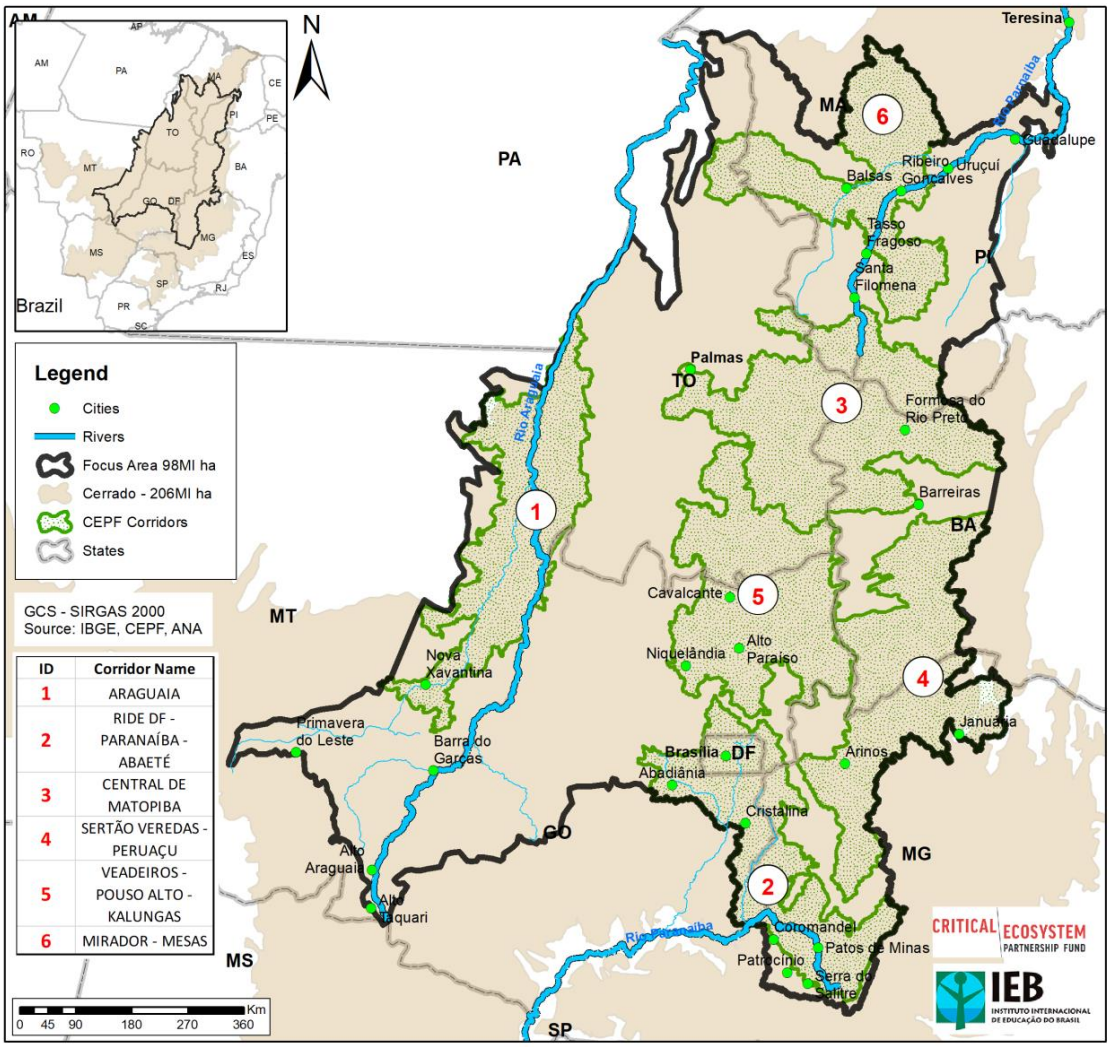

Figure 8a: Suggested new geographic scope encompassing six corridors for the long-term vision investment strategy in the Cerrado.

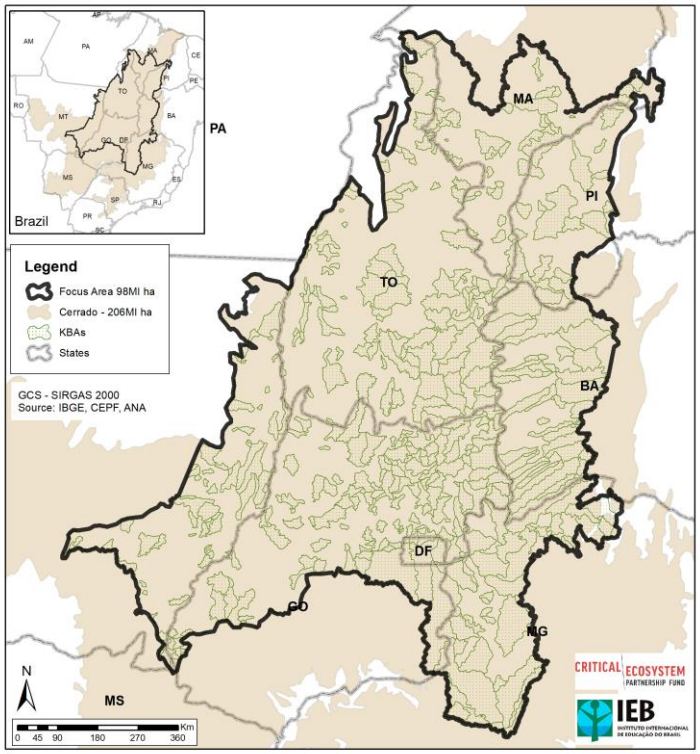

Figure 8b: Suggested new geographic scope encompassing 469 KBAs for the long-term vision investment strategy in the Cerrado.

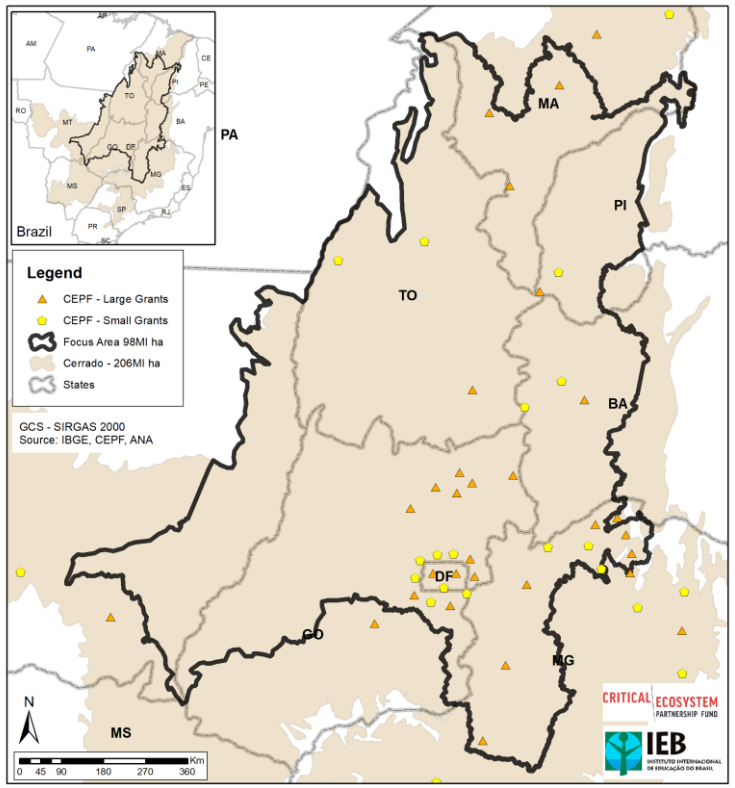

Figure 8c: Suggested new geographic scope for the long-term vision investment strategy in the Cerrado, with large and small grant projects supported during the first CEPF investment phase.

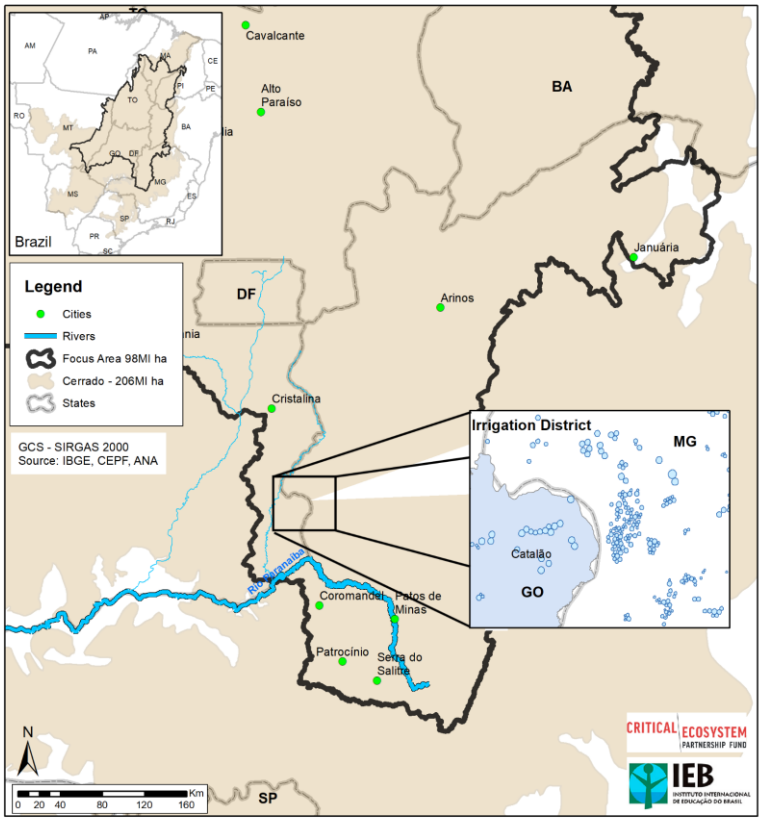

Figure 9a: Irrigation district in RIDE DF – Paranaíba – Abaeté corridor

Figure 9b: Satellite imagery of irrigation district in RIDE DF – Paranaíba – Abaeté corridor

2.3 Thematic Considerations

A systematic review to discuss the extent to which biodiversity research has addressed the interface between ecosystem services and human well-being was performed by Pires *et al.* (2018a), using Brazil as a case study of global relevance (Figure 10). The authors found that biodiversity research in Brazil remains focused predominantly on biological processes and that research on the links with ecosystem services and human well-being is still at an early stage. This pattern reveals the nature of existing funding policies and scientific gaps in the country. Given the global relevance of Brazil's stock of biodiversity and ecosystem services, the authors argued that research on their links with human well-being will be a crucial element of the national and global process of achieving the Sustainable Development Goals by 2030. To accomplish the Sustainable Development Agenda by 2030, it is crucial to ensure that Latin American and the Caribbean countries are able to combine biodiversity conservation with socioeconomic development in the coming years.

Biodiversity is known to support ecosystem functions and services critical to people in various ways, including food and water security, health, climate change adaptation and cultural benefits (Cardinale *et al.* 2012; Isbell *et al.* 2017; Pires *et al.* 2018b). However, biodiversity and ecosystem services research still falls short of addressing human well-being (Pires *et al.* 2018a).

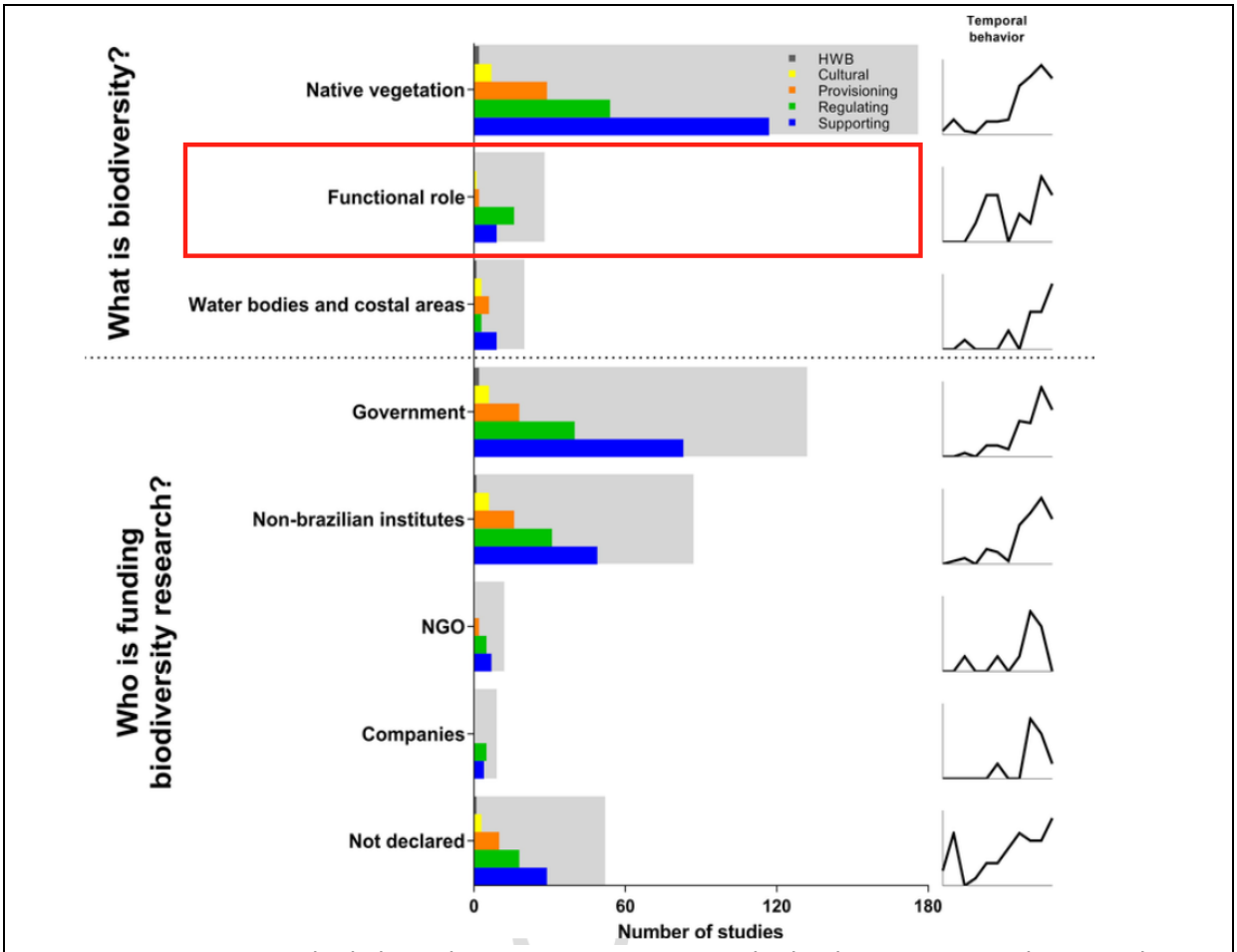

Figure 10. Biases in the links with ecosystem services in the biodiversity research in Brazil. Source: Pires *et al.* (2018b).

Presenting these results helps to reinforce the argument that biodiversity research is key to promoting the linkages between biodiversity, ecosystem services and human well-

being. The following suggestions made by the authors are considered important to take into account for the long-term vision for the Cerrado Hotspot. These suggestions emphasize the promotion of studies and projects that:

a) Focus on often neglected dimensions of biodiversity and ecosystem services, such as cultural and provisioning services;

b) Address the links between biodiversity and ecosystem services within and across geopolitical units;

c) Develop indicators that could facilitate links among biodiversity, ecosystem services and human well-being, such as those related to water, food and climate security and to the SDGs;

d) Explore multiple relationships between humans and nature;

e) Demonstrate the importance of biodiversity in and for urban cities, including their dependency on rural areas;

f) Strengthen the links between academia and the private sector.

From July 2016 to June 2021, a portfolio of 63 projects was built under the various strategic directions of the CEPF investment strategy for the Cerrado Hotspot. What all projects have in common is the overall objective to ensure that biodiversity and ecosystem functions and services are protected. This overall objective appeared within several projects, sometimes at a tiny scale with landless people around Brasilia that were looking towards the establishment of agroforestry to sustain their living in a less impactful way and, by doing so, also restore their land. In other projects, this connection to ecosystem services appeared through the restoration of small watersheds to supply water to a mid-sized town, in the state of Minas Gerais. A more significant constituency is positively affected by the provision of these ecosystem services.

In both cases, the projects are strongly linking human well-being to the well-being of the environment. This interaction between the population in the Cerrado and its environment is particularly true when one considers how much people in the Cerrado (whether Indigenous people or traditional communities) coexist with their natural environment and are sustained by it. In this regard, it should be noted that Strategic Direction 3 ("promote and strengthen supply chains associated with the sustainable use of natural resources and ecological restoration in the hotspot") received the greatest number of applications.

During the first investment phase, the CEPF program in the Cerrado also made a massive difference in terms of direct investments on biodiversity, through species protection and support and strengthening of protected areas. For many organizations working on species protection in the Cerrado, CEPF represents almost the only source of funding. However, a limited number of species (seven) were eligible for CEPF support. This is because CEPF focuses on the IUCN Red List, which appears not to be updated compared to the national assessment. An effort should be undertaken to update the IUCN Red List for species in the Cerrado.

The suggestions that follow reflect the experiences gathered during the first CEPF investment phase, suggestions mentioned above and outcomes of the discussions with experts during the mid-term assessment, which took place in Brasília in 2019.

For the long-term vision, three significant thematic niches are identified:

(1) a stronger emphasis on **water resources** management with a focus on (i) entire agricultural supply chains allowing increased leverage on producers to adopt best management practices; (ii) the maintenance of aquatic and terrestrial ecosystems critical for water stability and human needs; (iii) good and transparent water governance; (iv) climate change adaptation strategies for water; and (v) new financial models to promote nature-based solutions;

(2) a considerable investment on **sustainable SMEs** and supply chains to give the traditional people and Indigenous populations income generation opportunities associated with conservation and low impacts on species and ecosystems;

(3) support for the **restoration of ecosystems** related to the provision of ecosystem services and water to the urban centers of the Cerrado as a way to reconnect voters with the positive economic and ecologic impacts of sustained healthy ecosystems in the Cerrado.

With the above in mind, the six strategic directions of the first CEPF investment phase in the Cerrado were reviewed from the perspective of the initial years of implementation and with a better understanding of the CSOs and the political environment. In general terms, it is suggested that those strategic directions that have a stronger relationship with a specific audience or a more explicit connection with an essential ecosystem service for the Cerrado be retained. The shift from these strategic directions to the newly proposed ones is further detailed in the subsequent sections below.

Strategic Directions of the first CEPF investment phase	**Proposed Strategic Directions for a future CEPF investment phase**
1. Promote the adoption of best practices in agriculture in the priority corridors.	1. Promote best management of water resources, with adaptation of agricultural practices, maintenance of aquatic and terrestrial ecosystems, improvement of governance, establishment of climate change adaptation strategies and promotion of new financial models to promote nature-based solutions.
2. Support the creation/expansion and effective management of protected areas in the priority corridors.	2. Support the creation/expansion of other protected area management concepts, such as private reserves and territories preserved by Indigenous and local communities, and the effective management of protected areas and sustainable landscapes.
3. Promote and strengthen supply chains associated with the sustainable use of natural resources and ecological restoration in the hotspot.	3. Support investment in sustainable small and medium enterprises and supply chains to give the traditional people and Indigenous populations income generation opportunities linked to conservation.
N/A [It is proposed to split the strategic direction related to restoration into two separate strategic directions.]	4. Support the restoration of ecosystems delivering services and water to the urban centers of the Cerrado as a mean to reconnect urban populations with the hotspot and promote the production of native seeds for restoration.
4. Support the protection of threatened species in the hotspot.	5. Support the implementation of National Action Plans (PANs) for priority threatened species, with a focus on habitat management and protection.

5. Support the implementation of tools to integrate and to share data on monitoring to better inform decision-making processes in the hotspot.	N/A [It is proposed to discontinue this strategic direction, since most of the data are now available. Mapbiomas and the Cerrado Knowledge Platform have a lot of data available and are kept up to date. In addition to that, there is agreement that the greatest need is now to make use of the knowledge already produced.]
6. Strengthen the capacity of CSOs to promote better management of territories and of natural resources and to support other investment priorities in the hotspot.	6. Strengthen the capacity of CSOs to promote better management of territories and of natural resources and to support other investment priorities in the hotspot.

Proposed Changes to Strategic Direction 1

The first strategic direction of the first investment phase was linked to agricultural production and expansion in the hotspot. The perspective of this strategic direction is strongly connected to agribusiness and the threat its development poses to the northern part of the Cerrado, the co-called Matopiba region. Both investment priorities, unfortunately, contemplate an entirely different set of stakeholders: industrial agriculture and smallholders. This disparity becomes evident when zero tillage techniques are mentioned besides agroforestry or the low-carbon agriculture next to the National School Lunch programs. The first topic is linked to large-scale agriculture; the latter is much more connected to small farmers or the agriculture practice of the traditional population in the Cerrado.

For this strategic direction, it was hoped to engage with the agribusiness sector and their supply chains to increase leverage on producers. The current portfolio contains a grant focusing on a partnership with the coffee producers in the Cerrado in Minas Gerais. Here, the guiding principle and entry point for the relationship with the farmers and the coffee toasters was the maintenance of ecosystem services, in this case, water and the provisioning service of healthy soils. This pilot work with the coffee supply chain has a potential to involve 55 municipalities, cover 235,000 ha, reach 4,500 coffee farmers, with the export of 80 percent of this production. The project is developing a list of climate-smart indicators that should serve as verifiable parameters for the sustainable coffee fund. The model of this fund is based in the Agri3 Fund which aims to mobilize US$1 billion of financing by providing credit enhancement tools and technical assistance to enable a transition to more sustainable practices in agricultural value chains and avert deforestation. Based on this successful approach, it is now time to expand the work to the rest of the area. This solid background already opened the doors for additional funding with major international and regional banks, which will help support this expansion.

Another current small grant is mapping bad watershed management practices (open sewage, deforestation of riparian forest, clandestine water disposal, events of gully erosion, etc.) via citizen science. This information is made available to the Public Attorney's office and for the watershed committees to act on it. This tool is being adapted in the coffee project to include the monitoring of BMPs in the coffee sector. This could improve monitoring, reporting and verification schemes immensely and open new possibilities even for funding or carbon accounting.

CEPF and selected grantees could make a difference in accelerating change, disseminating restoration processes, implementing BMP protocols in new areas, working on irrigation technics, empowering CSOs to participate in watershed committees, and

contributing to better landscape and biodiversity management. Even boosting communication with the consumer is a possibility that would have positive environmental outcomes as it will allow increased leverage on producers for them to adopt BMPs. This could be a way to show how an established and traditional supply chain, such as coffee, can adapt and pave the way to more sustainable production.

Considering the importance of the Cerrado for three of South America's major river basins and most of the main Brazilian rivers as seen under section 1.3, and therefore of environmental services for the maintenance of agricultural production and the water supply of cities, it is suggested to shift the focus towards the protection of water and its management in the Cerrado. In this context, the investment priorities of this strategic direction under a future investment phase could be linked to:

(1) Adaptation technologies in the agricultural sector (i.e., climate-smart agriculture);

(2) Maintenance of aquatic and terrestrial ecosystems critical for water stability;

(3) Improvement of governance over water;

(4) Climate change adaptation strategies for water; and

(5) Promotion of new financial models to encourage nature-based solutions.

If Brazil wants to maintain its position as one of the world's leading suppliers of meat and grains and to continue to produce food for its domestic population, then it cannot do without water and soils in adequate quantities and of satisfactory quality. Those are the natural resources that have made the country the powerful agro-exporter it is today, and it is precisely the preservation and wise management of those resources that will guarantee a future less threatened by risks, such as those described under section 1.3 and associated with climate change.

The Cerrado is often referred to as "Brazil's water tank". Its waters generate the electricity used by nine out of ten Brazilian citizens.

Today, the Cerrado is still capable of supplying water to three principal aquifers and six of Brazil's major watersheds: Amazon, Tocantins, Atlantic North-Northeast, São Francisco, Atlantic East, and the Parana-Paraguay. They are used by almost 7,000 central pivot sprinkler systems concentrated in municipalities like Cristalina (Goias), Paracatu (Minas Gerais), and Luiz Eduardo Magalhães (Bahia) for irrigation. The waters of the Cerrado guarantee the continued existence of the Pantanal and the production of food crops by family-based agriculture and reach out to the world in the form of exported soy, meat, and other commodities.

Concepts like "water footprint" are slowly beginning to gain space in Brazil, classifying water resource use and consumption into "green water" (used in the production of plants), "blue water" (taken straight out of the rivers) and "grey water" (used to dilute organic effluents). Big corporations have begun to adopt those concepts to reduce their water consumption. The net virtual water export of the Brazilian agribusiness sector is 54.8 billion cubic meters per year, mainly to Europe. The states that are at the forefront of virtual water exports are Mato Grosso do Sul and Goiás, both in the Cerrado (Silva, 2016).

The proposed changes to this strategic direction also take into account the fact that many other funds are investing in the interface between agribusiness and conservation in the Cerrado. In all cases, conservation promoted through supply chains of commodities is best built upon long-term relationships among partners. Several larger and international CSOs have been investing in these initiatives for decades and will keep

investing. CEPF would contribute little to direct discussions with the companies but would contribute much more trying to implement the strategies suggested and discussed in the different roundtables. Financing models that are based on the roundtable's discussions should be proven to facilitate wider acceptation of change. The proposed changes to this strategic direction consider the added value that CEPF could bring to the discussion. There are no reported and documented scientific studies and models designed specifically for the Cerrado that indicate that water stress will have a severe impact on agriculture and will accelerate conflict in the area. Nonetheless, conflict and drought are increasing. One of the most substantial examples was the inclusion of the state of Minas Gerais in the drought monitoring system of the National Water Agency in November 2018. Today, other states in Brazil are asked to participate actively in the monitoring of drought in the northeast of Brazil, which is expanding to other states.

The RIT had the opportunity to participate in technical meetings of the Good Growth Partnership, another GEF-funded project in the Cerrado. The team learned that the pace of agribusiness expansion in the states of Piauí and Maranhão had reduced because of a lack of rain. It is necessary that big agribusiness expansion is reduced in those areas of the Cerrado that still have pristine places. It also appears that other organizations are better suited to dialogue with the soy and cattle supply chain and that CEPF could add value discussing adaptation strategies in the hotspot considering the water resources and the protection of aquatic ecosystems. By doing this, CEPF would not distance itself from the productive sector in the Cerrado but rather reinforce the message of conservation for long-term agriculture production and human water supply.

A new law recognizing the existence of ecosystem services was passed at the beginning of 2021. This is a first step towards the possibility of financing ecosystem services as delivering public goods. Unfortunately, a lot still has to be regulated. This is why the RIT suggests linking the payment of ecosystem services directly to the beneficiary supply chains and commodities producers, as in the coffee industry, or indirectly through the promotion of the payment of voluntary carbon credits. In both cases, the RIT is not counting on financial incentives from the federal government.

During the mid-term assessment meeting with the experts who discussed the long-term vision, a strong resistance was perceived to supporting the agribusiness sector (an economic powerhouse in the Cerrado) with additional funds. Many good practices are already described for this sector that have a positive impact on conservation, such as zero-tillage techniques. One intersection that could be reinforced in connection to agribusinesses is the sustainable use of the legal reserves on their properties. In turn, access to these legal reserves could be guaranteed to neighboring traditional populations to sustainably extract NTFPs.

Proposed Changes to Strategic Direction 2

The second strategic direction has three investment priorities: (1) support for studies and analyses necessary to justify the creation and expansion of public protected areas, while promoting conservation and sustainable use of biodiversity and valuing local and traditional culture; (2) promotion and inclusion of existing Indigenous, quilombola and traditional populations, respecting and integrating their traditional knowledge, into conservation/restoration planning by government and civil society; and (3) encouragement for the creation and implementation of private protected areas (RPPNs) to extend legal protection in priority KBAs. Under this strategic direction, the establishment of community agreements for resource use and assistance to communities to declare their territories as Indigenous and Community Conserved Areas (ICCAs) were already considered. For instance, CEPF has promoted the first ICCA in the Cerrado, with the Kalunga people of Cavalcante, Goiás State.

This strategic direction should not change much in light of the long-term vision and climate change scenario presented in section 1.3. Some minor adaptations are suggested to make the protection of more substantial land portions more viable in the Cerrado. It is, for instance, extremely unlikely that the government, at the federal or state level, will designate new protected areas in the Cerrado.

Under a potential future phase, CEPF investment under this strategic direction could be redirected to enhance the management of mosaics of protected areas and the protected areas already established. Better management of protected areas should also include the establishment of ecotourism activities to attract visitors and generate income for communities around and within different categories of protected area.

During the first investment phase, the Conservation-based Territorial Development Plan (DTBC) of the Sertão Veredas-Peruaçu Mosaic was revised and updated in a participatory manner with CEPF support. The plan's primary objective is the development of the region on a sustainable basis, considering the existence of conservation units and other protected areas, making them compatible with productive activities and the region's traditional culture. One of the major activities in the plan is support for sustainable tourism activities to connect conservation to the local economy, the local communities, and, last but not least, offer an income-generating activity for women in the region.

During the first phase, the RIT also gained some experience with the establishment of protected areas at the municipal level. This aspect should not be discarded totally from the investment strategy. It is important to stress though that the result of this effort would have a smaller impact in terms of total area protected but most probably a larger impact on the general public, since those areas created at municipal level (generally municipal parks) are used by the local population or are areas that are linked directly to the water supply of cities. The impact would be less tangible in terms of hectares protected but would be stronger in the minds of the population directly affected.

Proposed Changes to Strategic Direction 3

The third strategic direction is based on the sustainable use of biodiversity. It is an essential complementary conservation strategy because it encourages communities to maintain natural areas to generate income. The third strategic direction attracted the most attention among CSOs working in the Cerrado during the first phase. Under this strategic direction, CEPF support was provided to grantees in almost all regions of the Cerrado from the northern state of Maranhão to the southern state of Mato Grosso do Sul. There are cooperatives that are working with typical Cerrado fruits like pequi or baru nut that are looking forward to establishing their products in the local markets or even for export. There are also projects supporting best practices by promoting agroforestry.

Taking a closer look at these endeavors, and the potential for NTFPs described under section 1.4, one of the most significant challenges is to enhance the management of these supply chains. Talking about the entire supply chain of Cerrado NTFPs, from picking to the consumer, and of small-scale agroforestry, the investment priorities of this strategic direction under a potential future phase of CEPF investment should promote the professionalization of those enterprises. Capacity building would not only benefit the smallholders and traditional people that are making their living through the established markets but could also reinforce the positive social and environmental impacts of these entrepreneurs by supporting work not only on impact investment and marketing plans, but also on certification, fairs and international events to bring visibility to the Cerrado products and best practices. Natural capital investment is recognized to be among the five most crucial fiscal recovery policies, which offer high economic multipliers and positive climate impact in a post-COVID-19 environment (Hepburn, 2020). It will be

critical to tap into this potential to ensure prosperity, sustainability and resilience in the recovery.

Unfortunately, it is also true that the short-term private benefits, most of the time, exceed the long-term benefits of sustainable practices, as the external costs are not factored in. The global benefits of carbon sequestration are not considered, neither are the impacts of degraded systems. The substantial social benefits (from timber, charcoal, NTFPs, freshwater, pollination, etc.) associated with the original Cerrado vegetation fall to almost zero when land-cover conversion occurs (Balmford, 2002).

With one of the grantees, there was an attempt to establish the social return on investment and to establish the social and environmental gains of the cooperative. This proved not to be possible, due to a lack of data available to demonstrate these extra benefits and reinforce the argument about what the impact of such investment is enabling.

It should not be CEPF's role to design business plans and to guide new enterprises through the complexity of Brazilian entrepreneurship. Rather, this would be the role of SEBRAE the Brazilian Micro and Small Business Support Service. CEPF should help in preparing the business for impact investment platforms like P4F (Partnership for Forest) or Conexus.

During the first CEPF investment phase, it became evident that the restoration effort is still immense in the Cerrado. This is why it is recommended to split the third strategic direction into two separate ones, the latter of which will place special emphasis on the restoration of ecosystems. This has a connection to the original strategic direction, as it still promotes restoration. The related investment priorities should be adapted, however, so that restoration will also serve to encourage activities in urban centers, increasing the contact of urban population with conservation efforts in the hotspot. These restoration efforts should be made in peri-urban and rural regions that deliver ecosystem services like water provision or recreation to urban areas. The reconnection of the urban population with nature can be expected to have a positive impact on overall environmental policies, the health of citizens, and climate adaptation strategies for urban centers. The proposed new strategic direction is much more directed towards mid-sized and small-sized towns in the Cerrado.

Proposed Changes to Strategic Direction 4

During the implementation of the CEPF investment strategy, very positive feedback was received from the organizations working on species conservation in the Cerrado, who emphasized that CEPF is the only fund working with threatened species at the hotspot level and that this strategy should be continued. However, as previously mentioned, only a very limited number of species (seven) were eligible for CEPF support because the IUCN Red List had not been updated with more recent national assessments. Under a potential future phase of CEPF investment, this strategic direction should be modified to include support for updating the IUCN Red List in addition to the support already allocated to the implementation of National Action Plans (PANs) for priority species, with a focus on habitat management and protection.

Although it is proposed to limit the overall geographic scope of the future CEPF investment phase in the Cerrado for all the other strategic directions, as mentioned in Section 2.2, the work on species under this strategic direction should still span across the entire hotspot. This is a key element when considering adaptation to climate change and the scenario of geographical shifts of suitable habitats, as described in section 1.3.

Proposed Changes to Strategic Direction 5

There are two major investment priorities under this strategic direction: (1) support for the dissemination of data on native vegetation cover and dynamics of land uses; and (2) reinforcement of similar efforts on water quality and quantity.

During the first phase, the first investment priority was addressed mainly by the Brazilian Annual Land Use and Land Cover Mapping Project (MapBiomas), which is an initiative of the Greenhouse Gas Emissions Estimation System (SEEG) from the Climate Observatory. It is produced by a collaborative network of co-creators made up of NGOs, universities and technology companies organized by biomes and cross-cutting themes. For the Cerrado biome, the coordination is led by IPAM. This is an excellent, well-funded platform, which aggregates information for all Brazilian hotspots and keeps evolving tools. CEPF is currently funding Fundação de Apoio à Pesquisa da Universidade Federal de Goiás (LAPIG) to support the implementation of a joint, long-term, open-source platform on the Cerrado to promote data, information and knowledge sharing among the various stakeholders in the hotspot: the Cerrado Knowledge Platform. This project is also fulfilling the target of this strategic direction, including collaboration with Mapbiomas. Therefore, there is no longer any added value to retain such an investment priority beyond the end of the current phase.

Resilience to climate change in the Cerrado depends on maintaining the original ecosystems and requires integrated efforts from civil society, governments, farmers and the global community. Integrated fire management and fire monitoring is an aspect that is already part of the first investment phase, under the umbrella of landscape management and this strategic direction. The concept of integrated fire management presumes that the work is done with local stakeholders. While a small grant looking at this approach was not successful due to specific circumstances with the community, a recent small grant to the Federal University of Rio de Janeiro is now looking at fire monitoring on a much higher frequency with the Laboratory for Environmental Satellite Applications, to allow fire brigades to react promptly and public persecutors to condemn criminal behavior quickly. The support of this type of projects could continue under the new Strategic Direction 2 which looks at enhancing land management in conservation units and on Indigenous/traditional people's territories.

The second investment priority, focusing on water, is addressed by the proposed revisions to the first strategic direction, so there is no need to retain a separate strategic direction.

Proposed Changes to Strategic Direction 6

The sixth strategic direction has four elements to strengthen the capacity of CSOs to promote better management of territories and natural resources and to support other investment priorities in the hotspot. In any future CEPF investment phase, this strategic direction should continue to: (1) reinforce CSOs' capabilities to participate in collective bodies and processes related to natural resource management; (2) develop the technical and management skills of the organizations; (3) enhance the participation of CSOs in governmental official decision-making bodies; and (4) disseminate information on the Cerrado, its biological, ecological, social and cultural functions.

All of these needs are still valid today, and no change should be made to this strategic direction. One element should be highlighted and clearly integrated within this strategy though: CSOs should receive dedicated training and support to help them comply with all legal requirements from the fiscal, tax, and labor points of view. This is in view of the growing restrictions and compliances imposed to CSOs in Brazil.

Overall, the work with CSOs should still be one of the most significant aspects of the future CEPF investment phase.

2.4 Links between Investment Strategy and Graduation Conditions

Some of the graduation conditions and their targets are foreseen to be met by implementing the new strategic directions described above. As the graduation conditions describe more general goals towards conservation or organizational capacities, these conservation goals and the local partners' capacities should be strengthened while implementing the strategies.

The overarching issue in the first strategic direction and targets 1.3 and 5.2 is, for instance, the protection of ecosystem services. One can hope to promote projects under this strategic direction that, at the same time, promote the value of natural capital and the need to adapt to the climate crisis.

Due to the reduction of the geographic scope for the long-term vision, and the need for the long-term structure responsible for the coordination of the future investment to invest substantial time in establishing and nurturing long-lasting relationships with CSOs, some of which being supported by the first CEPF investment phase, **a few targets from the graduation conditions presented under section 2.1 were downscaled in the list below.**

Proposed Strategic Directions for a future CEPF investment phase	Long-term Vision Targets	Graduation conditions
1. Promote the best management of water resources, with adaptation of agricultural practices, the maintenance of aquatic and terrestrial ecosystems, improvement of governance, the establishment of climate change adaptation strategies for water and promotion of new financial models to promote nature-based solutions.	1.3 By 2025, the concept of KBA+ is strongly connected to 10 of the major cities of the Cerrado emphasizing the value of natural capital and ecosystem services.	Condition 1 - Conservation Priorities and Best Practices
	5.2 Ecosystem services for the major cities in the Cerrado are assessed by 2025 and assessments are disseminated among the local population.	Condition 5 - Responsiveness to Emerging Issues
2. Support the creation/expansion of other protected area management concepts such as private reserves and territories preserved by Indigenous and local communities, and effective management of protected areas and sustainable landscape.	1.4 By 2025, at least one new land management concept (like TICCAs) is explored to strengthen good spatial planning.	Condition 1 - Conservation Priorities and Best Practices
	1.2 By 2025, the KBA concept is adapted to national priorities (such as priority conservation areas or hydrographic basins) and more widely adopted by Brazilian institutions.	Condition 1 - Conservation Priorities and Best Practices
	5.4 By 2025, the important public policy indicators will be presented to decision makers and widely discussed at state or national level.	Condition 5 - Responsiveness to Emerging Issues

3. Support investment on sustainable small and medium enterprises and supply chains to give the traditional people and Indigenous populations income generation opportunities linked to conservation.	2.2 By 2025, local civil society groups are trained and possess new management skills to address the need for impactful investment and monitoring.	Condition 2 – Civil Society Capacity
	3.2 By 2025, additional revenue streams are mapped for the CSOs and at least three business plans are developed.	Condition 3 - Sustainable Financing
	3.4 By 2025, public and private funding for conservation should start increasing in the priority corridors	Condition 3 - Sustainable Financing
4. Support the restoration of ecosystem delivering services to the urban centers of the Cerrado as a mean to reconnect urban populations with the hotspot and promote the production of native seeds for restoration.	1.5 By 2025, innovative and profitable solutional are started being shared between municipalities and the agriculture sector and some municipalities are introducing some kind of Nature Based Solutions (NBSs) to adapt to climate change.	Condition 1 - Conservation Priorities and Best Practices
	4.1 By 2025, the implementation of the Forest Code is supported in the two of the four states in Matopiba.	Condition 4 - Enabling Policy and Institutional Environment
5. Support the implementation of National Action Plans (PANs) for priority threatened species, with a focus on habitat management and protection.	1.1 By 2025, the National Action Plans for endangered species are implemented and reintroduction measures taken.	Condition 1 - Conservation Priorities and Best Practices
6. Strengthen the capacity of CSOs to promote better management of territories and of natural resources and to support other investment priorities in the hotspot.	2.1 By 2025, the major conservation organizations in the Cerrado are being strengthened, including on the international agenda, and some collective responses to conservation threats are emerging.	Condition 2 – Civil Society Capacity
	2.3 By 2025, at least two networks will be sustainability supported to encourage active participation of local CSOs.	Condition 2 – Civil Society Capacity
	2.4 By 2025, three relevant local CSOs of the Cerrado have access to climate change related funding streams for the coming five years.	Condition 2 – Civil Society Capacity
	2.5 By 2025, one out of 11 states located in the Cerrado incorporate policies designed with CSOs and supported by the private sector.	Condition 2 – Civil Society Capacity
	3.1 By 2025, the public sector supports the fundraising efforts of at least 10 CSOs in the Cerrado.	Condition 3 - Sustainable Financing
	4.2 By 2025, two CSOs have legal advisors within their team to	Condition 4 - Enabling Policy and

	monitor and engage in the public policy arena at state or federal level.	Institutional Environment
	5.1 By 2025, five states of the Cerrado and major municipalities within them are well trained in existing biodiversity monitoring systems.	Condition 5 - Responsiveness to Emerging Issues

2.5 Operational Considerations

During the first years of the first CEPF implementation phase in the Cerrado, the RIT, responsible for coordinating this implementation on the ground, accumulated expertise in the operationalization of the Fund that should be considered for the long-term vision.

For any program, it is essential to have an *entry strategy.* This entry strategy would encompass some critical steps to accelerate the implementation of possible calls and the execution of these grants. This entry phase was completed during the first year of the investment, and the sharp ascending slope of the learning curve was successfully passed. The RIT is now much more trained and aware of CEPF financial and administrative procedures. Should CEPF investment be consolidated or built upon with a future investment, this acquired competency should accelerate the selection, contracting, execution, and impact assessment of future projects. With this in mind, the RIT and the CEPF Secretariat should also work on an *exit strategy* from the Cerrado, increasing fundraising and capacity building activities to further increase the maturity of the organizations in the hotspot.

Regarding the aspect of fundraising, an essential element is communication. Communication can also give a high boost to conservation results and is much needed to emphasize Cerrado's ecosystem services and what threatens them. Therefore, on operational matters for the long-term vision, more emphasis should be given to communication. This is why the RIT suggests investing a specific budget for this activity within the budget of the long-term structure responsible for the coordination of the future investment. The responsible communication staff within the long-term structure should know about each grantee, its relation to CEPF, and potential stories that could highlight conservation results. This should not be delegated to a consultant. This issue was raised during the mid-term assessment meeting with experts, which emphasized the need for proactive communication to promote a positive narrative about the role of the Cerrado in terms of ecosystem services provision and the wider contributions of CSOs to sustainable development. They also highlighted that audiences outside Brazil should be targeted for conservation aspects in the Cerrado, and the material to satisfy this audience needs to be prepared. Strong communication could reinforce some messages and highlight what CEPF is achieving with its grantees as a network.

Furthermore, the RIT should consider providing grants to CSOs for a longer period and working with fewer organizations overall. This would mean increasing the maximum value of a small grants to around US$100,000. This would increase the interest of CSOs in developing competitive proposals and enhance the ability of the RIT to guide the grantees thorough the process. More importantly, working with longer implementation periods facilitates adaptation, which projects need to reach their desired outcomes (for example, enacted policies versus feasibility surveys and policy briefs to help enact those policies).

Other specific observations were made by the experts during the mid-term assessment consultation on networking, as follows:

- It is important to document and reinforce network connections; it is of particular significance in the political context and for the survival of civil society and grassroot movements. Unfortunately, mostly big CSOs are able to navigate within existing networks.

- It is challenging to transform the network into actions on the ground and to harvest possible synergies.

- Operational issues within CSOs may dilute the possible benefits of working in a network.

- Network mapping is important to avoid duplication of work.

These considerations highlight the additional strength that CSOs could gain in working together in strong, organized networks. While the CEPF portfolio was promoted by the RIT as a kind of network, with both thematic and geographic hubs, the long-term structure responsible for the coordination of the long-term vision will need to continue this effort and link these hubs with existing other networks.

Finally, the RIT realized that it was not well equipped to have Indigenous populations as partners (grantees). The cultural differences and peculiar circumstances demand specific skills and adaptation. A recommendation would be to integrate a part-time anthropologist in the team to assist the team.

2.6 Financing Plan

Considering the above thematic and operational recommendations for a long-term vision for the CEPF to help "graduate" local civil society from its support with sufficient capacity, access to resources, and credibility to respond to future conservation challenges, the tables below present two options for the financing plan. Option 1 proposes to update the ecosystem profile in preparation for a new five-year investment phase by CEPF. Option 2 proposes a continuation of the first investment phase by three years with an injection of an additional US$5.3 million; the rationale is not to interrupt implementation by updating and seeking approval for the ecosystem profile. Under both options, it is proposed that CEPF (and other contributing funders) would support a long-term structure to coordinate implementation of the strategy.

Option:	**Option 1 (2022-2026)**		**Option 2 (2022-2024)**	
Number of grants (LG = large grant; SG = small grant):	**LG (10)**	**SG (30)**	**LG (6)**	**SG (18)**
Strategic Direction 1: Promote the best management of water resources, the maintenance of aquatic ecosystems and the establishment of climate change adaptation strategies for water.	3	7	1	2
Strategic Direction 2: Support the creation/ expansion and effective management of protected areas in the Cerrado and sustainable landscape protection.	2	3	1	3
Strategic Direction 3: Support investment on sustainable MSE to give the traditional people and Indigenous populations income generation opportunities linked to conservation,	2	6	1	3
Strategic Direction 4: Support the restoration of ecosystem delivering services to		4	1	3

the urban centers of the Cerrado and promote the production of natural seed for restoration.				
Strategic Direction 5: Support the implementation of National Action Plans (PANs) for priority species, with a focus on habitat management and protection	1	6	1	3
Strategic Direction 6: Strengthen the capacity of CSOs to promote better management of territories and of natural resources and to support other investment priorities in the hotspot	2	4	1	4
Grant budget	**US$ 7,000,000**		**US$ 4,200,000**	

The budget for Strategic Direction 7, which is for the coordination of the implementation of the investment strategy in the hotspot through a long-term structure would be:

	Option1 (2022-2026)	**Option 2 (2022-2024)**
Cost for the long-term structure	US$ 1,500,000	US$ 1,100,000

Therefore, the total estimated cost for the financing plan is as follows:

	Option 1 (2022-2026)	**Option 2 (2022-2024)**
Total cost	US$ 8,500,000	US$ 5,300,000

During the first investment phase, the RIT identified several organizations and donors working in the Cerrado and relentlessly looked for possible cooperation. In February 2018, the RIT, together with the CEPF Secretariat, promoted a meeting of the major investors in the hotspot, where significant themes and investment priorities were discussed. Among these major donors, a common ground was mapped out (see Figure 11). The GEF, CLUA, the Gordon and Betty Moore Foundation and CEPF agreed to work on similar issues with sometimes different approaches and emphases.

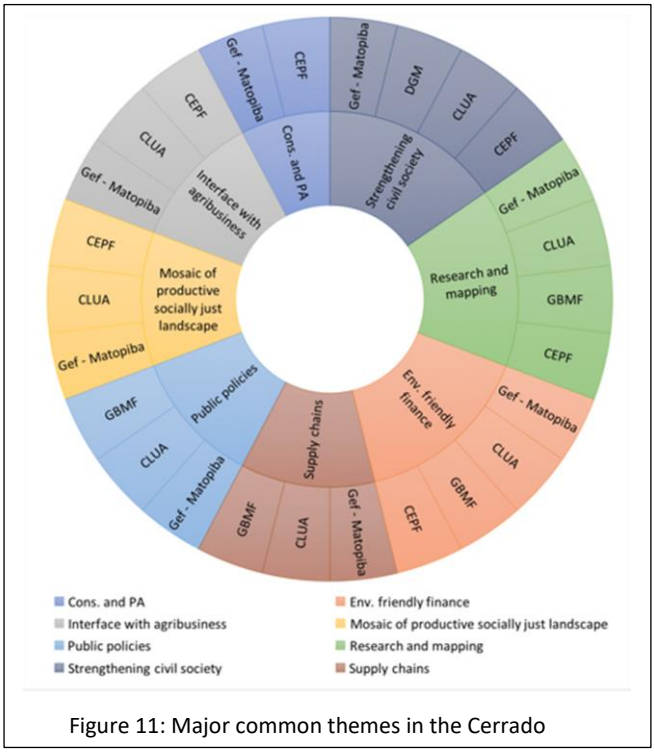

Figure 11: Major common themes in the Cerrado

Considering the proposed new strategies for a potential future phase of CEPF investment, CLUA could have a major role in contributing to the work on NTFPs and the development of SMEs related to the extraction and use of Cerrado plants. The GEF is also working with the World Bank on a small grant mechanism to strengthen the Indigenous and traditional population in the Cerrado. This is very relevant to Strategic Direction 6.

Other opportunities may be identified as the EU is also investing in the Cerrado through its regional office considering the EU Biodiversity Strategy for 2030, which set an ambitious global framework to sustain a post-2020 CBD global effort. All elements outlined in the EU's strategy could all be linked to the conservation efforts in the Cerrado but the following should be highlighted as being particularly relevant to the proposed revised investment strategy for CEPF in the hotspot.

"By 2050, all of the world's ecosystems are restored, resilient, and adequately protected. The world should commit to no human-induced extinction of species, at minimum, where avoidable."

The restoration of the Cerrado is needed and strongly recommended by several experts and institutions. Most probably, there will be no chance to create a significant number of protected areas in the Cerrado with a significant area of protection. The expansion of agribusiness will more likely occur in those areas better suited for planting, and others may be protected as a set-aside of agricultural land. It is uncertain how climate resilient these areas will be. Hence, working with the productive sector to create private protected areas is very much needed. In this sense, there is an overlap between the fourth strategic direction and the EU biodiversity strategy.

This target also converges with the work that CEPF is promoting on species protection, as there is little first investment to prevent the extinction of species in the hotspot.

Furthermore, the EU Biodiversity Strategy also highlights two other elements very much in line with the strategies presented for the long-term vision:

"Fair and equitable sharing of the benefits from the use of genetic resources linked to biodiversity and the principle of equality. This includes respect for the rights and the full and effective participation of Indigenous peoples and local communities."

As work on NTFP has advanced, very much connected to Indigenous and local populations, this is a niche for investment by the EU as well. Sharing the benefits of the Cerrado would lead directly to the strengthened conservation of a significant part of the landscapes the CEPF has been operating in so far, besides guaranteeing income for the local population.

The social component is a very strong element in conservation in Brazil, and for the Cerrado in particular. Therefore, the third and fourth strategic directions could find additional national supporters as well. One example of this is the Cerrado Alliance. This alliance was recently formed thanks to the efforts of the RIT, between Humanize Institute, Fundação Grupo Boticário de Proteção à Natureza, CEPF, IEB, and Instituto Nova Era. The alliance directs its efforts around the sustainable development of the Cerrado by believing that collaborating to keep the Cerrado standing and valuing local communities contributes to biodiversity conservation and income generation. The mission of the Humanize Institute is to work on a strategy that enhances the sustainable use of Brazilian biodiversity in line with local capacity building and that results in improved income generation and quality of life through the promotion of sustainable productive activities. The Fundação Grupo Boticário's mission is to promote and carry out nature conservation actions. Instituto Nova Era seeks to preserve and restore the environment, provide more opportunities for education and cultural rescue, promote sustainability, and care for the memory and values of traditional Indigenous and typical populations. This alliance is working and investing in the coordinated efforts to strengthen the capacity of the CSOs in the Cerrado, and the Brazilian organizations could continue partnering to achieve this goal as part of the long-term vision.

Undoubtedly, any type of cooperation with any donors which could result in conservation successes will have to be promoted and considered by the long-term structure in a similar spirit as was done by the RIT throughout the first CEPF investment phase.

3 THE CERRADO IN NUMBERS

- Area of the hotspot: 2 million km²
- Occupation of the Brazilian national territory: 24 percent
- States of the Federation: GO, TO, MT, MS, MG, BA, MA, PI, RO, PR, SP, DF, AP, RR and AM
- Human population: 25 million (15 percent of the national population)
- Remaining native vegetation cover: 55 percent
- Total protected area: 162.4 thousand km² (8.2 percent); strict protected areas: 5,600 km² (2.8 percent); sustainable-use protected areas: 9,500 km² (5.3 percent); Indigenous territory: 8,800 km² (4.3 percent)
- Biodiversity: 12,070 plant species; 2,373 vertebrate species
- Endangered species: flora: 645; fauna: 307
- Main invasive plant species: *Melinis minutiflora; Andropogon gayanus; Urochloa decumbens* and *U. brizantha*
- Main invasive animal species: no reliable data
- Sociodiversity: more than 80 ethnic groups, among them Ava-Canoeiro, Tapuia, Karajá, Krahô, Xavante, Xerente, Tapirapé and Carajás
- Main vectors of modification: conversion of natural vegetation to agriculture (especially grain monoculture and livestock).

Source: Joly *et al.* 2019

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5 BIOGRAPHIES OF THE PARTICIPANTS AT THE CONSULTATION MEETING

Ailton Dias
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Biography: He has a degree in Agronomy from the Federal University of Viçosa (1995) and a master's degree in Rural Extension from the Federal University of Viçosa (2003). He is currently the program manager of the International Institute of Education of Brazil. He has experience in Agronomy, with emphasis on Agronomy, working mainly on the following topics: agroecology, environment, sustainable development, knowledge construction, and the Amazon.

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Mario Barroso
Organization: The Nature Conservancy
Biography: He has a degree in Biological Sciences from the University of São Paulo (1989), a Masters in Ecology from the University of São Paulo (1994) and a Ph.D. in Ecology from the University of São Paulo (2000). Currently a specialist in GIS - WWF Brazil. He has experience in Ecology, with emphasis on Conservation Biology, working mainly on the following topics: management of protected areas, fire ecology, and Cerrado conservation.

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Maria José Gontijo
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Monica Nogueira

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Mercedes Bustamante

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Organization: Critical Ecosystem Partnership Fund

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Ricardo Machado

Organization: Universidade de Brasília

Biography: He has a degree in Biological Sciences from PUC-MG (1984), a Masters in Ecology, Conservation and Wildlife Management from UFMG (1995), and a Ph.D. in Ecology from UnB (2000). Post-doctorate at the University of Bristol, England from 2014-2015. He is currently Associate Professor 1 at the Department of Zoology of the University of Brasilia, where he develops activities together with undergraduate courses in Biological Sciences and Environmental Sciences.

Nurit Bensusan

Organization: Instituto Socioambiental

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resources, and traditional knowledge and the impacts and dilemmas of new biotechnologies. In addition, he writes books and produces games with biological themes for children.