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. 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 each 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 are met related to conservation, civil society, financing, public policy, and the ability to respond to new issues.

During the first phase of the CEPF investment in the Cerrado Biodiversity Hotspot and after three years of implementation, CEPF, the regional implementation team (RIT) and the local experts together with grantees made suggestions to adapt some of the strategies of the investment (see Mid-Term Assessment report) and proposed priorities for the long-term vision in the hotspot. The goal of these adaptations is to strengthen the impacts of the niche of the CEPF current investment, while the goal of the proposed future priorities is to have a strong adherence to the need of the local civil society organizations for their "graduation".

The investment arising from these new priorities were built around three guiding principles:

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

- The second, in a less utilitarian perspective of the value of biodiversity, is the protection of species. The CEPF is the only fund working on species protection in Brazil for this hotspot.

- The final centerpiece is the work with civil society organizations and producers to protect biodiversity and the ecosystem services in the hotspot. Traditional populations and indigenous people in the hotspot are known to considerably contribute to the protection of nature while producing goods at local scale.

Therefore, for the long-term vision for the conservation of the Cerrado Biodiversity Hotspot and the "graduation" of civil society organizations, it is suggested to build on the following strategic directions:

(1) Promotion of the best management of water resources, the maintenance of aquatic ecosystems and the establishment of climate change adaptation strategies for water.

(2) Support for the creation/ expansion and effective management of protected areas in the Cerrado and sustainable landscape protection.

(3) Support for investment on sustainable small and medium enterprises (SMEs) to give the traditional people and indigenous populations income generation opportunities linked to conservation.

(4) Support for the restoration of ecosystems delivering services to the urban centers of the Cerrado and promotion of the production of native seeds for restoration.

(5) Support for the implementation of National Action Plans (PANs) for priority 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 natural resources and to support other investment priorities in the hotspot.

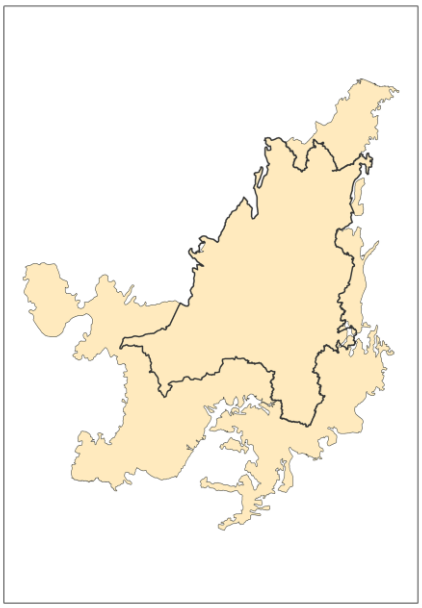

Figure 1: Proposed geographic scope within the Cerrado for a future CEPF investment phase

These strategic directions find resonance with the needs mapped with/by the partnering organizations (grantees), opening space for synergies and continued support, and identifying some emerging issues, like restoration of ecosystem services provision for urban centers.

However, to have a meaningful impact with the often-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 plus the Araguaia and RIDE DF – Paranaíba – Abaeté corridors, the future investment would focus on areas where the agricultural frontier is expanding, where there are limited investments considering best management practices or responsible landscape management practices, where one can find the most pristine areas of the hotspot and where the States also need more assistance to implement the forest code or other pieces of legislation enforcing good landscape management, like watershed committees. The work on species and the management of their habitats should remain at hotspot level though due to the lack of other dedicated funds for species conservation in the Cerrado.

Considering the above geographic and thematic suggestions for a long-term vision and further operational recommendations for the long-term structure responsible for the coordination of this effort, a financing plan presents two options: one over a 5-year period for a total of $8.5 M and another one over a 3-year period (more for a consolidation phase of the current achievements) for a total of $5.3M. Over the first three years of the implementation period of the current investment phase of the CEPF, a strong network of partners (grantees) in conservation has already been built and the long-term version provides the basis for continuity, not to lose the investments and the conservation results achieved so far. Several international and national donors have strategies aligning with several of the proposed strategic directions of the long-term vision. All of these have been considered in the elaboration of this vision.

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. Biodiversity is fundamental to a healthy planet and thriving communities. The fund is a joint initiative of l'Agence Française de Développement, Conservation International (CI), the European Union (EU), the Global Environment Facility (GEF), the Government of Japan and the World Bank. Currently, the fund works in nine hotspots in developing and transition countries, but since its creation, it has worked in 25 of the 36 global hotspots. The Cerrado Biodiversity Hotspot is one of the nine current hotspots.

CEPF works in close partnership with a regional implementation team (RIT) in each hotspot where it operates. Regional implementation teams 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. Previously, in 2013, CEPF's donors had selected the Cerrado as one of the hotspots 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. This process involved the participation of more than 170 people representing 130 private or public institutions and companies. It also involved an extensive literature review, data analysis, and lessons from the GEF-UNDP Small Grants Program. A group of senior experts from universities, government, civil society organizations (CSOs), multilateral institutions, and private sector, was invited to provide strategic guidelines and to review the approach, the methods, and the ecosystem profile as well. 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 focuses on agribusiness, permeates both technologies and sustainable finance, covering the issue of economic incentives to improve production. The second works 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 supports work involving non-timber products and natural resources, policies to encourage these activities, and restoration work. The fourth, focuses on species conservation and the implementation of National Action Plans (PANs). The fifth strategy, on the other hand, aims at generating data on vegetation cover and on quality/quantity of water resources. Finally, the sixth strategy ranges 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

The implementation, execution and monitoring of the CEPF investment strategy has been coordinated by IEB, as the RIT, since July 2016. The spending authority is US$ 8 million. This includes the grant to the RIT (US$ 1 million). The investment phase spans from July 2016 to June 2021.

A total of three calls for letters of inquiry have been published since inception to date. The first call was opened to all strategies of the ecosystem profile and more than 160 applications were received. The second and third calls were focused on specific strategies based on remaining targets and budget. Respectively, 76 and 68 applications were received. In addition, grants by invitation were used to fill gaps within the investment strategy that had not been addressed by the outcomes of the previous three calls.

In total, as of June 2020, 55 grants had been awarded for a total of US$ 6.2 million. The portfolio included 29 large grants for a total of US$ 5.5 million and 26 small grants for a total of US$ 0.7 million. The maximum threshold for small grants was initially US$ 20,000. After the first call, it was raised to US$ 50,000. Ninety-six percent of the grants were awarded to national organizations. In alignment with the investment strategy, most of the financial resources were awarded under the second (US$ 1.5 million), third (US$ 1.7 million) and sixth strategic directions (US$ 1.7 million), compared with the first (US$ 0.5 million), fourth (US$ 0.4 million) and fifth (US$ 0.4 million).

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, a few challenges and opportunities which had been observed by the team with the implementation process were discussed:

- There is a classic dilemma involving scale, such as KBAs with vast areas that do not dialogue with the more limited geographical scopes of the projects. At the workshop, it also became clear that only a few institutions use the concept of KBAs more actively, and that its use is difficult to achieve since the hotspot has a territory larger than 2 million km^2. In addition, the concept of KBAs is not easily assimilated by the 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 the positive impacts and expected contributions of the projects 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. It is crucial to verify that the program is contributing to the processes of the cake's base. Most projects reinforce the protection of natural processes that sustain the other layers of the cake and create a safe space where the other objectives can be met. In the Cerrado, zero hunger (SDG 2), can only be achieved with healthy environments for food production (SDGs 13 and 15). This is only a simple example to describe the interrelationship between the SDGs and how 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), among others, were emphasized. Among the topics discussed were the observation of different views on the role of traditional communities in Cerrado conservation, the discussion of 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 / offer larger grant awards.

1.3 Biodiversity Importance and Climate Change

Recognized as a global biodiversity hotspot, the Cerrado presents an extreme abundance of endemic species, being 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 mammals 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 hotspot 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 of 176 genera and 65 families.

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).

Many of the species and varieties are endemic not only to the hotspot but also to single sites within it. They are unique and useful, as well as constituting an ecosystem that is vital regarding national supplies of water and energy, control of erosion, and reduction of greenhouse gas emissions. Such species are highly vulnerable to habitat loss, hunting, poaching, pollution, and other pressures. In view of this fact, 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 by Brazilian environmental authorities as nationally threatened, as well as rare fish and rare plant species. There are many more species for which data are inadequate to allow a full assessment of their status. 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 3° C until 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 in Brazil's climate (due in large part to the intense anthropogenic emission of greenhouse gases) on species, ecosystems, and the services provided by them. Many of these studies are based on

ecological niche modeling and have taxonomic biases (*e.g.*, towards terrestrial vertebrates and trees) and geographic biases (*e.g.*, a concentration of studies in the Atlantic Forest and Cerrado) (Bustamante *et al.* 2019). Applying techniques of ecological niche modeling to develop a first-pass assessment of likely effects of climate change, 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. Furthermore, between 91 and 123 species were predicted to decline by more than 90 percent in the Cerrado, with major range shifts to the south and to the east. 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. Most of these rupestrian grasslands are located in the Cerrado, covering the Espinhaço mountain range and the Canastra mountains

It is hard to quantify how severe the impacts of climate change in the Cerrado will be, but every expert that the RIT talked to agree that temperatures will rise and droughts in the hotspot will be more extensive. On average, Cerrado precipitation 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). More tangible effects of water stress led to the protests of 500 people in Correntina in the state of Bahia in November 2017. During this protest, they enforced their right for water, demolishing the pumps of an irrigation system upstream of the watershed.

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, requiring adjustments and improvements in planning and knowledge about the natural environment (Domingues *et al.* 2012). The main indicators identified for the Cerrado were:

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 between 3 and 3.5°C in air temperature and a reduction between 20 and 35 percent of 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 in any of the situations 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).

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 as highlighted in the ecosystem profile (CEPF 2016). 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).

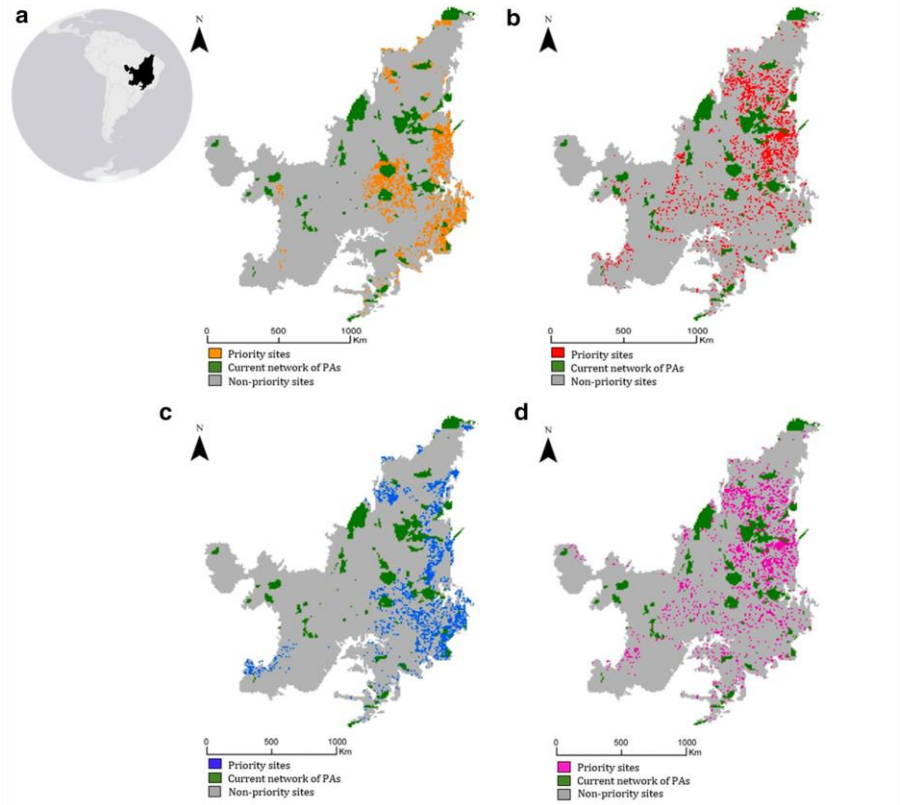

Figure 2: Spatial distribution of priority sites and existing protected areas (PAs) in each of the intervention scenarios across the Cerrado hotspot: a = acting now—maximizing representation, b = acting now—maximizing conservation impact, c = time-step action—maximizing representation and d = time-step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

The authors found that scenarios that maximized the impact of conservation (scenarios b and d) reduced the total loss of vegetation and covered large proportions of species within the Protected Areas and priority sites. The time-step used to build the scenario were: 2020, 2025, 2030, 2035, 2040, 2045 and 2050.

A crucial benefit for the Cerrado derived from the impact approach is the protection of valuable ecosystem services derived from essential ecological functions that otherwise would be put at risk (Monteiro *et al.* 2018). Links between biodiversity, ecosystem

services and human well-being is a prerequisite for furthering the agenda of several multilateral environmental agreements and global goals (Pires *et al.* 2018).

1.4 Importance of Non-Timber Forest Products in the Cerrado

The diet of the Brazilian population, in general, depends on both native biodiversity and exotic species. The native biodiversity is of the greatest importance for indigenous peoples and traditional communities (Seixas *et al.* 2019). The material and immaterial cultures of indigenous peoples and traditional populations are intrinsically related to biodiversity and represent an important heritage to be strengthened and safeguarded (Gallois 2008; Carneiro da Cunha and Cesarino 2014, Gonçalves 2017).

The Cerrado has a vast potential for use of its rich biodiversity, which is capable of improving food security and well-being for the population. The 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. After evaluating ecological niche models, 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 degrees of edible species loss in other regions are 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 warn 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 enhancing local food security.

The effects of land use on 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 and management. Therefore, the populations of this palm that are under intensive land use conditions may be doomed, while those that are managed by traditional populations and family farmers must persist. Narrow geographic distribution and loss of habitat are threatening many endemic cassava varieties in the Cerrado, and a considerable number of them were recently described, which indicates that the diversity of cassava in the Cerrado is still underestimated (Simon *et al.* 2020).

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. This may force residents, especially youth, to undertake other economic activities, potentially resulting in less protection of natural ecosystems and further pressures towards conventional land use (CEPF 2016). Some initiatives are being discussed to provide sustainable improvement for rural livelihoods and traditional communities toward food security, like the one presented by Bortolotto *et al.* (2017). They are creating a network of partner institutions to increase income and food security of rural families in the Cerrado and Pantanal, by means of enhancing local biodiversity through activities such as capacity building, scientific communications, and workshops in communities providing information on the nutritional value of native fruits, and discussing the importance of biodiversity. Using these tools the residents of the Andalucia settlement are producing food products for the market, such as biscuits of bocaiuva almond (*Acrocomia aculeata*), mixed with chestnuts of baru (*Dipteryx alata*), acuri flour (*Attalea phalerata*), jellies and orange pulp (*Pouteria glomerata*) (Bortolotto *et al.* 2017; Seixas *et al.* 2019). 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 important to stress that small framers, indigenous populations, and the traditional communities are at the forefront of the violent daily routine of conservation in the Cerrado. In 2017, murders in rural areas reached the highest number in the last 14 years, with 71 homicides, a 63 percent increase in assassination attempts, and a 13 percent increase in death threats. In the same year, 172 water-related conflicts were recorded in Brazil, a number that may be masked by other struggles over land. The conflict in Correntina (Bahia state) is an example of this situation, where change in land use deprived communities of access to water. Their water was diverted to private irrigation projects that consume enough water per day to supply 6.6 million cisterns in the semi-arid region or a city of 30,000 inhabitants for one month.

It is essential to link biodiversity conservation and climate change agendas. Considering that human-generated climate changes will occur at a much faster pace in relation to paleo-ecological trends, projected higher temperatures, less rainfall, and extreme events are very likely to have severe impacts on the Cerrado's biodiversity, as demonstrated for the groups studied so far. Past and current regional land-use trends must be set on a trajectory towards less exploratory occupation and better management practices. Deforestation and indiscriminate use of fire are examples of undesirable activities. 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 clear. Given that biodiversity is sensitive to rising global temperature and regional water scarcity, large increases in funding for biodiversity conservation in the Cerrado are essential, especially at the macro-landscape scale (CEPF 2016). Resilience to climate change in the Cerrado and neighboring areas depends on maintaining the original ecosystems and the services they provide at a scale of a million square kilometers (CEPF 2016). This challenging scenario requires integrated efforts from civil society, governments, farmers and the global community to elaborate strong governance and incisive environmentally oriented policies. Another fundamental goal is to provide means for the rural population to trigger the transition towards a more sustainable landscape array. Social and agroecological technology transfers will certainly play a role in this enterprise because they provide solutions to environmental tensions (including but not restricted to the impacts of a changing climate) that may provoke emigration from rural regions.

1.5 Social, Political and Economic Environment

As established in the ecosystem profile, the majority of the Cerrado region's 43 million people live in urban areas, while around 12.5 million still derive their living from

agricultural lands, natural ecosystems, and wetlands. However, the region is changing rapidly. The construction of the new capital at Brasília in the late 1950s intensified a process of frontier settlement in the heart of Cerrado. In the 1980s, with technological innovation, agribusiness boomed in the hotspot.

The major threats to the Cerrado now and in the near future are cattle-raising, annual crops (mainly soybeans, corn, and cotton), biofuel (sugar cane), 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; with the knowledge of 2016, the hotspot has lost approximately 50 percent of its natural vegetation coverage. Unfortunately, consolidated deforestation data are not available yet, but many researchers are expecting a deforestation peak in 2020 (Escobar 2020). This is also supported by the latest number of the Mapbiomas (Annual Deforestation Report of Brazil 2019). This report of Mapbiomas did not show the total figures for deforestation but instead introduced a new alert system for deforestation of the different biomes in Brazil. Instead of bringing the global figures, 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.

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. This table makes it easy to understand that the deforested areas of the Cerrado are most of the time more extensive than in the other biomes (so fewer instances but over larger areas). In this case, the driver of deforestation in this hotspot is the agribusiness, and 60 percent of the private property can be legally turned into agricultural land.

	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 those areas in the private property also designated for conservation, which are the permanent preservation areas (APPs in Portuguese) and the legal reserves (RLs in Portuguese). 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 permanent preservation areas (APPs, in Portuguese), Legal Reserves, (RLs in Portuguese) 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. It has set a goal of 17 percent of the hotspot in protected areas in order to meet the Aichi target, as well as ambitious goals to reduce deforestation and emissions. To significantly reduce greenhouse gas emissions and maintain hydrological cycles, larger areas are needed. The ideal would be to keep at least 50 percent of the Cerrado, about a million square kilometers, under native vegetation coverage, through a combination of conservation, sustainable use, and restoration. The creation of public protected areas on private land is very costly in cases that imply land expropriation, especially with the government facing budget restrictions. The Forest Law also requires Legal Reserves of at least 35 percent in the hotspot zone declared as 'Legal Amazon' and 20 percent in the remaining area, and Areas of Permanent Preservation on hilltops and steep slopes and along the edges of streams and rivers. Indigenous and traditional communities have developed a variety of mechanisms for controlling and managing their natural resources. Indigenous lands, which are the most intact parts of the Cerrado, are located mostly on the fringes of the Amazon.

Many types of traditional communities and family farmers are omnipresent wherever native vegetation remains, mostly in the northern portion of the hotspot. The nature of resource use, however, has changed to use of land for large-scale crop and livestock production. Formal mechanisms for the planning and enforcement of rules on the exploitation of natural resources have generally failed to deliver efficient or sustainable outcomes. Limited capacity, lack of political will, poor monitoring, and conflicts between customary and formal resource management regimes have conspired to create a situation in which opportunistic, short-term, and often illegal natural resource exploitation by companies and individuals predominates, while carefully planned and managed sustainable use is the exception.

The exploitation of biodiversity products is fundamental for the generation of income and the survival of rural populations and is an important source of natural products and inputs to urban populations (Bustamante *et al.* 2019). Biodiversity products are usually exploited by economically more vulnerable people of communities, which are the most dependent on the maintenance of these resources for current and future use (Bustamante *et al.* 2019). More recently, 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%) between 2004 and 2017 among all the 24 areas described in the report (area #7 in Figure 4).

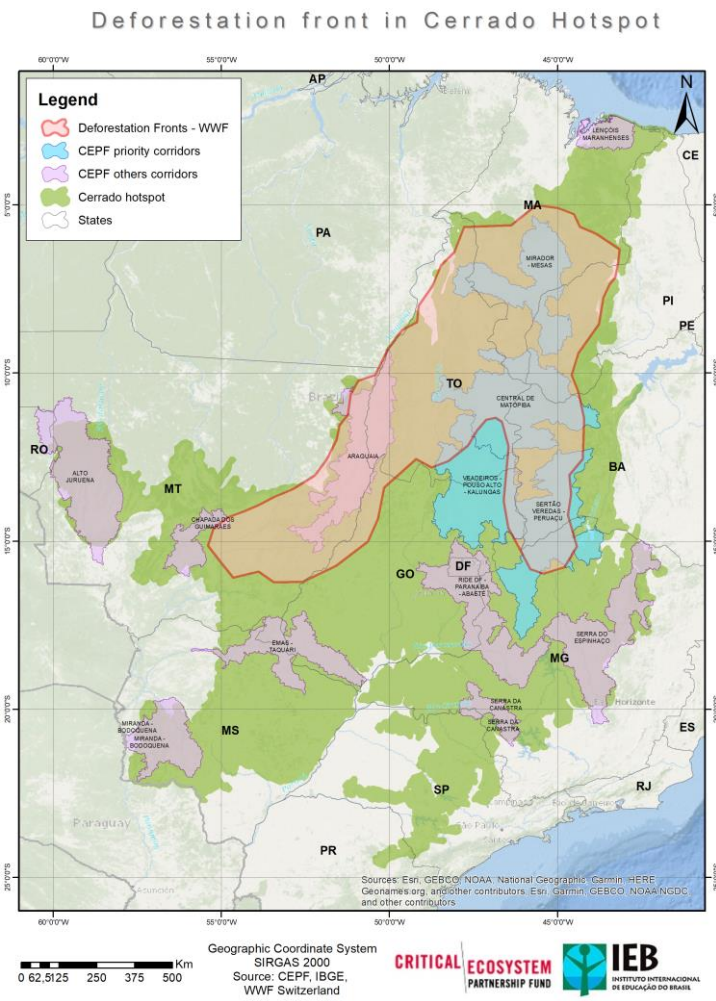

Figure 3: Adapted from Pacheco *et al.* (2021) showing deforestation fronts in the Cerrado.

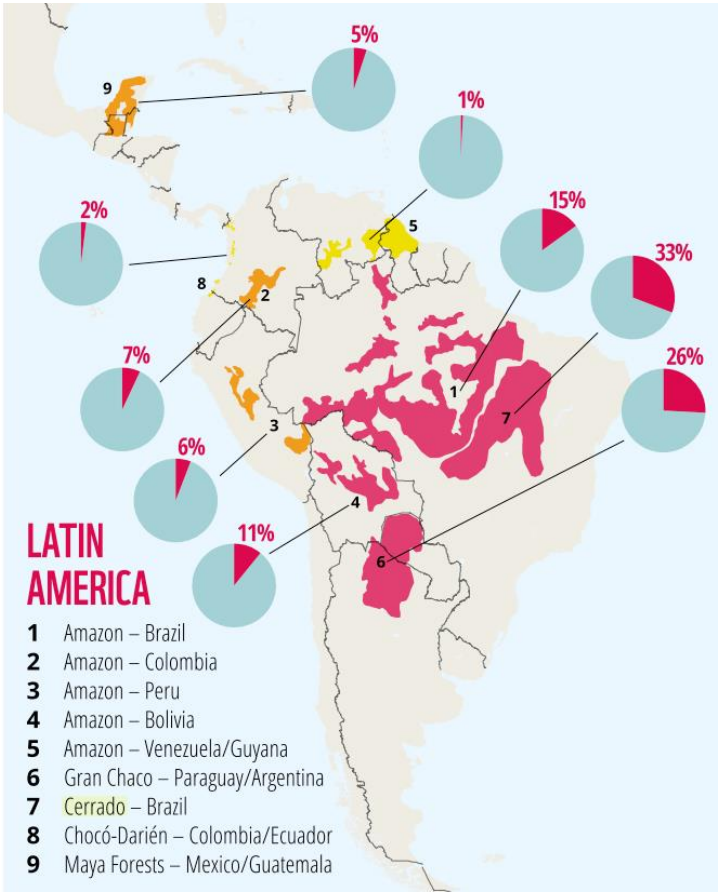

Figure 4: Adapted from Pacheco *et al.* (2021) showing deforestation fronts in Latin America. In red those with annual deforestation in the period of 2000-2018 above 0.5% and as a percentage figure showing the total deforestation as a percentage of the forest area in 2000.

1.6 How Investment Can Impact

To increase the chance of success, it is important that actions supported by CEPF complement existing strategies and programs of donors and other stakeholders. Awareness of the interdependent ecosystem and socioeconomic functions of biodiversity in the Cerrado can be one of CEPF's major contributions.

By investing in one of the most important regions for agricultural commodities in the world, CEPF is helping to increase the effectiveness and the scale of agribusiness' sustainable practices.

CEPF's support to the establishment of private protected areas and the management effectiveness of already existing ones are also enhancing the status of legal protection for the critically endangered species in the hotspot. Altogether, this strategy, in targeted priority areas, will leverage a remarkable contribution to the conservation of Cerrado, as has been the case for the protection of other hotspots around the world.

In addition, it is fundamental to keep investing in the strengthening of civil society and changes in norms and regulations at the federal and state levels so as to mainstream biodiversity conservation into public policies and private practices. CEPF investment in the Cerrado is believed to impact the ability of civil society to positively influence public policies and private initiatives towards conservation and sustainable development of the hotspot. By also supporting the practices of NTFP supply chains carried out by rural communities, indigenous people, and *quilombolas*, CEPF funds enable a better insertion in the market of the so-called "sociobiodiversity products", thereby creating economic incentives for biodiversity conservation.

1.7 Situation of the CSOs

For some authors, the political role developed by civil society is not linked to the control or conquest of powers directly (Arato and Cohen 2002 cited in Losekann, 2012). It is instead connected to the generation of influence through participation in democratic spaces and open discussions in the public cultural sphere. Therefore, the possibility of influence would depend on mechanisms that would intermediate the dialogue between civil society and the State.

According to Losekann (2012), the government facilitates the influence of civil society between 2002 and 2008 in the central decision-making bodies regarding environmental policies. During that period, civil society strongly challenged the government to incorporate some strategies and found room to expand its influence. These were the first year of the Lula government in Brazil.

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 to debate 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 means 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 by five representative sectors: federal, state and municipal agencies, business sector, and civil society, it is an institutional design of shared participation, limited inclusion, and with 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).

Since January 2019, when the new president took office, several declarations and actions have targeted CSOs. The organizations either lost seats in participatory bodies and committees or were accused by the government of corruption and misuse of public funding. No evidence of the latter was presented.

From the inauguration day onwards, any spaces for an open and constructive dialogue with the federal environmental agencies were systematically closed. Any criticisms and questioning by CSOs on issues like deforestation, wildfires, environmental changes, and changes to the Forest Code have been interpreted as an act of open confrontations towards the Environmental Agency and the Brazilian government.

In May 2019, CONAMA suffered a significant loss in terms of public participation. A federal decree changed the composition of the council and reduced the participation of CSOs from 22 seats to only four. The council, which firstly had broader participation of 96 councilors from the civil sector, now operates with only 23 members.

The same month, another decree extinguished all federal public administration institutions with CSOs participation created by federal decrees or lesser normative acts. The Environmental Ministry terminated the Brazilian Climate Change Forum (FBMC), the National Plan for the Recovery of Native Vegetation (Planaveg), and its respective Commission (Conaveg), the National Biodiversity Commission (Conabio), and the National Forestry Commission (Conaflor). This action excluded CSOs from the debates and took from the CSOs the possibility to positively influence the implementation of the national environmental policies and international agreements.

Faced with criticism over increased deforestation rates and the negative repercussions of the extinction of participatory bodies and councils in the environmental arena, the government decided to recreate some committees to respond to the beginning of 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, CSOs

were only invited eventually and have 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 between water users, the integration of public policies, and the orientation of transparent dialogue in decision-making processes in the field of water legislation, has also changed its composition. The six seats initially reserved for CSOs were reduced to three. On the council's website in May 2020, there is only one seat reserved for civil society, showing that the reduction in participation was even more significant.

There are various inter-sector 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 (mentioned above), 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. Their 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) has an interesting characteristic of allowing individual memberships rather than restricting participation to organizations, as is the rule in most networks, which excludes civil servants, university professors, the staff of international organizations, and other interested individuals who could have much to contribute.

(d) An inter-sector forum that could be relevant to the Cerrado and serve as a model for similar initiatives involving conservation and sustainable use of biodiversity is the Brazilian Forum on Climate Change (FBMC), created in 2000, which 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).

1.8 COVID-19

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). During the last 60 years, the number of diseases increased four times.

In general terms, the pandemic is widening the gap between the different social strata, making fragilities more evident, and having a more substantial impact on the poor of society. This is also true in the context of the Cerrado, particularly when considering the activities related to indigenous people and traditional populations. Feedback received by the RIT from a grantee is highlighting greater distress among indigenous partners in Mato Grosso State for example, who are feeling much higher pressure from the productive sector and are more vulnerable, considering the COVID-19 pandemic. Simple aspects, such as food provisioning, now seem to be an almost unbearable burden.

The traditional population in the Cerrado can face other challenges that are a result of decades of the neglect by the State. It was expected that public policies would recognize over 6,330 Quilombos existing in Brazil, distributed across 24 federal states. Only 134 of these territories have received official recognition and are definitely under the governance of the quilombolas. Considering that the spreading of the COVID-19 pandemic must be stopped, useful information must reach these territories. Unfortunately, investments in necessary communication infrastructure to enable the quilombolas to access information, as well as investments and water infrastructure, have not been made over the years. Therefore, the only possibility that quilombolas have to stay outside the reach of the COVID-19 virus is to isolate themselves inside their territories.

As complex supply chains are disrupted through social distancing, so too are simple supply chains of NTFPs, thus affecting the cooperatives and their work in the Cerrado. It is harder now to talk about conservation in the Cerrado. Families participating in this conservation effort 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 the alternative economic uses of the land. The COVID-19 crisis only 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 or the traditional population living in the Cerrado and conserving the hotspot will consider less sustainable options for income generation in their territories or even migrate to cities to guarantee their livelihoods.

One CEPF grantee sets a good example for a local solution on an immediate threat of the COVID-19 crisis, stimulating the local market and, in the longer run, a circular economy that is anchored in nature-based solutions and geared toward public wellbeing. The Cooperative Grande Sertão has been trying to organize itself in the process of confronting the problems caused by COVID-19. The cooperative is carrying out an initiative aimed at donating basic food baskets to socially vulnerable families in the region through a partnership with FBB - Fundação Banco do Brasil, which will make resources available for the purchase of products. Strategically, the cooperative is negotiating with farmers and extractivists to be the suppliers of food/products to compose the baskets. In this challenging moment, many extractivists are unable to market their products, directly affecting the family economy. In this context, the cooperative is still seeking support to cover the cost of operations to collect and distribute the products in the city of Montes Claros. There, the products will be further handled by the Social Assistance Reference Center and distributed for the benefit of 2,000 families. In this time of crisis, this is a perfect example of how to stimulate local, more resilient supply chains, understanding that this is a starting point for further regional cooperation.

The negative impact of the COVID-19 crisis is greater 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 conservation of the Cerrado, it is essential not to neglect the COVID-19 pandemic and its negative impacts on the outcomes of projects supported by the current CEPF investment strategy and the relations between grantees and the communities they interact with.

1.9 Fundraising Situation

The current political situation is not favorable to attract overseas funders, as international agencies need the official permission of the Environment Ministry and the Ministry of Foreign Affairs to act in Brazil. Nonetheless, this situation could change as international pressure is increasing on the current Environment Minister.

The EU is ready to show ambition to reverse biodiversity loss, lead the world by example and by action, and help agree and adopt a transformative post-2020 global framework at the 15th Conference of the Parties to the Convention on Biological Diversity. This should build on the headline ambition to ensure that, by 2050, all of the world's ecosystems are restored, resilient, and adequately protected. This statement by the EU is exciting but one needs to consider to whom these funds will be distributed around the world, and if the Cerrado would qualify for these.

The RIT has been working to establish productive cooperation with the EU Delegation in Brazil and with the GEF, as this agency is also investing in the region on different topics.

To some extent, the RIT has been working to raise additional funds in Brazil and with Brazilian Institutions. Leveraging additional funds with CEPF's investment is an excellent opportunity to increase the overall impact of the CEPF. This will be implemented particularly within the capacity building of CSOs, which underlines the need to reinforce the social component of the fund should the appreciation of national funders towards CEPF's strategies increase.

The social agenda also relates to the conservation of ecosystem services in a peri-urban context looking at the maintenance of ecosystem services like water provision and climate change adaptation. It is essential to consider this agenda as well when fundraising for nature conservation in the Cerrado, as 80 percent of the population of the Cerrado lives in cities. This should also open the dialogue at state and municipal levels and reinforce a more tangible agenda at the local level.

1.10 Public and Private Sector Engagement

Public Sector

Public sector engagement can be considered at two levels: federal; and state/municipal. Regarding federal-level engagement, it is practically non-existent, except for anti-environmental agendas. The Ministry of Environment has been acting in favor of urban agendas and agribusiness, leaving conservation virtually aside. Its supervisory bodies are often prevented from inspecting, and the privatization of conservation units is advancing.

There are demands, such as constitutional amendments, 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") warns about the negative impacts of deforestation, while seeking to value the biodiversity and cultures of traditional peoples and communities.

To contribute to this effort and strengthen these movements and seizing the opportunity to dialogue with the candidates in the 2018 elections, various CSOs (Instituto Centro de Vida (ICV), International Institute of Education in Brazil (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: Responsible Socioeconomic Development, Conservation and Sustainable Use of Biodiversity, Reducing Clearing and Promoting Landscape Restoration (Policy Strategies for the Cerrado, 2018).

This document was the result of inter-institutional consultations, including a seminar in the Chamber of Deputies on June 5, 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 situation and prospects 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.

Looking at the 27 items listed in 2018, very little was implemented throughout the new presidency so far. Rather, at the federal level, consequent and strategic dismantling of public policies related to environmental protection was perceived. The policies adopted are sometimes so aggressive that even the agribusiness sector is reacting against them. The reputational damage could be too high for an industry, relying very much on exports to Europe or the United States. The most evident reaction of the sector was observed during the EU-Mercosur free trade deal negotiations. During the negotiations, officials were keen to point out that the deal includes protection for both the environment and for sensitive economic sectors in both blocs.

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. 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, and, by doing so, the federal government would be sending a message that invading and deforesting public lands is worth the trouble because the law could be changed again in the future.

Another recent development at the federal level with potentially serious implications for the Cerrado is the discussion on the draft environmental licensing bill PL 3729/2004, which exempts certain activities, such as agrosilvopastoralism, from environmental licensing. The draft text 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.

Even with this substantial lack of political commitment towards an environmental agenda in the Cerrado, 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 overlapping with 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 funded projects were even more productive. Many CSOs in Brazil have found that dialogue with public sector institutions at the federal level is almost impossible. Therefore, CEPF focused its support on projects working with municipalities. At this administrative level, grantees experienced 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. For CEPF, this is an excellent channel to disseminate local protected areas and private reserves. In both cases, the immediate gain for the municipalities will be tax incentives. CEPF is 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. The proposals were received from companies and rural properties. However, the selection process showed that they were either poorly designed or did not match the guidelines proposed by the strategic directions. Therefore, the expected engagement with partnerships and work from private companies via projects did not occur as expected.

There is one promising exception, though, with the grant to the FUNDACCER Foundation. This grant follows another grant to Imaflora, also in support of the Cerrado Waters Consortium that works in the Municipality of Patrocinio. 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 their 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 CFA (Collaboration for Forest and Agriculture) 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 surely 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 continues 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 $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 very recently in the Cerrado.

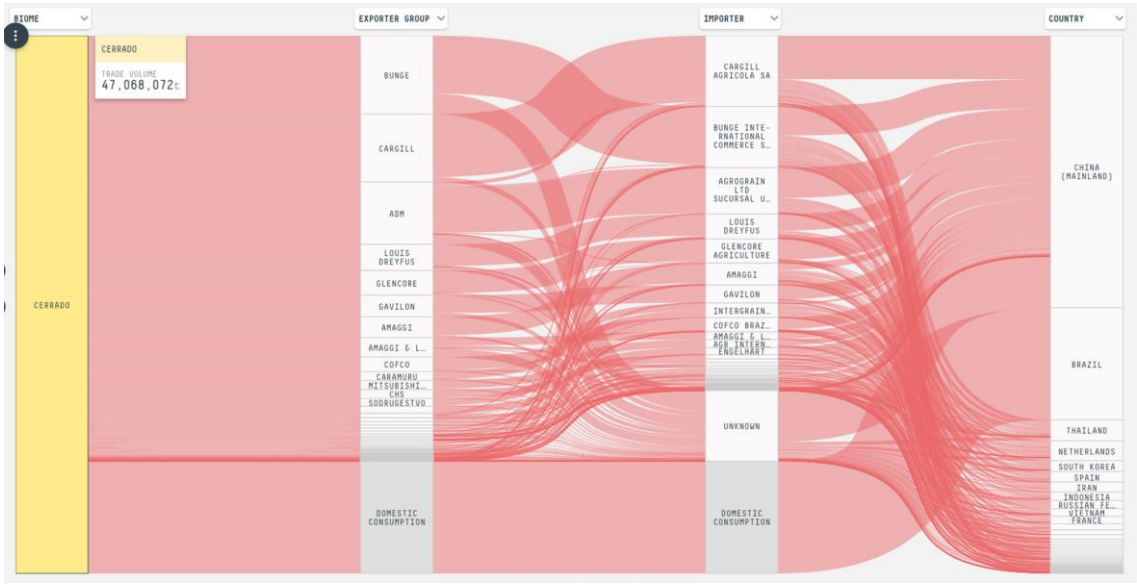

Figure 5: Soy exports from the Cerrado according to TRASE (https://trase.earth/) reached MM 47t in 2018

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 this 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.

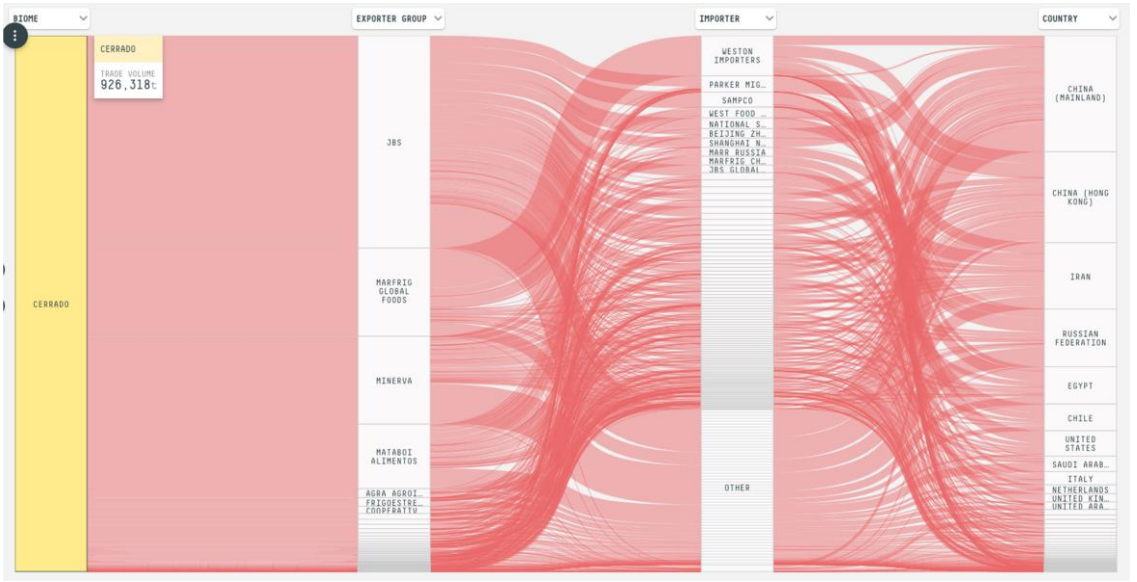

Figure 6: beef exports from the Cerrado according to TRASE (https://trase.earth/) reached 926,000t in 2017

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.

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 presented in space. 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 the study conducted by Embrapa Beef Cattle this June. 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 figures are before the pandemic. Nonetheless, under every scenario, the increase will flatten but not disappear.

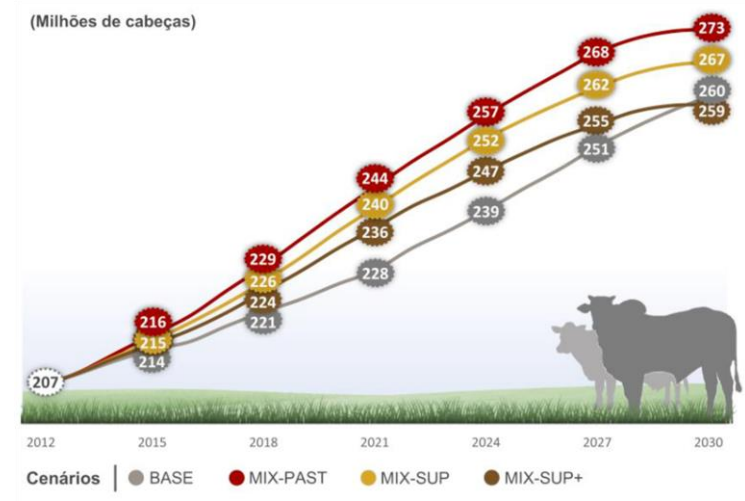

Figure 7: projection of the total number of beef cattle heads in Brazil (Batista 2020).

For any productive system to be economically feasible it has to consider aspects of places or scales 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.

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 are met related to conservation, civil society, financing, public policy, and the ability to respond to new issues.

2.1 Discussion with Experts on Graduation Conditions

During the mid-term assessment in April 2019, challenges of 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. Appendix 1 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 in a period of huge uncertainty considering the environmental and political future of Brazil. The country had just chosen the new president with a strong attitude 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.

Though 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 political uncertainty Brazil is in. 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 (*e.g.*, 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 there is a general understanding that there is a discrepancy between the international guidelines – KBA or red list – and what is applicable in Brazil. The discrepancy is at both levels: (1) at a more governmental level considering the IUCN red list and the national priorities of species conservation and (2) within the CSOs regarding landscape planning and prioritization tools, like KBAs. 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 it is estimated that the Cerrado hosts approximately 12,000 species of plants, 34.9 percent (4,208) of which are endemic.

In Brazil the 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% 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 lost priority among federal environmental agencies; • Decrease in the role and leadership of environmental agencies in the current government; • There are 29 National Action Plans for the Cerrado; • Update of the National Database for Endangered Species in progress by ICMBio and IUCN (to be completed by 2020).	• 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 international red list species is updated based on the National Database for Endangered Species	• The reintroductions 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 fauna 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 773 KBAs in Brazil; • Red List of Ecosystems initiative of IUCN will be elaborated from October 2019; • KBA concept not yet disseminated in Brazil and with 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; • The occurrence of threatened species defines KBAs, as well as their conservation status; • Within CI there appears to be no consensus on the systematic use of KBA.	• 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.	• Adapt the KBAs 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 ten 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 KBA to guide its 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 this locally.
1.5 Good management practices By 2030, innovative and profitable solutional are shared between municipalities and the agriculture sector and 60% 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 implement good practices; • Companies have government approval to not implement/adopt best practices but, at the same time, they are being charged 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 built by different groups (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 needs to be finalized by 2020, but ICMBio has no technical capacity to meet this deadline (need for financial resources);
- The national database is always 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 indicates a critical scenario, with a long period of reconstruction ahead;
- The focus must shift from loss of species to conversion of land use, which is accelerating;
- The leading role will return to academia and the third sector, as it was before the creation of ICMBio.

Red List of Ecosystems

- CEPF needs to revisit KBAs, considering species red list;
- University of Sao Paulo researchers are involved and mobilizing network to bring the red list to government and are considering working with CSOs;
- How can IEB think about the need for adapting a list specific for the fund? IEB would not start from a list of species delivered by the government, but 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 current 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 is supposed to be finishing but it has disappeared from the Ministry of Environment (MMA) website;
- 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;
- In the current political environment, any different number can be used against conservation;
- Actors who led the discussion (MMA and ICMBio) lost prominence;
- Brazil's database is public but there is no leadership.

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; • CEPF has to commit to make information about KBAs more accessible; • Few partners actually use it, and it does not reach beneficiaries (community); 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 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 +: 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.

The discussion among the experts about the situation of the CSOs in the Cerrado was quite fruitful. 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.

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; • CSOs not recognized in the current Government as society's interlocutors / mediators 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.	• Fewer CSOs use monitoring and impact assessment tools; • Incipient risk analysis effort by CSOs; • Administrative and legal weakness of some organizations make them vulnerable in the current political context.	• 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 eleven 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 CSO in the Cerrado

• Political considerations:
  ○ Minister of Environment does not recognize CSOs as representatives of civil society;
  ○ Dispute on territory is one of the agendas of the judiciary and, because it is slow, those 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;
  ○ Reduced number of CSOs with technical skills to write good projects. 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 projects 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 the 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 Donors *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, 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.

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 flow - 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 protection of the Cerrado
3.2 Financing for CSOs By 2025, additional revenue streams are mapped for the CSOs and at least 5 business plans are developed.	• CSOs have insufficient resources in the face of the immense demand for conservation. • 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.	See footnote[2]	• 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.	See footnote[2]	• The private sector engages on conservation with the local CSOs in the priority corridors.

[2] The experts agreed that little international and public funding will flow to the Cerrado specifically by 2025. This is why there was no specific scenario proposed for these criteria.

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 the two of the four states of the Matopiba.	• There are a set of policies that generate incentives for conservation, such as PNGATI, PGPMBio and ABC (Low Carbon Agriculture). ABC is a very technocratic 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 Legal Reserves; • 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	• Suppression of NGOs, social movements and leaders by current government; • Brazil is a world leader in murders of socio-environmental leaders; • Closure and reduction of formal spaces for participatory democracy (*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, representativeness, 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 are in a process of disruption and have lost capacity to act; • State and municipal agencies (in general) have little structure and low technical capacity; • Very complicated current context, *e.g.*, the environmental ministry (Ministério do Meio Ambiente – MMA) just considers urban priorities; • State and municipal levels less prepared for discussion of issues relevant to sustainability due to fragile structures.	n/a The definition of a scenario seemed to be unrealistic for most of the experts as the law enforcement is not part of the attributes of the civil society.	n/a
4.4 Education and training Domestic programs exist that produce trained environmental managers at secondary, undergraduate, and advanced academic levels.	• Criterion already achieved. Brazil does have well trained professionals and therefore no additional academic support is needed in the field of environmental management.	n/a	n/a

Condition 5 - Responsiveness to Emerging Issues

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

During this discussion, the experts considered the responsiveness to emerging issues being of external and internal 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 adaptative strategies but also in communication. As the legal framework in Brazil is changing a lot during this period, and the spaces of public discussion are disappearing, uncertainty about how to prepare for this institutional dismantling was huge.

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 systemically; • 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 fields; • 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 operating environment; • There is no systematic methodological approach to adaptive management.	-n/a Experts considered that most CSOs are well prepared to adapt to different political and financial conditions. This is because the Brazilian context forces smaller organizations to constantly adapt. Therefore, there was no need to add a specific target for better adaptive management.	-n/a

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, there is a significant decrease in the influence on the formulation of public policies aimed at conservation; • 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 contexts;
  ○ 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;
  ○ There has never been a good context for CSOs, they 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 in crisis, 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.);
  - There was depoliticization in the environmental field, which requires a return to basic activism with political 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 that previously;
  - Insufficient financial resources considering 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 dismantling and flexibility in the legal framework;
  - There is criminalization of traditional management practices (*e.g.*: use of fire in Jalapão, livestock in Resex, grazing, etc.);
  - Legal Reserves and Permanent Protection Areas 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 ;
  - Questions arise when the law on access to information is implemented;

- Threatened and murdered leaders; Brazil as a world leader in the murder of environmentalists;
- Government is raising the requirements for CSOs and constricting democratic and participation spaces;
- 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 process of environmental licensing;
  - Need to align biodiversity information system with CAR (Rural Environmental Cadaster);
  - Indicators of conservation effectiveness are demanded by the Aichi Targets;
  - CEPF should fund 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 within this vast hotspot. Therefore, a narrower geographic focus is proposed for the long-term vision. This approach takes into account several aspects of CEPF's work so far and the experience gained supporting civil society organizations during the current investment phase.

Considering the geographic scope of the investment, the Cerrado may be roughly divided into the following sections:

(1) The central-northern part of the hotspot is where the agricultural frontier is expanding, and where there are not many consolidated agricultural 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. Here, the states need more assistance to implement the forest code and other pieces of legislation helping to enforce good landscape management, like watershed management 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 4).

(2) 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 techniques along the supply chains for sugar, ethanol, cotton, and coffee should have shown signs of positive impacts on biodiversity.

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

Figure 8 also highlights the projects supported by CEPF during the current 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 civil society organizations' abundance and capacity in the states of Mato Grosso, Goiás, Maranhão, Tocantins, Piauí, and Bahia.

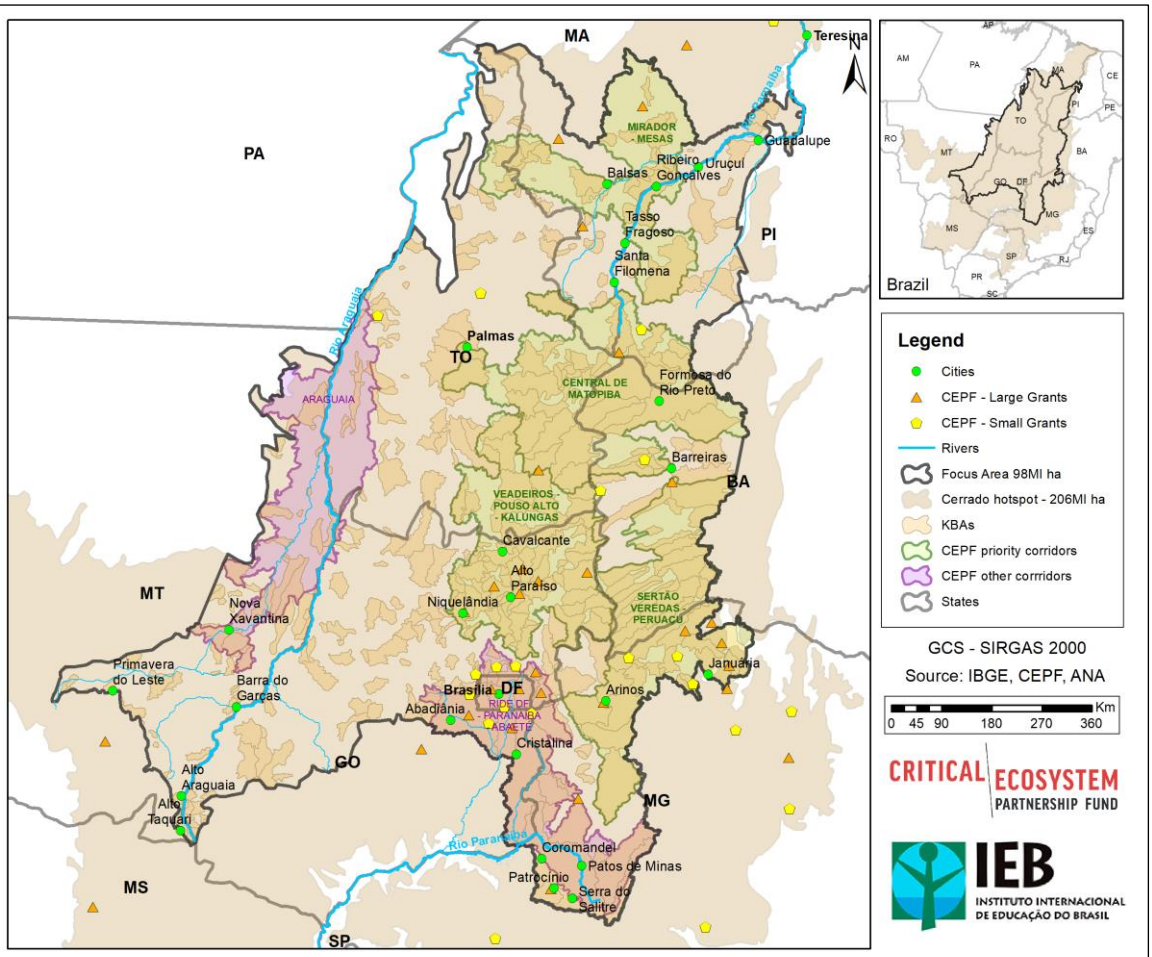

Figure 8: This is the suggested new geographic scope for the future investment phase of the CEPF in the Cerrado.

The rationale behind the selection of all priority corridors and expansion to the Araguaia basin and RIDE DF – Paranaíba – Abaeté corridors 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 these corridors is exemplified by Figure 9.

Figure 9: irrigation district in RIDE DF – Paranaíba – Abaeté corridor

It is also important to mention that a governmental program is looking forward to work on the restoration of several hectares along the Araguaia River and its headwaters. In the State of Goiás alone, preliminary studies identified 208,671 ha destined for different restoration measures. The CEPF will be very qualified to help in this effort 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).

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 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).

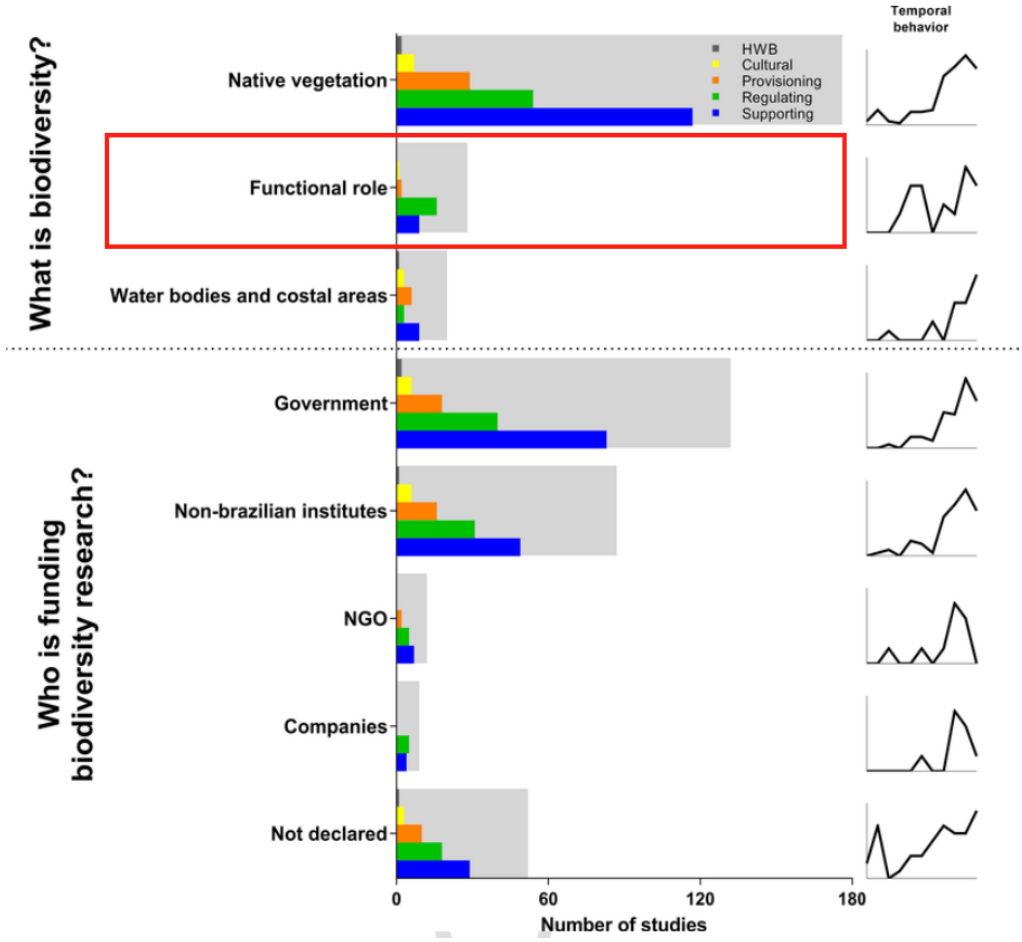

Figure 10. Biases in the links with ecosystem services in the biodiversity research in Brazil. Source: Pires *et al.* (2018b).

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 date, a portfolio of almost 55 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 current 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 for the maintenance of aquatic ecosystems;

(2) a considerable investment on **sustainable SMEs** to give the traditional people and indigenous populations income generation opportunities linked to conservation;

(3) support for the **restoration of ecosystems** related to the provision of ecosystem services to the urban centers of the Cerrado.

With the above in mind, the six strategic directions of the current investment of CEPF in the Cerrado, were reviewed from the perspective of the first three years of implementation of the initial investment phase of the CEPF and with a better understanding of the CSO's 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 the current strategic directions to the newly proposed ones is further detailed in the subsequent sections below.

Strategic Directions of the current 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 the best management of water resources, the maintenance of aquatic ecosystems and the establishment of climate change adaptation strategies for water.
2. Support the creation/ expansion and effective management of protected areas in the priority corridors.	2. Support the creation/ expansion and effective management of protected areas in the Cerrado and sustainable landscape protection.
3. Promote and strengthen supply chains associated with the sustainable use of natural resources and ecological restoration in the hotspot.	3. Support investment on sustainable small and medium enterprises to give the traditional people and indigenous populations income generation opportunities linked to conservation.
n/a	4. Support the restoration of ecosystem delivering services to the urban centers of the Cerrado 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 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.	See footnote[3]
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 current investment phase is 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 is hoped to engage with the agribusiness sector. 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 engagement with farmers and coffee roasters is 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 hectares, and reach 4,500 coffee farmers, with the export of 80% of the production. Based on this successful approach, it is now time to expand the work to the rest of the area. This solid foundation

[3] The proposition is to discontinue this strategic direction since most of the data is now available. Mapbiomas is a very useful platform and has a lot of data available. In addition to that, there is agreement that the need is now more on implementing the knowledge already produced.

has already opened the doors for additional funding with major international and regional banks ,which will help to support this expansion.

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. This would be the 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 both environmental services for the maintenance of agricultural production or 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) protection of aquatic ecosystems;

(3) good water governance and transparency; and

(4) climate change adaptation strategies for water.

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. There is no magic formula. 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 associated with climate change, for example.

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 seven thousand 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 account of 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 builds best on partners' long-term relationships. Several larger and international CSOs have been investing in these initiatives for decades and will keep investing. The 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 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, conflicts and droughts 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.

Additionally, 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 suggested 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 national governmental financial incentives.

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) to support 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. Some minor adaptations are suggested to make the protection of more substantial land portions more viable in the Cerrado. It is, for instance, extremely improbable 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 the 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 current phase, the Conservation-Based Territorial Development Plan (DTBC) of the Sertão Veredas-Peruaçu Mosaic has been 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 of 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 current implementation 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 strategy 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 exports.

Taking a closer look at these endeavors, one of the most significant challenges is to enhance the management of these supply chains. Talking about the entire supply chain of Cerrado fruits, from picking to the consumer, the investment priorities of this strategic direction under a potential future phase of CEPF investment should promote the professionalization of those cooperatives. Capacity building would not only benefit the smallholders or traditional people that are making their living through the established markets but could also reinforce the positive social and environmental impacts of these entrepreneurs. 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, as mentioned previously (Heptburn, 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 hits (Balmford, 2002).

With one of the grantees, there was an attempt to establish the social return of investment and to underline the social and environmental gains of the cooperative. This proved not to be possible, due to the 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 bureaucratic jungle 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 current 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 the 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 current implementation of the CEPF investment strategy, very positive feedback was received from the organizations working on species conservation in the Cerrado. CEPF is the only fund working exclusively with threatened species in the hotspot. This strategy should be continued. However, as previously mentioned, a very limited number of species (seven) were eligible for CEPF support because the IUCN Red List has not been updated with more recent national assessments. The investment priorities of this strategic direction under a potential future phase of CEPF investment should still be include support to the implementation of National Action Plans (PANs) for priority species, with a focus on habitat management and protection, but should also include support for updating the IUCN Red List.

Although it is proposed to limit the overall geographic scope of the future CEPF investment phase in the Cerrado under the other strategic directions (see Section 2.2), it is also proposed that the work on species conservation under Strategic Direction 4 should continue to span the entire hotspot. As mentioned previously, the CEPF is the only fund working on species at the hotspot level.

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.

The first investment priority is mainly covered 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, that 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. 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 current investment phase, under the umbrella of landscape management. 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 in 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 fiscal, tax and labor perspectives. This is in view of the growing restrictions and requirements imposed on 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 Strategies 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 strategics 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 in 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 current 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	**Targets**	**Graduation conditions**
1. Promote the best management of water resources, the maintenance of aquatic ecosystems and the establishment of climate change adaptation strategies for water.	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 and effective management of protected areas in the Cerrado and sustainable landscape protection.	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 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 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 of the Matopiba.	Condition 4 - Enabling Policy and Institutional Environment
5. Support the implementation of National Action Plans (PANs) for priority 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 eleven 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 ten CSOs in the Cerrado.	Condition 3 - Sustainable Financing

	4.2 By 2025, two CSOs have legal advisors within their team to monitor and engage in the public policy arena at state or federal level.	Condition 4 - Enabling Policy and 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 overcome 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 and the Secretariat 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, only 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 current investment phase by three years with an injection of an additional $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 the urban centers of the Cerrado and promote the production of natural seed for restoration.		4	1	3
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
Total 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)**
Estimated cost for the long-term structure	US$ 1,500,000	US$ 1,100,000

Total estimated cost for the financing plan:

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

During the current investment phase of the CEPF, 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.

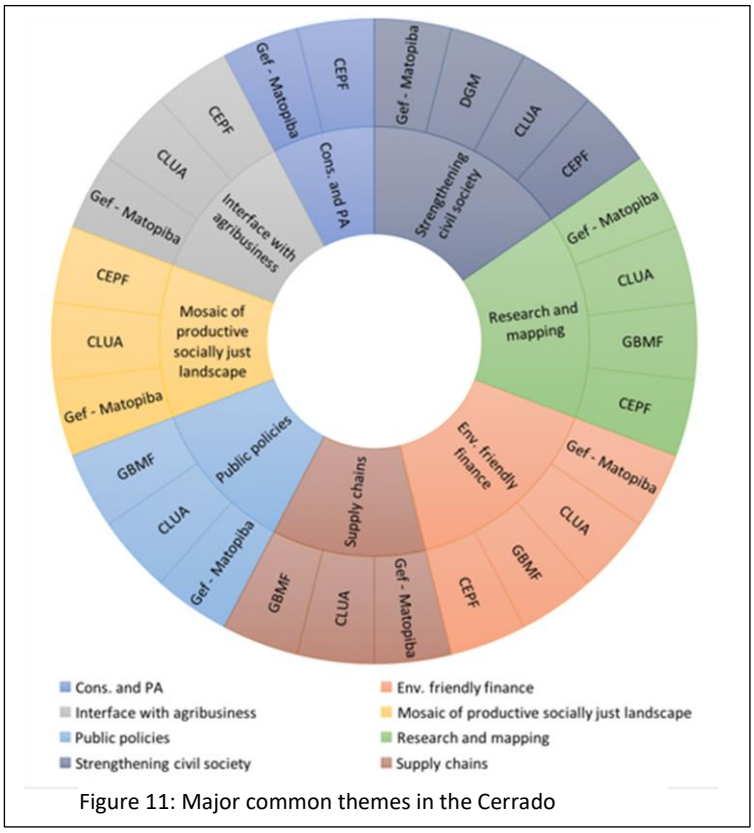

Figure 11: Major common themes in the Cerrado

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 current 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 for 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 current 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 APPENDIX – BIOGRAPHIES OF THE PARTICIPANTS AT THE CONSULTATION MEETING

Ailton Dias
Organization: Instituto Internacional de Educação do Brasil
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.

Andréia Bavaresco
Organization: Instituto Internacional de Educação do Brasil
Biography: He has a degree in Forest Engineering from the University of Brasilia (2002) and a Masters in Sustainable Development from the Center for Sustainable Development at the University of Brasilia (2009) in the area of knowledge of Education and Environmental Management. He has experience in the area of territorial management with an emphasis on education for environmental management acting mainly in the following themes: environmental and territorial management, ethnomapping, indigenous geography, traditional knowledge, sustainable development, and agroextractivism, and management of non-timber forest products.

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.

Isabel Figueiredo
Organization: Instituto Sociedade, População e Natureza
Biography: He has been working at Instituto Sociedade, População e Natureza since 2006. Currently coordinates the Small Ecosocial Projects Program (PPP-ECOS). He has a Masters in Ecology from the University of Brasilia (2007) and a degree in Ecology from the Universidade Estadual Paulista Júlio de Mesquita Filho -UNESP (2002). He has field experience in the Cerrado, Atlantic Forest, Caatinga and Amazon, in the management of socio-environmental projects and articulation with traditional communities and with research in the area of Population Ecology and management of non-timber forest products.

Marcos Rugnitz Tito
Organization: União Internacional para a Conservação da Natureza
Biography: Senior project officer in the Brazilian office of IUCN and forestry engineer at the University of São Paulo/Brazil, with post-graduation in "Agroforesteria Tropical" by CATIE/Costa Rica.

Maria José Gontijo
Organization: Instituto Internacional de Educação do Brasil
Biography: Founder and General Coordinator of the International Institute of Education of Brazil (IEB). Before IEB, he worked in the private sector and in institutions such as the Fulbright Commission and the SUNY-Brasil Advanced Developing Country Training Program.

Monica Nogueira

Organization: Universidade de Brasília

Biography: She holds a Ph.D. in Social Anthropology (2009) from the University of Brasilia and is an adjunct professor at the same university, on the campuses of Planaltina and Darcy Ribeiro. She coordinates the Professional Master in Sustainability with Traditional Peoples and Territories (MESPT) of the Center for Sustainable Development (CDS), and is a member of the permanent faculty of the Graduate Program in Environment and Rural Development (PPG-MADER) of the UnB Planaltina Faculty (FUP). She has experience in developing research and extension projects at the interfaces between culture and environment, with emphasis on the themes: socio-environmental conflicts, traditional territories, and socio-biodiversity in the Cerrado; education for interculturality and sustainability; public policies, civil society, and community-based projects.

Mercedes Bustamante

Organization: Universidade de Brasília

Biography: He holds a degree in Biological Sciences from the State University of Rio de Janeiro (1984), a master's degree in Agricultural Sciences (Plant Physiology) from the Federal University of Viçosa (1988) and a doctorate in Geobotany - Universitat Trier (1993). She is currently a full professor at the University of Brasilia and has experience in the area of Ecology, with emphasis on Ecosystems Ecology, working mainly on the following topics: cerrado, changes in land use, biogeochemistry, global environmental changes.

Regina Cavini

Organization: Programa das Nações Unidas para o Meio Ambiente

Biography: She has a degree in Economics from the State University of Campinas. He is currently a Senior Program Officer at the UN Environment.

Peggy Poncelet

Organization: Critical Ecosystem Partnership Fund

Biography: Grant director for the Guinean Forests of West Africa Hotspot and the Cerrado Hotspot. She also supports the monitoring and evaluation program. Peggy joined CEPF after working for four years with Noé Conservation, a CEPF grantee in the Mediterranean Basin Hotspot. Peggy also previously worked for a community-based natural resources management program funded by the French Global Environment Facility, and in various wildlife scientist positions. Peggy is a tropical agronomist with a master of science from Wageningen University, the Netherlands.

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

Biography: Graduated in biology at the University of Brasilia (1986), post-graduated in history, sociology and philosophy of science at the Hebrew University of Jerusalem (1988), graduated in forest engineering at the University of Brasilia (1993), master's degree in ecology at the University of Brasilia (1997) and a doctorate in education (2012) at the same university. Currently, he divides his time between work with public policies and scientific dissemination in the area of biodiversity conservation and reflection and research on issues related to landscape conservation, access to genetic

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.