National Biodiversity Strategy and Action Plan

Roadside Hawk (*Rupornis magnirostris*) in the Pantanal National Park in the State of Mato Grosso

Photo: Zig Koch

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Executive Summary

Brazil is a mega diverse country, full of exuberant flora and fauna found in its continental territory, which has always been the object of scientific curiosity and the target of artists' eyes from all parts of the world.

This wealth and diversity are reflected in the culture and identity of the Brazilian people, and represent an undeniable potential for new discoveries in the use of biodiversity for the benefit of all people.

Historically, people from all ethnic groups, origins and creeds – seeking opportunities – are embraced in Brazilian lands, and have contributed to the shaping of the social dynamic that holds in its roots the knowledge and tradition of the use of natural resources.

As a young nation in the global scenario but at the same time aware of its relevance to the environmental balance of the planet, Brazil has consolidated its position in the international scenario by adhering to multilateral agreements, seeking the fulfillment of those commitments taken in the ratification of conventions.

Within the international agreements and conventions of which Brazil is a signatory, we highlight the Convention on Biological Diversity - CBD, which targets the conservation and sustainable use of biodiversity and the fair and equal reparation of the benefits that result from its use, as well as associated traditional knowledge.

Brazil has taken much care in the efforts of conservation, which has been evident ever since the creation, in 1994, of the National Program of Biological Diversity- Pronabio. The program underwent some adjustments in 2003 when the National Commission for Biodiversity - CONABIO, was created.

The mission of CONABIO is to promote the implementation of the commitments taken on by Brazil along with CBD. It includes the Strategic Plan for 2011-2020, which establishes 20 Global Goals, known as the Aichi Targets.

This document on the National Biodiversity Strategy and Action Plan- NBSAP offers the Brazilian contribution to reaching the 17th Aichi target. In a concise manner, it presents the wealth of the participative process for the elaboration of the National Biodiversity Strategy for 2020. Additionally, it is the 1st Module of the Action Plan for Biodiversity. It approaches the information, actions and projects under the coordination of the Secretariat of Biodiversity and Forests from the Ministry of the Environment- SBF/MMA, along with others that have already been identified by this Secretariat.

The broad process of discussion and consultation in seeking a consensus on the definition of National Biodiversity Goals for 2020 began in 2011 and includes major landmarks such as the Dialogues on Biodiversity, the subsidies for a Government Action Plan for the Conservation and Sustainable Use of Biodiversity and the creation of the Brazilian Panel on Biodiversity - PainelBio.

The mission of PainelBio is to integrate efforts to promote the achievement of the Aichi Targets in Brazil and is a key partner in the construction of indicators for the National Targets approved by CONABIO.

Important documents were generated throughout this process, as well as opportunities for synergy between the different sectors and amongst the three levels of government.

The size and complexity of the participatory processes that excel at strengthening governance in countries like Brazil can sometimes require the division of actions in order to maintain governance and accountability in the fulfillment of the goals

and objectives identified.

Therefore, in relation to the Action Plan for Biodiversity, the 1st module is presented, which objectively establishes SBF's Strategic Plan to achieve the commitments made in order to fulfill the Aichi Targets. As the body responsible for the formulation of public policies on biodiversity at the federal level, SBF briefly presents in this document the progress made up to this moment on various fronts of action.

The present document highlights the knowledge and dissemination of information on Brazilian biodiversity and its ecosystems. The changes in legislation are also covered, especially those that deal with the protection of biodiversity and its sustainable use to ensure fair access and benefit sharing in the country.

It is also worth mentioning the development of mechanisms and economic incentives to recognize and promote environmental services that may then contribute to the management and sustainable economic exploitation of natural resources.

Thus, in a responsible and objective manner, the commitments of SBF are set out in this document, as well as others that have been identified for 2020. These commitments should be added later to those signed by other sectors, which will then give rise to the 2nd Action Plan module for Biodiversity. For this, SBF is conducting a process of bringing together the secretariats from the Ministry of Environment and other related agencies, such as other ministries, states, and institutions that are relevant to the NBSAP, in order to obtain their formal commitment to actions and initiatives that contribute to the achievement of the National Biodiversity Targets for 2020, which will be incorporated in the second version of the NBSAP. This is how we intend to, in a future version of the NBSAP, incorporate the commitments of all the secretariats from the Ministry of Environment and others related to it. In addition, a process of adhesion to the NBSAP will be conducted with the other sectors, in order to obtain their formal commitment to actions and initiatives that will contribute to the achievement of the National Biodiversity Targets for 2020.

The institutionalization of these commitments includes the definition of strategies that guarantee financial capacity for implementation, as well as the transparency of actions and results. This posture goes beyond the expected level of intention which is based on the same commitment that reflects the responsibility for the conservation and recovery of Brazilian biodiversity, as postulated by SBF.

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Acronyms and Abbreviations

ABS - Access and Benefit Sharing

ANA - National Water Agency

APP - Permanent Preservation Area

ARPA - Protected Areas of the Amazon

BAP Region - Northern Paraguay Basin

CAR - Rural Environmental Registry

CBD- Convention on Biological Diversity

CEBDS - Brazilian Business Council for Sustainable Development

CGen – Genetic Heritage Management Council

CIF - Climate Investment Fund

CIRM – Inter-ministerial Commission for Ocean Resources

CMS - Convention on the Conservation of Migratory Species of Wild Animals

CNCFlora - National Center of Flora Conservation

CNI - National Confederation of Industries

CNPCT - National Council for Sustainable Development of Traditional Peoples and Communities

CNPq - National Council for Scientific and Technological Development

CNUC - National Registry of Protected Areas

CONABIO - National Biodiversity Commission

Conaflor - National Forestry Commission

ConaREDD - National Commission for the Reduction of Greenhouse Gas Emissions of Deforestation and Forest Degradation

Condraf - National Council for Sustainable Rural Development

COP - Convention of Parties

CPG - Standing Committee on Management and Sustainable Use of Fishery Resources

DAP - Department of Protected Areas

DECO- Department of Ecosystems

Defra - Department of Food and Rural Affairs of the United Kingdom

Degrad / Detex - Mapping of Forest Degradation in the Amazon

DESP - Department of Species

DETER - Deforestation Detection System of Brazilian Legal Amazon in Real Time

DPG - Department of Genetic Heritage

EEI- Exotic Invasive Species

EMBRAPA - Brazilian Agricultural Research Corporation

ENREDD - National Strategy for REDD+

NBSAP - National Biodiversity Strategy and Action Plan

Epusp - University of São Paulo Polytechnic School

FBDS - Brazilian Foundation for Sustainable Development

FIESP - Federation of Industries of São Paulo

FIOCRUZ - Oswaldo Cruz Foundation

FNRB - National Fund for Benefit Sharing

Funai -National Indigenous Foundation

Funasa- National Health Foundation

Funbio - Brazilian Biodiversity Fund

GEF - Global Environmental Fund

GIZ - German Cooperation for Sustainable Development

GPFLR - Global Partnership on Forest Landscape Restoration

Iba - Brazilian Tree Industry

Ibama - Brazilian Institute of Environment and Renewable Natural Resources

IBDF - Brazilian Institute of Forest Development

IBGE - Brazilian Institute of Geography and Statistics

ICMBio - Chico Mendes Institute of Biodiversity Conservation

ICMS Tax on Circulation of Goods and Services

Icon - Institute for Studies of Commerce and International Negotiations

IIS - International Institute for Sustainability

INCRA - National Institute of Colonization and Agrarian Reform

NDC - Nationally Determined Contribution

INPE - National Institute for Space Research

IPE - Institute for Ecological Research

Iphan - National Historical and Artistic Heritage Institute

JBRJ- Botanical Garden of Rio de Janeiro

LC - Complementary Law

Mapa - Ministry of Agriculture, Livestock and Supply

MCidades - Ministry of Cities

MCTIC - Ministry of Science, Technology, Innovation and Communications

MD - Ministry of Defense

MDA - Ministry of Agrarian Development

MDIC - Ministry of Development, Industry and Foreign Trade

MDS - Ministry of Social Development and Fight against Hunger

MEA - Multilateral Environmental Agreements (Multilateral Environmental Agreements)

MF - Ministry of Finance

MI - Ministry of National Integration

MMA - Ministry of the Environment

MME - Ministry of Mines and Energy

MPA - Ministry of Fisheries and Aquaculture

MOP - Ministry of Planning, Budget and Management

MRE - Ministry of Foreign Affairs

MT- Ministry of Transport

NBSAP - National Biodiversity Strategy and Action Plan

OECD - Organization for Economic Co-operation and Development

UN - United Nations

PainelBio - Brazilian Panel on Biodiversity

PAN - National Action Plan

Bio PAN - National Action Plan for Biodiversity

PC - Community Protocol

Planaveg - National Plan for the Recovery of Native Vegetation

PMDBBS - Monitoring by Satellite of Brazilian Biomes Project

PNB - National Biodiversity Policy

PNGATI - Territorial and Environmental Management in Indigenous Lands

NEP - National Environmental Policy

PNMC - National Climate Change Policy

PNRB - National Program for Benefit-Sharing

UNDP - United Nations Development Program

UNEP - United Nations Environmental Program

PPA - Multi-Year Plan

PPCerrado - Action Plan for the Prevention and Control of Deforestation and Fires in the Cerrado

PPCDAM - Action Plan for the Prevention and Control of Deforestation in the Amazon

PR - Presidency

PRA - Environmental Recovery Plan

PRODES - Monitoring of the Brazilian Amazon Rainforest by Satellite

Pro-species - National Program for Conservation of Endangered Species

Prohidro - State Program of Conservation and Revitalization of Water Resources

Probio - National Project for Public-Private Integrated Actions for Biodiversity

Pronabio - National Biodiversity Program

Pro-PSA - Payment Program for Environmental Services

PSA - Payment for Environmental Services

PUC-Rio - Pontifical Catholic University of Rio de Janeiro

Queimadas - Monitoring of Fires

REDD - Reducing Greenhouse Gas Emissions from Deforestation and Forest Degradation

RPPN - Private Natural Heritage Reserve

RL - Legal Reserve

SAE - Secretariat of Strategic Affairs

SBF - Secretariat of Biodiversity and Forests

Secom - Secretariat of Social Communication

Seped - Secretariat of Policies and Programs for Research and Development

SFB - Brazilian Forest Service

SiBBr - Information System on the Brazilian Biodiversity

SICAR - Rural Environmental Registry System

SisGen - National System of Management of Genetic Heritage and Associated Traditional Knowledge

Sisnama - National Environmental System

SNUC – National System of Protected Areas

TerraClass - Mapping of Land Use in previously deforested areas

TI - Indigenous Land

UC - Protected Areas

UFG- Federal University of Goiás

UFU-Federal University of Uberlândia

IUCN - International Union for Conservation of Nature

UNFCCC - United Nations Framework Convention on Climate Change

USP - University of São Paulo

WRI - World Resources Institute

WWF - World Wide Fund for Nature

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1. Introduction

Brazil became a signatory to the Convention on Biological Diversity - CBD in 1992, and its provisions came into force in 1994. Brazil formalized the National Biodiversity Policy - PNB through Decree No. 4339 on the 22nd of August 2002, along with its National Biodiversity Action Plan- PAN-Bio.

Although there were many important advances, with regards to environmental conservation in Brazil, a single consolidated instrument to register and monitor these advances in environmental conservation and sustainable development has not been created in the country.

As one of the countries signatory of CBD, Brazil committed to updating its Strategy and Action Plan for Biodiversity - NBSAP, in compliance with the Aichi Target no. 17 during the 10th Conference of Parties to the Convention on Biological Diversity (COP10) held in Nagoya - Japan in 2010.

The Brazilian strategy was, until then, represented by a set of programs and projects conducted by environmental agencies, in addition to the various legal instruments created over the years for the protection and use of the environment and biodiversity, many of which are considered to be pioneers in the area and are internationally adopted as models.

Still, given its importance, since 2010, we adopted a new approach aiming to compile these instruments in a single document that could bring together all of the initiatives and actions in the works, as well as the strategies and planning efforts for the conservation of biodiversity and ecosystems. At that moment a wider participatory process to update the NBSAP has begun.

The immense challenge of constructing this document through participatory means in a country with the characteristics of Brazil resulted in a rich process that brought about many lessons and practical challenges. This required innovative approaches, which then culminated in the National Biodiversity Strategy, with its national targets, and the 1st Action Plan module for Biodiversity, which is to be expanded and complemented with the involvement of different sectors of society in its 2nd module.

This introductory chapter presents the importance of biodiversity and its role in shaping Brazilian identity despite the regional peculiarities found in the country.

The second chapter presents an overview of Brazilian biodiversity and its current state of conservation and describes the actions taken by the country, in order to further the knowledge and conservation on biodiversity.

The third chapter deals with the legal basis and the existing institutional arrangement in Brazil for the implementation of actions for the conservation of biodiversity in the country.

The fourth chapter explains how the process of construction of the National Biodiversity Strategy and Action Plan came about.

The fifth chapter presents the National Strategy, through the National Biodiversity Targets for 2020.

The sixth chapter highlights the internalization of the National Targets within the strategic planning carried out by the Secretariat of Biodiversity and Forests - SBF, and the 1st Module from the Action Plan for Biodiversity.Finally, the seventh chapter outlines strategies that allow for the confirmation of partnerships and synergies with other sectors and the different government levels that will be a part of the 2nd Action Plan module, with commitments made by adding efforts for the fulfillment of the National Targets established jointly.

1.1. The importance of biodiversity for Brazil

Brazil is the country with the highest biodiversity in the world, considered a mega-diverse country[1]. With its continental dimension and a huge variety of land and aquatic habitats, Brazil has the largest number of plant (more than half endemic[2]) amphibians[3] and primates[4], species. It is the 2nd country in the world with the highest number of species of mammals[3] and reptiles[5]; and the 3rd in birds[6]. Brazil is also the 6th country in vertebrates endemism, with the highest rates for reptiles, with 37% of endemism, and 57% for amphibians. According to estimations, the country is home to about 20% of the planet's total biodiversity.

The Taxonomic Catalog of Brazilian Fauna (2016) points out at least 115,993 animal species and the Species List of Brazilian Flora (2015) establishes a count of 46,096 species. New species are discovered and described in Brazil every day, which makes it reasonable to assert that the numbers just mentioned are even higher.

Some of the most important efforts of Brazil to conserve biodiversity and ensure the promotion of ecosystem services in various biomes[7] are the creation and consolidation of protected areas, monitoring of habitats and species, and combating deforestation.

Recent Brazilian initiatives that approach the obligation to maintain the areas that have legal protective instruments are the path to follow in order to achieve the objectives proposed in this document. These initiatives need to include the areas protected by the SNUC, the Native Vegetation Protection Act (Forest Code), the indigenous and quilombo lands and partnerships that promote the inclusion and commitment of productive sectors with biodiversity and social issues.

Thus, guided by the principles of PNB, NBSAP seeks to define the course of action for the achievement of the conservation and sustainable use of fundamental resources that support and ensure resilience to society and the national economy: biodiversity, the balance between its components, and the resulting services to ecosystem.

[1] Mittermeier RA, Robles Gil P, Mittermeier CG. 1997. Megadiversity. Mexico City (Mexico): CEMEX.

[2] Forzza, RC; Baumgratz, JFA; Weevil, CEM; Canhos, D .; Carvalho Jr., AA; Nadruz-Rabbit, MA; Costa, AF; Costa, SD; Hopkins, M .; Leitman, MW; Lohmann, LG; Lughadha, EN; Maia, LC; Martinelli, G .; Menezes, M .; Calico, MP; Peixoto, AL; Pirani, JR; Prado, J .; Queiroz, LP; Souza, S .; Souza, VC; Stehmann, JR; Sylvestre, LS; Walter, BMT & Zappi,
DC 2012. New Brazilian floristic list highlights conservation challenges. BioScience 62: 39-45.

[3] Vié, J.-C., Hilton-Taylor, C. and Stuart, SN (eds.) (2009). Wildlife in a Changing World - An Analysis of the 2008 IUCN Red List of Threatened Species. Gland, Switzerland: IUCN 180 pp.

[4] Nowak, Ronald M. Walker's mammals of the world. Vol. 1. JHU Press, 1999.

[5] Bérnils, RS and HC Costa (ed.). 2012. Brazilian Reptiles: Species List. Version 2012.2. Available in: http://www.sbherpetologia.org.br/. Brazilian Herpetological Society.

[6] Vie, JC, HILTON-TAYLOR, C. & STUART, SN 2009. Wildlife in a changing world - an Analysis of the2008 IUCN Red List of Threatened species. IUCN Gland, Switzerland:

[7] In Brazil, the word *biome* is often used synonymously with *morphoclimatic and phyto-geographical areas.* As the two latter terms refer to geographical regions which may contain a variety of ecosystems and biomes, according to Coutinho (Coutinho, LM 2006. The concept of biome. Acta Bot. Bras. 20 (1): 1-11), these would be the most appropriate terms to describe the regions of the Amazon, Atlantic Forest, Caatinga, Cerrado, Pampa and Pantanal. However, since the word *biome* is commonly used in official documents in Brazil, and given the request from CONABIO, the term will be maintained in this document.

1.2. The role of women in the conservation, preservation and recuperation and management of biodiversity

The many of women from the countryside, the forests and waters, from indigenous peoples, traditional communities, and the women from rural and urban areas have all throughout history led the way with regard to biodiversity conservation and the promotion of food safety through the sustainable use and management of natural resources, based on their specific knowledge and ways of life. The contributions from women's practices and knowledge should be recognized and valued in the processes of proposing, planning, construction, decision making and implementation of policies, programs and actions to preserve biodiversity. In this sense, the full participation of women at all levels of formulation and implementation of policies should be sought, whenever possible, including the participation in consultative and deliberative councils, such as CGEN, and Conabio, among others.

The CBD itself recognizes, in its preface, "the fundamental role of women in the conservation and sustainable use of biological diversity and states the need for the full participation of women at all levels of formulation and implementation of policies for the conservation of biological diversity."

2. Biodiversity Conservation in Brazil

2.1. Conservation of genetic heritage[8] and protection of traditional knowledge

The regime for the management of access and benefit sharing in force in Brazil is based in the most modern international treaties on access and benefit sharing, especially the CBD and the Nagoya Protocol, and also in regulatory tools for the planned and directed application of benefit sharing aiming to improve the execution efficiency of these resources.

Brazilian legislation on the subject (see item 3.1) promotes the integration of conservation policies for Brazilian genetic heritage and reduction strategies to combat poverty and the improvement of public health by facilitating the responsible use of biodiversity for technological development and innovation in the area of biotechnology.

With the experience garnered from the Use of Genetic Heritage and Benefit Sharing Contracts - CURBs signed in the presence of MP 2.186- No 16/2001, the potential of productive chains that use biodiversity products for poverty reduction and improvement of life quality for local populations have been identified.

The accumulated experience in projects to strengthen productive chains performed by private entities from the cosmetics sector in different municipalities had as observed results the increase in the average monthly income and the diversification of the income composition of these populations. With increased income from the use of the local

[8] Article 2(I) of Brazilian ABS Law (Law Nº 13.123/2015) defines genetic heritage as "genetic information from plants, animals, and microbial species, or any other species, including substances originating from the metabolism of these living organisms".
On the other hand, Article 2nd of Convention on Biology Diversity defines genetic heritage as the "genetic material of actual or potential value."

biodiversity, there was partial replacement of other potentially harmful activities with great potential for harm to the environment, such as logging in priority areas for conservation.

In this scenario, the Ministry of the Environment has been engaged in promoting the substitution of predatory activities for activities from economic sectors that use biodiversity in a sustainable way through projects are executed with government and private players, as observed in the actions proposed by Target 18, and that also contribute to the fulfillment of other Targets, as Target 2.

One of the goals of these actions is the development of indigenous peoples, traditional communities and family farmers as key links of the productive sectors of the "standing forest". These actions may support the generation of income and the reduction of the pressures on the environment, allied to the appreciation and protection of associated traditional knowledge.

The appreciation and protection of traditional knowledge occurs through actions that recognize the role of indigenous peoples, traditional communities and family farmers in the management of genetic heritage conserved in their territories. This strategy includes, for example, the fostering of community protocols. Community Protocol is a tool recognized by the CBD and the Nagoya protocol in which each community can reaffirm their identity, organization and the rules from their customs of biodiversity management.

2.2.Species Conservation

According to published scientific data, 46,097 species of plants and more than 100,000 valid species of animals are known to Brazil (Table 1).

The collective effort of more than 700 experts to prepare and publish Brazil's Flora 2020 project is the first update in over a hundred years of the original work that cataloged Brazilian flora for the first time (*Flora Brasiliensis*), initiated by the naturalist von Martius in 1840 and completed in 1906.

The Taxonomic Catalog of Brazil's Fauna, launched in 2015, proves that Brazil has the highest biodiversity on the planet. This initiative is the first list of Brazilian fauna and was conducted with the participation of over 500 experts.

Understanding the state of biodiversity conservation is the basic starting point for a robust plan with measures that can help reduce the risk of species extinction and in the long run, ensure their survival. The assessment on the risk of extinction of species underpins the definition of priorities for public policies dealing with the conservation and use of resources. To evaluate all of the Brazilian biodiversity, efforts are divided between the Chico Mendes Institute for Biodiversity Conservation- ICMBio, which evaluates the fauna, and the Botanical Garden of Rio de Janeiro - JBRJ, which evaluates the flora.

Table 1. Number of known species in Brazil[9]

	GROUP	NUMBER OF
Flora	Algae	4,747
	Angiosperms	32,831
	Bryophyte	1,524
	Gymnosperms	30
	Ferns and Lycophytes	1,253
	Fungus	5,712
Fauna	Mammals	720
	Birds	1,924
	Reptiles	759
	Amphibians	1024
	Fish	Freshwater: 3133 Marine: 1,376 Total: 4,509
	Invertebrates	Estimate: 100.000-105.000

The National Center for Plant Conservation - CNCFlora, connected to the Botanical Garden, is coordinating a broad effort to assess the conservation status of Brazilian plants species. The first result of this evaluation was published in 2013, in the form of a red book[10] that contains a list of the Brazilian plant species that are considered under threat of extinction.

This work was made in collaboration with a network of experts in botany and supported the updating of the official list of endangered plants in Brazil. In 2014, the CNCFlora published a new red book, now focusing on rare species from the cerrado, and resulted in an indicative list of endangered species[11].

On the other hand, the process conducted by ICMBio has worked with the guideline of evaluating all vertebrates and some selected invertebrates, considering its level of ecological, economic and social importance. The species are evaluated on a regular and ongoing process, in five year cycles, in order to keep the data updated and also to identify species undergoing conservation- related problems.

The entire process of indication and evaluation of endangered species was the result of a joint effort involving over

1,300 experts from dozens of research institutions and universities, and included a peer review.

2.2.1. Lists of Brazilian flora and fauna species that are threatened with extinction

The Official National Lists of Endangered Species are important biodiversity conservation mechanisms, which seek to recognize endangered species in national territory, on the continental shelf and in the Brazilian exclusive economic zone. This effort supports the prioritization of

[9] Zappi, DC, Forzza, RC, Souza, VC, Mansano, VF & Calico, MP in 2015. Epilogue Rodriguésia 66 (4). http://rodriguesia.jbrj.gov.br DOI: 10.1590 / 2175- 7860201566417.

Taxonomic Catalog of Brazil's Fauna. http://fauna.jbrj.gov.br/.

[10] Martinelli, G. & Moraes, MA in 2013. Red Book of Brazil's Flora. Andrea Jakobsson: Institute for Botanical Garden Research of Rio de Janeiro, 1100p. Available online at: cncflora.jbrj.gov.br/LivroVermelho.pdf

[11] G. Martinelli, Messina T., & Son of L. S. 2014. Red Book of Brazil's Flora - Rare Plants of the Cerrado. Andrea Jakobsson Studio: Institute for Botanical Garden Research of Rio de Janeiro, Rio de Janeiro.

conservation actions and also helps in the recuperation of populations, which then can change the risk of extinction category to one of less threat, until it reaches the non-endangered classification[12]. The preservation of endangered species fulfills the provisions found in the Federal Constitution, National Policies for the Environment and Biodiversity, and the mandate from the Ministry of the Environment through Law No. 10,683, from May 28, 2003, and Decree No. 6101 from April 26, 2007. Lists are instruments that are recognized and supported by the National Program for the Conservation of Endangered Species - Pro-Species, Established by ministerial ordinance MMA No. 43, January 31, 2014.

Pro-species strengthens national action significantly in the improvement of knowledge and the conservation status of endangered Brazilian species by officially recognizing, for the first time in the country, the international classification standard with the different threat categories used by IUCN, also by assigning institutional responsibility for the different steps of the process of identification and classification of endangered species, and preparation of Action Plans for Conservation, by creating databases to support the assessment of the conservation status of Brazilian species, among other provisions.

The current Official National List of Endangered Flora Species was established from the evaluation of the extinction risk of 4,617 species. The species evaluated represent an assessment at the national level of all lists officially published at the state level (Espírito Santo, Minas Gerais, Pará, Paraná, Rio Grande do Sul, Santa Catarina and São Paulo), federal level (IN MMA No. 06 of September 23, 2008, Annex I and Annex II) and the global IUCN list.

The current List of Endangered Fauna was brought together from the assessment of 6,840 endangered species, including all vertebrate species (except for fish) in the country and some terrestrial invertebrate groups - those considered to be indicators of environmental quality, such as mollusks, beetles, bees and butterflies. The list of endangered fish and aquatic invertebrates was made from the assessment of 5,148 endangered species, including 100% of marine and continental fish known in the Brazilian territory. This work, the most complete fauna diagnosis made in the world[13],made it possible to identify and locate the main threats and areas that are fundamental to the preservation of the species.

The ICMBio Normative Instruction No. 34 from October 17, 2013, regulates the guidelines and procedures for the Assessment of the Conservation Status of Species of Brazilian Fauna. The entire evaluation process was carried out in accordance with this normative instruction, which standardizes the steps and documents required for evaluation, defines the main players in the process along with their functions and establishes the method for evaluation of species, including evaluation workshops and mechanisms to validate results. The CNCFlora / JBRJ, in turn, defines the procedures for the assessment of the conservation status of flora in the "Operational Manual for Risk Assessment of Extinction of Species of Brazilian Flora"[14]. The method used to analyze the extinction risk

[12] Brazil had its first list of endangered species drawn up in 1968 in which there were 44 species of fauna and 13 of flora (IBDF Ordinance No. 303, 1968). At this time the need for continuous monitoring of the conservation status to update the list was recognized.

[13] Diagnosis of Species Endangered Fauna Species: 2012-2014 / Publisher Chico Mendes Institute for Biodiversity Conservation - Brasilia, DF: ICMBio; 2014. 399p.: Il. Color; 24cm

[8] [14] Operational Manual for Extinction Risk Assessment of Species of Brazilian Flora.

of species is consistent with the standards set by IUCN and widely used in assessments on the conservation status of species globally, and has been adopted by several countries, as well as by the UN and in international agreements. The species are evaluated in relation to their size and population variation, life cycle characteristics, distribution, quality and habitat fragmentation, present and future threats, existing conservation measures, among other aspects (Box 1). The threat status of each species is defined based on this information and in accordance with standardized technical criteria and objectives.

For the publication of these lists, species that are considered threatened are divided into 4 categories: EW (Extinct in the Wild); CR (Critically Endangered); EN (Endangered); and VU (Vulnerable), defined by the Pro-Species Program, and they represent the level of extinction risk. On December 18, 2014, the ordinances that released the Lists of Endangered Brazilian Species of Flora and Fauna were published in the Official Journal of the Union (Ordinances No. 443, 444 and 445)[15].

Box 1. Quantitative criteria for determination of threatened taxon

- **Reduction of the total population of species**
- **Geographical distribution of species restricted and presenting fragmentation, decline or fluctuation;**
- **Small population and presenting fragmentation, decline or large fluctuations (observed, estimated and / or projected);**
- **Very small population or very restricted distribution; and**
- **Quantitative analysis of extinction probability (e.g. Population Viability Analysis).**

The list of species of endangered flora recognized and protected 2,113 species of endangered plants. In the Brazilian fauna species list, 1,173 species were considered endangered (Table 2).

http://cncflora.jbrj.gov.br/portal/static/pdf/publicacao/manual_operacional.pdf.

[15] As determined by the ordinances, in order to understand the criteria and transparency of the process, of the information on the criteria used and the technical and scientific assessments of the conservation status of the species lists are available on the CNCFlora and ICMBio websites at the following electronic addresses: **Ordinance No. 443/2014 Endangered Flora:** http://pesquisa.in.gov.br/imprensa/jsp/visualiza/index.jsp ?date = 18/12/2014 & newspaper = 1 & page = 110 & totalArquivo s = 144

Ordinance No. 444/2014 Endangered Fauna: http://pesquisa.in.gov.br/imprensa/jsp/visualiza/index.jsp ?newspaper = 1 & page = 121 & date = 18/12/2014
Ordinance No. 445/2014 Endangered Fish and Aquatic Invertebrate: http://pesquisa.in.gov.br/imprensa/jsp/visualiza/index.jsp ?jornal = 1 & page = 121 & date = 18/12/2014

Criteria for flora: http://cncflora.jbrj.gov.br/portal/pt-br/listavermelha

Criteria for fauna:http://www.icmbio.gov.br/portal/biodiversidade/fauna-Brasileira / lista-de-especies.html

Table 2. Number of endangered species by threat category

Extinction risk category	Flora	Fauna	Total
Extinct in the Wild (EW)	0	1	1
Critically Endangered (CR)	467	318	785
Endangered (EN)	1,147	406	1,553
Vulnerable (VU)	499	448	947
Total (species)	**2.113**	**1,173**	**3,286**

2.2.2. Action Plans for Conservation

The evaluations carried out in the elaboration of the lists, subsides the development of National Action Plans for the Recovery and Conservation of Endangered Species - PANs, and act as one of the tools of Pro-Species Program.

The PANs define, through a participatory process, strategies to improve the conservation status of endangered species, by establishing agreements for implementation with various societal players. The implementation of the Pro-Species program also includes a component to evaluate the conservation status of other species currently not classified as endangered, in order to identify and implement preventive actions to reduce pressures that could threaten their populations.

When the action plans began to be prepared in 2004, each plan was directed only to one of the species, such as the maned wolf (Chrysocyon brachyurus), the Brazilian Merganser (Mergus octosetaceus) and the porpoise (Pontoporia blainvillei), among other endangered species. Although the individual action plan model has proven to be effective, it was observed in general, threats were common to groups of species, sometimes even for species from different taxonomic groups and therefore, if there was an effective conservation action for a particular case, it could also be effective for the others.

Thus, whenever possible, the action plans are sought to be prepared with a territorial approach and broader taxonomic scope. An advantage of the territorial approach is that it allows for the preparation of spatial analyses with data cross-linking in areas that affected by the PAN, which then enables the categorizing of the locations considered to have a higher level of priority for conservation along with the most urgent actions that must be carried out in each place. In addition, species that are still unknown but that may exist in the same territory will also benefit from this model. This new method has already been incorporated with endangered flora species and has since then demonstrated many

advantages. However, it also has proven to be very challenging because of the need to take into account the particularities of each region and each taxon. Moreover, even with a territorial approach, it is still necessary to define where the listed actions will bring the greatest benefit to the conservation of species. In other words, this approach requires the definition of sensitive

areas for the actions to be implemented later.

The methodology chosen to tackle this challenge establishes firstly: the definition of sensitive areas (taking into account the opportunities and pressures), as well as factors such as the number of endemic and endangered species, and the number of protected areas. This methodology has proven to be a tool that helps decision makers to achieve maximum efficiency in the conservation of species as well as assist them in public policy development and in defining the direction for resources and investments.

Up until 2015, 58 action plans were developed (Table 3) that cover individual species, groups of species (taxonomic approach) or specific territories (watershed, ecosystem or region), and in total approach 27% of endangered species. In 2015, in addition to the NAPs, the Ministry of the Environment promoted, along with the former Ministry of Fisheries and Aquaculture16 the creation of nine permanent committees to manage the sustainable use of fishery resources (Box 2).

For 2016, the priorities are: the production and implementation of Recovery Plans aimed at endangered species impacted by fishing, along with the elaboration of a national strategy for the implementation of the Pro-Species Program, as provided in Ordinance MMA No. 162 from May 11, 2016.

Before this, Brazil was already part of the International Agreement on the Conservation of Albatrosses and Petrels (ACAP), from the Memorandum of Understanding for Migratory Species Conservation from South American Prairies and their Habitats and the Memorandum of Understanding on the Conservation of Migratory Sharks (see Box 3).

[16] The attributions from the former Ministry of Fisheries and Aquaculture, that was extinct on October 2, 2015, were distributed between the Ministry of Agrarian Development - MDA and the Ministry of Agriculture, Livestock and Supply - MAPA.

Box 2. Pro-Species Program and the Sustainable Use of Fishery Resources Committees

In compliance with national and international commitments, specifically regarding Target 12, Brazil established the National Program for Conservation of Endangered Species - Pro-species (MMA Ordinance 43/2014). The strategy foreseen in the Pro-Species Program establishes the continuous evaluation of the situation of Brazilian species using methods that are compatible with international standards, such as IUCN. The National Lists of Endangered Species were prepared based on the aforementioned evaluation, and were updated by the Ministry of the Environment in 2014, through Ordinances MMA Nº. 443, Nº. 444 and Nº. 445, from December 17, 2014. These lists report the occurrence of 1,173 endangered fauna species and 2,113 endangered flora species.

As an approach to the conservation of aquatic biodiversity, in 2015, the Ministry of Fisheries and Aquaculture and the Ministry of the Environment created the Permanent Committees for the Management and Sustainable Use of Fishery Resources (CPGs), as part of the process to improve the structure and management of fisheries across the country. The objective of this committee is to encourage the debate and agreements between the local fishing sector, the federal government and civil society on management measures recommended by experts. In total, 9 CPGs were created (six marine and three continental) that make up the Shared Management System for Sustainable Use of Fishery Resources (SGC). The Inter-ministerial Ordinances Nº. 13 and 14/2015 were appointed, which keep the moratorium for the next eight years, on directed fishing, on board retention and the transfer of the Atlantic goliath grouper (*epinephelus itajara*), and for an indefinite period, the Atlantic wreak fish (*Polyprion americanus*) in Brazilian waters, protecting these species that are threatened with extinction.

Box 3. Convention on the Conservation of Migratory Species of Wild Animal - CMS

On October 1, 2015, Brazil became a part of the Convention on the Conservation of Migratory Species of Wild Animals - CMS. CMS is an intergovernmental treaty that is concerned with the conservation of wildlife and habitats on a global scale, covering terrestrial, aquatic and air species. UNEP is responsible for the Secretariat of the Convention.

Among the many animals that migrate to Brazil listed by CMS as endangered are the eskimo curlew, the Caribbean manatee, the sperm whale, La Plata dolphin and the great white shark.

By joining forces with other South American countries that are also participants of the Convention (Argentina, Bolivia, Chile, Ecuador, Paraguay, Peru and Uruguay), Brazil may be able to perfect its actions towards the conservation of migratory species in the region.

Strategic Plan for Migratory Species 2015-2023

In 2011, during the 11th Conference of Parties of the Convention on Migratory Species, the Strategic Plan for Migratory Species 2015-2023 was adopted. The goal of this plan is to support the complete and effective execution of the objectives and goals defined for migratory species.

The structure for the development of the Strategic Plan for Migratory Species was based on the Strategic Plan for Biodiversity and the Aichi Targets. This approach was used in order to keep the plan consistent with the UN General Assembly resolutions on biodiversity and in an attempt to connect the priorities for actions concerning migratory species with the Aichi Targets and provide a logical and effective way for these targets to be integrated into strategies and national biodiversity action plans (NBSAPs).

Table 3. Action plans prepared until 2015 (per year)

Source: ICMBio and CNCFlora (adapted from data available on websites)

National Action Plan	Taxonomic group	Region
2004 (1)		
Red-Billed Curassow	*Crax blumenbachii*	Atlantic Forest
2006 (4)		
Albatrosses and petrels	Diomedeidae & Procellariidae	Marine
Merganser	*Mergus octosetaceus*	Cerrado and Atlantic Forest
Indigo macaw	*Anodorhynchus leari*	Caatinga
Birds of Prey	Falconiformes, Strigiformes and Cathartiformes	Pampa, Cerrado, Atlantic Forest, Pantanal, Amazon
2008 (2)		
Galliformes threatened with extinction	Cracidae and Odonthophoridae	Atlantic Forest, Amazon, Caatinga, Cerrado, Pantanal
Alagoas Curassow	*Pauxi mitu*	Atlantic Forest
2009 (3)		
Aquatic mammals, large cetaceans and pinnipeds	Cetaceans and Pinnipeds	Marine
Endangered Insular Herpetofauna	Genres: Bothrops, Dipsas, Scinax	Atlantic Forest
Maned Wolf	*Chrysocyon brachyurus*	Cerrado, Atlantic Forest, Pampa, Pantanal
2010 (16)		
Restinga Antwren	*Formicivora littoralis*	Atlantic Forest
Porpoise	*Pontoporia blainvillei*	Marine
Muriqui Monkey	*Brachyteles arachnoides, Brachyteles hypoxanthus*	Atlantic Forest
Sirenia	*Trichechus inunguis, Trichechus manatus*	Amazon and Marine
Lepidoptera threatened with extinction	*Lepidoptera*	Amazonia, Caatinga, Cerrado, Atlantic Forest, Pampa, Pantanal
Araripe manakin	*Antilophia bokermanni*	Caatinga
Threatened aquatic species of the Paraiba do Sul River Basin	Genres: Atya, Brycon, Pogonopoma, Phallotorynus, Taunayia, Diplodon	Atlantic Forest
Black Urchin	*Chaetomys subspinosus*	Atlantic Forest
Aquatic Mammals - small cetaceans	Genres: Inia, Orcinus, Sotalia, Stena, Tursiops, Stenella	Marine

National Action Plan	Taxonomic group	Region
Jaguar	*Panthera onca*	Amazonia, Caatinga, Cerrado, Atlantic Forest, Pampa, Pantanal
Parrots of the Atlantic Forest	*Amazona vinacea, A. pretrei, A. brasiliensis, A. rhodocorytha*	Atlantic Forest
Cervids threatened with extinction	*Blastocerus dichotomus* *Mazama nana*	Cerrado, Pantanal, Atlantic Forest
Mammals of the Central Atlantic Forest	Some genres*:* Alouatta, Callicebus, Leontopithecus, Rhagomys, Trinomis &	Atlantic Forest
Sea Turtules	Genres: Caretta, Chelonia, Dermochelys, Eretmochelys, Lepidochelys	Marine
Cerrado Bat	*Lonchophylla dekeyseri*	Cerrado
Giant otter	*Pteronura brasiliensis*	Amazonia, Caatinga, Cerrado, Atlantic Forest, Pampa, Pantanal
2011 (13)		
Blue Macaw	*Cyanopsitta spixii*	Caatinga
Speleological heritage in karst areas of the São Francisco River Basin	Some genres: Anapistula, Charinus, Coarazuphium, Eigenmannia & others	Cerrado, Caatinga, Atlantic Forest
Sauim-de-coleira Monkey	*Saguinus bicolor*	Amazon
Endangered passerines of the southern fields	Some genres: Alectrurus, Anthus, Coryphistera, Limnoctites, Sporophila, Xanthopsar & others	Atlantic Forest, Pampa
Endangered birds from the Caatinga	Some genres*:* Augastes, Crypturellus, Lepidocolaptes, Sclerurus, Sporagra & others	Caatinga
Primates from the Northeast	*Alouatta Beelzebub, barbarabrownae Callicebus, C coimbrai, Cebus flavius, C.*	Caatinga, Atlantic Forest
Fauna species that are endemic and threatened with extinction in the lower and middle Xingu region	Some genres: Anodontites, paniscus, Chiropotes, Ossubtus, Pteronura, Trichechus & others	Amazon
Delimited region: Mogi / Pardo / Sapucai Mirim and Grande Basins	*Brycon natteri, Myleus groupie, Steindachneridion postscript, Phallotorynus jucundus, Chasmocranus brachynema*	Cerrado and Atlantic Forest
Endangered reptiles and amphibians in southern Brazil	Genres: Anisolepis, Cnemidophorus, Liolaemus, Melanophryniscu	Cerrado, Atlantic Forest, Pampa, Pantanal

National Action Plan	Taxonomic group	Region
Reptiles and amphibians threatened with extinction in the Espinhaço Mountain Region	*Placosoma cipoense; Heterodactylus lundii; phyllomedusa ayeayea*	Cerrado and Atlantic Forest
Cactaceae	Some genres: Arthrocereus, cipocereus, Melocactus, Pilosocereus, Rhipsalis, uebelmannia, Tacinga & others	Atlantic Forest, Pampa, Cerrado, Pantanal, Amazon, Caatinga
Evergreens	Some genres: *Comanthera*, *Actinocephalus* & others	Cerrado, Caatinga, Atlantic Forest
Cougar	*Puma concolor*	Cerrado, Atlantic Forest, Caatinga
2012 (5)		
Bush dog	*Speothos venaticus*	Amazonia, Caatinga, Cerrado, Atlantic Forest,
Endangered Herpetofauna in the northeastern Atlantic Forest	*Agalychnis granulosa, Adelophryne baturitensis, A. maranguapensis, Cnemidophorus native, C. abaetensis, Bothrops pirajai*	Atlantic Forest, Caatinga
Endangered birds of the Amazon	Some genres: *Neomorphus, Campylorhamphus, Pyrrhua, Dendrocolaptes, Xiphocolaptes* & others	Amazon
Killifish threatened with extinction	Some genres: *Austrolebias, Ophthalmolebias, Spectrolebias, Cynolebias, Maratecoara* & others	Cerrado, Atlantic Forest, Pampa, Pantanal
Migratory shorebirds	Some genres: *Charadrius, Pluvialis, Phalaropus, Calidris, Tryngites, Oreopholus*	Amazon, Cerrado, Marine, Pantanal, Atlantic Forest, Pampa
2013 (3)		
Small felines threatened with extinction	*Leopardus tigrinus, L. wiedii, L. colocolo, L. pardalis*	Amazonia, Caatinga, Cerrado, Atlantic Forest, Pampa, Pantanal
Birds from the Cerrado and Pantanal	Some genres: *Columbina*, *Pyrrhua*, Tigrisoma, Piculus, Sporophila, Culicivora & others	Cerrado, Pantanal
2014 (3)		
Round Armadillo	*Tolypeutes tricinctus* and *Tolypeutes matacus.*	Caatinga, Cerrado and Pantanal
Dimorphandra wilsonii	*Dimorphandra wilsonii* (Fabaceae) and other flora species in its area of occurrance threatened with extinction	Cerrado and Atlantic Forest

National Action Plan	Taxonomic group	Region
Sharks	Some genres: Cetorhinus, Galeorhinus, Ginglymostoma, Isogomphodon, Mustelus & others	Marine
2015 (9)		
Mangrove	Some genres: Alouatta, Amazona, Atya, Crypturellus, Ginglymostoma, Isogomphodon & others	Amazon, Atlantic Forest
Turtles	*Podocnemis expansa*, *Podocnemis unfilis* and *Podocnemis sextuberculata*	Amazon
Aquatic fauna of the São Francisco River	*Bagropsis reinhardti; Brycon nattereri; Conorhynchos conirostris; Kolpotocheirodon theloura; Lophiosilurus alexandri; Pareiorhaphis gadfly; Pamphorichthys pertapeh* and *Trichomycterus novalimensis.*	Caatinga, Cerrado and Atlantic Forest
Herpetofauna of the Atlantic Forest Southeast	Some genres: Holoaden, Paratelmatobius, Physalaemus, Thoropa, Hypsiboas, Phyllomedusa	Atlantic Forest
Corals	Some genres: Elacatinus, Gramma, Negaprion, Ginglymostoma, Stegastes, Prognathodes, Anthias	Marine
Atlantic Forest birds	Some genres: Aburria, Conopophaga, Dryocopus, Merulaxis, Odontophorus	Atlantic Forest
Southern Mountain Stranglethorn	Flora	Cerrado and Atlantic Forest
Grão Mogol - Francisco Sá	Flora	Cerrado
The Upper Tocantins basin	Flora	Cerrado

2.2.3. Invasive alien species

In Brazil, the first diagnosis of the Invasive Alien Species - EEI was performed by the Ministry of the Environment in 2006[17] and revealed more than 400 exotic species with invasive potential in the country, 58 of them ound exclusively in the marine environment, and nine of them classified as invasive, especially the sun-coral (*Tubastraea coccinea* and *T. tagusensis*).

Regarding inland waters, 163 species were registered which were considered potential invaders, and 39 of them classified as invasive, especially the golden mussel (*Limnoperna fortunei*), fish, such as tilapia (*Oreochromis niloticus*) and water macrophytes such as the *Hydrilla verticillata*.

[17] Invasive alien species: Brazilian situation / Ministry of Environment, Department of Biodiversity and Forests. - Brasilia: MMA, 2006. 24 p.
: Il. color. ; 24 cm.

In land environments, 176 species with invasive potential were registered, mainly the giant African snail (*Achatina fulica*), the wild boar (*Sus scrofa*) and grasses such as annoni grass (*eragrostis plana*) and Melinis grass (*Melinis minutiflora*).

In 2014, ICMBio published an inventory of invasive alien species in federal protected areas[18]. The inventory evaluated 313 protected areas and identified the presence of 144 invasive alien species, 106 vascular plants, 11 fish, 11 mammals, 5 mollusks, 3 reptiles, 3 insects, 2 cnidarians, one amphibian, one crustacean and one isopod species. The above mentioned species that were found in a greater amount were: *Canis familiaris* - Domestic dog (UC 53); *Felis catus* - Cat (34 UC); *Apis mellifera* - African bee (33 UC); *Mangifera indica* - mango tree (31 UC); *Urochloa maxima* - wild grass (28 UC); *Melinis minutiflora* - molasses Grass (26 UC).

The evaluation on the risk of extinction of Brazilian species which later resulted in updating the List of Species Threatened with Extinction by MMA indicated that invasive alien species are a threat to 88 animals species (7.5% endangered animals) and 163 plants (7.7% endangered plants). The analysis, which considered more than 16 thousand species, also found that invasive alien species are a more worrying threat to animals on oceanic islands (75% of endangered animals on islands) and plants in the Pampa (25% of endangered plants).

For 2016, the priority is the development of National Prevention Plans, Monitoring and Control of Invasive alien species, especially the wild boar (*Sus scrofa*) and the sun-coral (*Tubastraea coccinea* and *T. tagusensis*).

2.3. Conservation of ecosystems

Brazil voluntarily took up the commitment to reduce, by 2025, greenhouse gas emissions by 37% - below 2005 levels – at the 11th COP of the UNFCCC, held in 2015 in Paris. In order to secure these results, commitments were made through the Nationally Determined Contribution (NDC). Among them, we may highlight the restoration and reforestation of 12 million hectares of forest, for multiple uses, until 2030, and the strengthening of policies and measures in order to achieve, within the Brazilian Amazon region, zero illegal deforestation by 2030, and the compensation of greenhouse gas emissions arising from legal vegetation removal, also until 2030.

2.3.1. Land Use/Land Cover

The forests in the Amazon have been monitored annually in a systematic way since 1988 by the National Institute for Space Research (INPE). Currently, the INPE program for monitoring the Amazon works through 5 operating systems:

- PRODES - Project for Monitoring of the Brazilian Amazon Rainforest by Satellite;
- DETER - Deforestation Detection System of the Amazon in Real Time; QUEIMADAS - Monitoring of Fires;
- DEGRAD / DETEX - Mapping of Brazilian Amazon Forest Degradation/ Monitoring of Selective Wood Exploration; and
- TerraClass AMAZON – Mapping of land use coverage in the Amazon (Table 4).

These systems are complementary and were conceived to address different objectives.

[18] Sampaio, AB and Schmidt IB 2014. Invasive Alien Species in Federal Protected Areas of Brazil. Biodiversidade Brasileira - 2nd Ed., P. 32-49. Brasil: ICMBio.file: /// D: /Downloads/351-1751-1-PB.pdf

Prodes calculates the yearly rates of deforestation for the period August–July considering clear cutting areas greater than 6.25 hectares in the forest ecosystems of the Brazilian Amazon. To bring this about, it uses satellite images of the Landsat class (30 m spatial resolution). According to Prodes data on the legal Amazon region, the accumulated deforestation from 1988 to 2014 is 407,675 Km² (Figure 1).

The available data on the Amazon is public and can be accessed on the Prodes website. One issue that should be noted is that the Prodes database was not defined by Biome but by the administrative division of states. Therefore, it describes data collected from across the Legal Amazon region.

Despite all the progress made through the mapping of initiatives and monitoring of other Brazilian biomes, there still were gaps to be filled.

Table 4. Data from TerraClass Amazonia 2014

Class	Area	
	Km²	%
Yearly Agriculture	45052.36	0,90%
Non-observed Area	30,053.41	0,60
Urban area	6,008,70	0,12
Deforestation 2014	4,574.78	0.09
Forest	3,179,252.84	63, 43
Hydrography	114,711.65	2. 29
Mining	1,271.79	0,03
Occupations	16,255.56	0,32
Non- forest	953,093.23	19,01
Other	7,749.01	0, 15
Pasture with exposed soil	62,75	0,00
Grassy Pasture	377,449.85	7,53
Vegetation/herb pasture	60,195.64	1,20
Reforestation	3,080.47	0,06
Regeneration with pasture	41,706.42	0,83
Secondary vegetation	171,889.62	3, 43
TOTAL	**5.012,408.09**	**100,00**

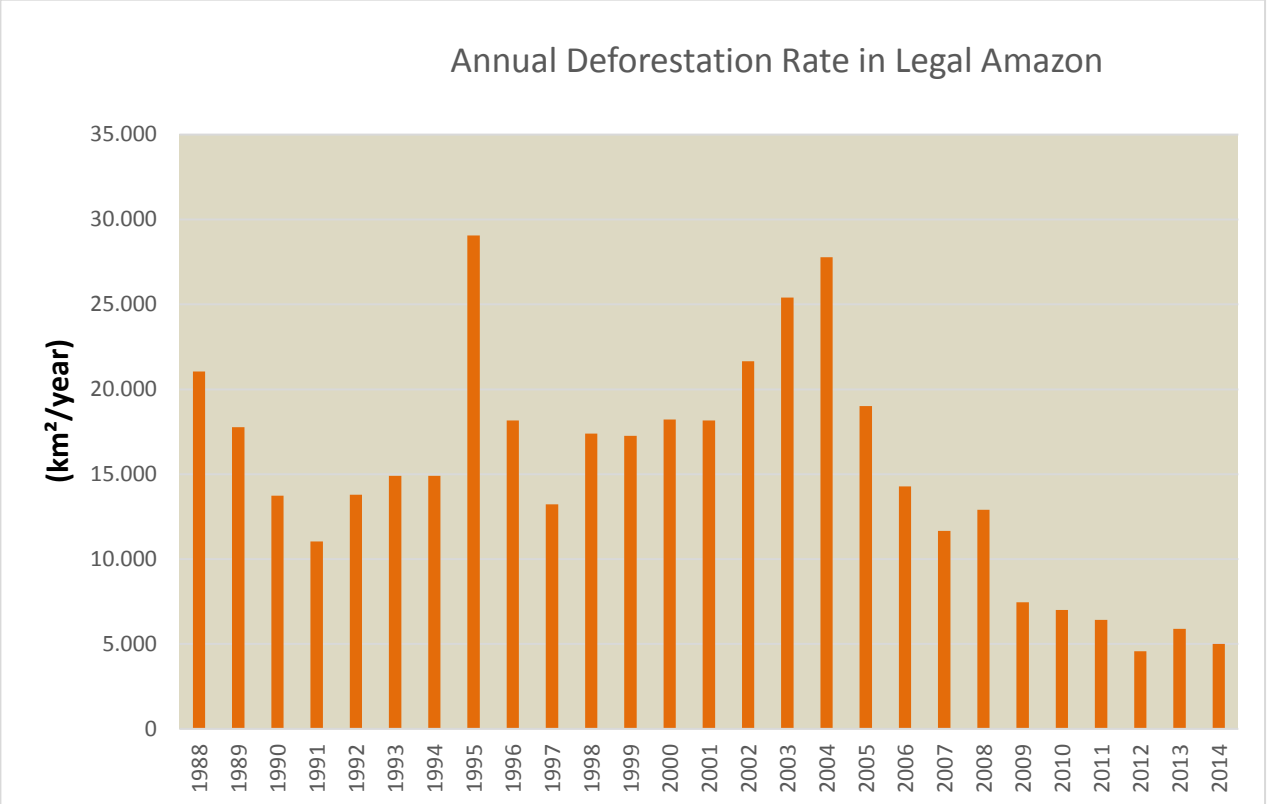

Figure 1. PRODES data from 1988-2014

Thus, in order to provide the government with official data on the remaining vegetation coverage of Brazilian biomes, MMA, through the Project for Conservation and Sustainable Use of Brazilian Biological Diversity - Probio carried out mappings based on Landsat - base year 2002, and adopted the Map of Brazilian Biomes (IBGE, 2004) as a profile cut to generate the information. Some years have passed with no new initiatives to encourage the continuity of data generation on the dynamics of land use, especially in regions outside of the Amazon.

The Project for Monitoring Brazilian Biomes by Satellite - PMDBBS, brought by the cooperation agreement between MMA, IBAMA and UNDP, executed a series of monitoring activities during the years 2008-2011, for the Cerrado, and in 2008 and 2009 for the Caatinga, Pampa, Pantanal and Atlantic Forest, in which the Probio map was used as a basis. In 2013, specifically for the Cerrado, through the Sustainable Cerrado Initiative, supported by GEF, the World Bank and Funbio, MMA promoted the merge of a set of Brazilian public institutions that have a legacy of experience in remote sensing, geo-processing and large-scale maps, in order to carry out the first version of the project entitled "Mapping of Land Use/Land Cover of the Cerrado Vegetation - TerraClass Cerrado". Thus, under the coordination of MMA, technicians from such institutions as IBAMA, INPE, the Brazilian Agricultural Research Corporation - Embrapa, the Federal University of Goiás – UFG, and the Federal University of Uberlândia - UFU, all joined forces and expertise in the development of the mapping out of the continuous area of the Cerrado. The results from TerraClass Cerrado 2013 show that 54.5% of the biome still maintains its native vegetation (Table 5).

The deforestation data released so far for the other biomes are presented in Table 6.

Table 5. Data from TerraClass Cerrado 2013

Class	Area	
	Km²	%
Yearly Agriculture	174,006	8.53%
Agriculture perennial	64,512	3.16%
Mining	247	0.01%
Occupations	2,326	0.11%
Pasture	600,832	29.46%
Silviculture	30,525	1.50%
Exposed soil	3,621	0.18%
Urban area	8,797	0.43%
Other	73	0.00 %
Natural Forest Vegetation	418,789	20.54%
Non-Forest Natural Vegetation	692,301	33.95%
Non-vegetated Natural Area	2,609	0.13%
Body of Water	15,056	0.74%
Not observed	25,549	1.25%
TOTAL	**2,039,243**	**100%**

Table 6. Data on remaining native vegetation per biome

Biome***	Year	Biome area (Km²)	Total remaining area (Km²)	Percentage of remaining area	Total accumulated deforested area (Km²)	Percentage of accumulated deforestation
Caatinga*	2009	826,411	441,304	53.4%	376,843	46%
Atlantic Forest*	2009	1,103,961	245,411	22.2%	837,906	75.9%
Pampa*	2009	177,767	63,960	36.0%	96,208	54.1%
Pantanal*	2009	151,313	125,726	83.1%	23,166	15.3 %

* Data from PMDBBS 2009

Data on deforestation will be released in 2016 for the period of 2010-2011 for the Caatinga, Pampa and Pantanal, and data from 2010 for the Atlantic Forest.

Several initiatives for analyses on the dynamics of land use and the remaining native vegetation coverage have been carried out by other institutions as well. According to a study on the impact of the review of the Federal Law No. 12,651, from May 25, 2012, on the Native Vegetation Protection Act, (Soares-Filho, 2013)[19] there is a total of 530 million hectares still covered by natural

[19] Soares-Filho, BS (2013). Impacto da revisão do Lei da Proteção da Vegetação Nativa: como viabilizar o grande desafio adiante. *Brasilia: Secretariat for Strategic Affairs*

vegetation in the country, that is, more than 62% of the national territory.

Mappings of the remaining vegetation of the Atlantic Forest have been conducted since 1990 by the NGO SOS Atlantic Forest, in collaboration with Inpe, which released the Atlas of the Remaining Atlantic Forest. The mapping includes data for the years 2013-2014. The Atlas indicates an index of 12.5% as the remaining native vegetation, considering the total area of 1,309,700 Km². This includes the biome area as defined by the IBGE Biomes Map (2004), with an added area of native forest formations and associated ecosystems, according to what is set out in Federal Law No. 11.428, of December 22, 2006, on the Map of the Application Area known as the Atlantic Forest Law.

This difference between the Biome area established by IBGE and the limits indicated in the application of the criteria set out in the Atlantic Forest Law results in a discrepancy of the size of the area considered as the base for data collection. These differences in the results from those presented by PMDBBS (2009) are also increased due to the differences in the time periods in which the surveys and studies were conducted.

For the Pantanal, the monitoring of the Upper Paraguay Basin (BAP) – which covers the Cerrado and Pantanal areas – is being carried out through a partnership between WWF-Brazil, and the SOS Pantanal Institute, along with the support of Embrapa Pantanal. The latest data from the study "Monitoring Changes in Vegetation Coverage and Land Use in the Upper Paraguay Basin"20 which is carried out biannually, reveals in its latest version (2012-2014) that 214,606 Km² of native vegetation in the BAP area remain, a total of 368,656 Km².

This same study reports that from the total native vegetation, 128,657Km² (85.1%) are remaining in the flat BAP area, according to what the Biomes Map defines as the Pantanal limits (IBGE, 2004).

For the Pampa, the Secretariat of Environment of Rio Grande do Sul, through the RS Biodiversity Project and in partnership with the Federal University of Rio Grande do Sul - UFRGS, updated the Pampas Biome vegetation mapping through the spatial distribution of remaining natural plant formations and landscape transformations from anthropic use, for the base year of 2009. It takes into account the monitoring of the remaining natural areas (with emphasis on fields, wetlands and forests) and areas that suffered anthropic change after 2002. This work is currently being concluded.

The studies predict that the demand for opening new lands for agriculture until 2020 will fall sharply, especially in the Amazon and the Cerrado. The Outlook Brazil 2022 – projections for agribusiness21 published by the Federation of São Paulo State Industries – FIESP, in partnership with the Institute for International Trade Negotiations Studies - Icon, foresees that, contrary to the federal government estimation, potential farming areas in the Amazon and the Cerrado biomes will be approximately 90% lower in 2020, based on deforestation rates observed since 2010. When compared to the levels recorded in 2005 as part of the NDC, this new finding presents a great improvement in reaching the reduction targets in greenhouse gas emissions from deforestation in these two biomes,

[20] WWW Fund monitoring of changes in land coverage and land use in the Upper Paraguay Basin - Brazilian Portion - Analysis period: 2012-2014, 66p. il. 2015.

[21] FEDERAÇÃO, D. SÃO PAULO-FIESP; ÍCONE. Outlook Brazil, 2022.

specifically: 37% by 2025 and 43% by 2030.

2.3.2. Action Plans for Deforestation Prevention and Control

In order to bring down deforestation rates in the two largest Brazilian regions and to reduce greenhouse gas emissions, specific action plans (a part of the National Policy on Climate Change - PNMC[22]) were elaborated: the Action Plan for the Deforestation Prevention and Control in the Amazon - PPCDAm, released in 2004, and the Action Plan for the Prevention and Control of Deforestation and Fires in the Cerrado - PPCerrado, released in 2010.

The PNMC establishes deforestation reduction targets for the two biomes by 2020, with 80% for the Amazon (using the average from the period of 1996-2005) and 40% for the Cerrado (compared to the average of 1999-2008). In 2010 the land use sector and forests[23] accounted for 22% of greenhouse gas emissions in Brazil, and with the combination of the two biomes, this sector was responsible for 89.4%. In 2005, the sector accounted for 57% of Brazil's emissions, with 95% being attributed to the two biomes, which highlights the importance of these action plans.

These plans are part of the coordinated effort between the federal, state and local governments to combat deforestation consistently. At the same time, they encourage foster actions that can promote the sustainable development of the region in social, economic and environmental terms.

At the end of 2015, the third phase of PPCDAm (2012-2015) and the second phase of PPCerrado (2014-2015) were finalized. In over 10 years of PPCDAm implementation, the plan has collaborated in the achievement of significant results, especially the reduction of deforestation in the Amazon by more than 80% in this period. In the case of PPCerrado, resources were made available for priority areas to combat deforestation and to begin monitoring land use and coverage, which are the main priorities for the Cerrado biome in order to provide more information on habitat conversion vectors, such as the efforts that exist for the Amazon today.

Given the significant deforestation reduction targets set out by the PNMC until 2020, the commitments for after 2020 which are foreseen in Brazil's NDC, which gave prominence to Brazil's role in the Paris Agreement negotiations, as well as in the priority guidelines for the resources of the Federal Multi- year Plan (PPA 2016- 2019), the Executive Secretariat of PPCDAm PPCerrado therefore have the mandate to guide the actions of the plans and prepare the management report which will be presented to the Executive Committee, as provided for in Decree S / N of July 3, 2003 and Decree S / N of September 15, 2010. Moreover, the strategic guidelines and priority actions also act as a guide for the application of resources of the Amazon Fund, according to Decree Nº. 6527, August 1, 2008, which is also the instrument that created the fund.

The Plans are currently in the phase of monitoring of: the results, major progress achieved, difficulties encountered and other information, which will support the preparation of the next steps planned for October 2016.

[22] PNMC - National Policy on Climate Change, Law 12.187 / 2009.

[23] Ministry of Science, Technology and Innovation - MCTI, 2013. Annual estimates of greenhouse gas emissions in Brazil. Brasília, 80 p.

2.3.3. Environmental monitoring of Brazilian Biomes

Deforestation rates detected in the Amazon and Cerrado are considered as the main indicators of success of the implementation of PPCDAm and PPCerrado. Plan and design reviews will therefore be made if needed in the implementation of actions to combat deforestation so that the highest levels of effectiveness may be reached. Therefore, deforestation data, not only in the Amazon and the Cerrado, but also in the other Brazilian regions, need to be released periodically and updated, based on standardized methodology so that comparisons between the data can be made from time to time.

Thus, in order to tackle the task of providing the federal Government with official data on deforestation and land use in all Brazilian biomes, through Ordinance MMA No. 365, of November 27, 2015, the Environmental Monitoring Program of Brazilian Biomes was instituted.

This program aims to map and monitor the vegetation and the dynamics of land use. Mappings have their launch planned by 2020, and according to the first Article of the Ordinance, its main focus will be:

i - deforestation and deforestation rates;

ii - selective logging and wood extraction

iii- assessment of vegetation coverage and land use;

iv- areas with fires and occurrences; and

v - recovery of vegetation.

These various actions of mapping and monitoring will be divided into three phases:

a) Consolidation of Amazon monitoring, and implementation and consolidation for the Cerrado, during the years 2016 and 2017.
b) Implementation and consolidation of monitoring for the Atlantic Forest.
c) Implementation and consolidation of monitoring for the Caatinga, Pampa and Pantanal during the period of 2017 and 2018.

Most of these projects count with resources from international cooperation agreements or funds such as the Amazon Fund, Climate Fund and the Climate Investment Fund - CIF.

The mappings foreseen by the Program will be instrumental in providing information and support for public policies in the areas of biodiversity and climate. The types of mappings that are to be executed for each of the biomes are shown in Figure 2.

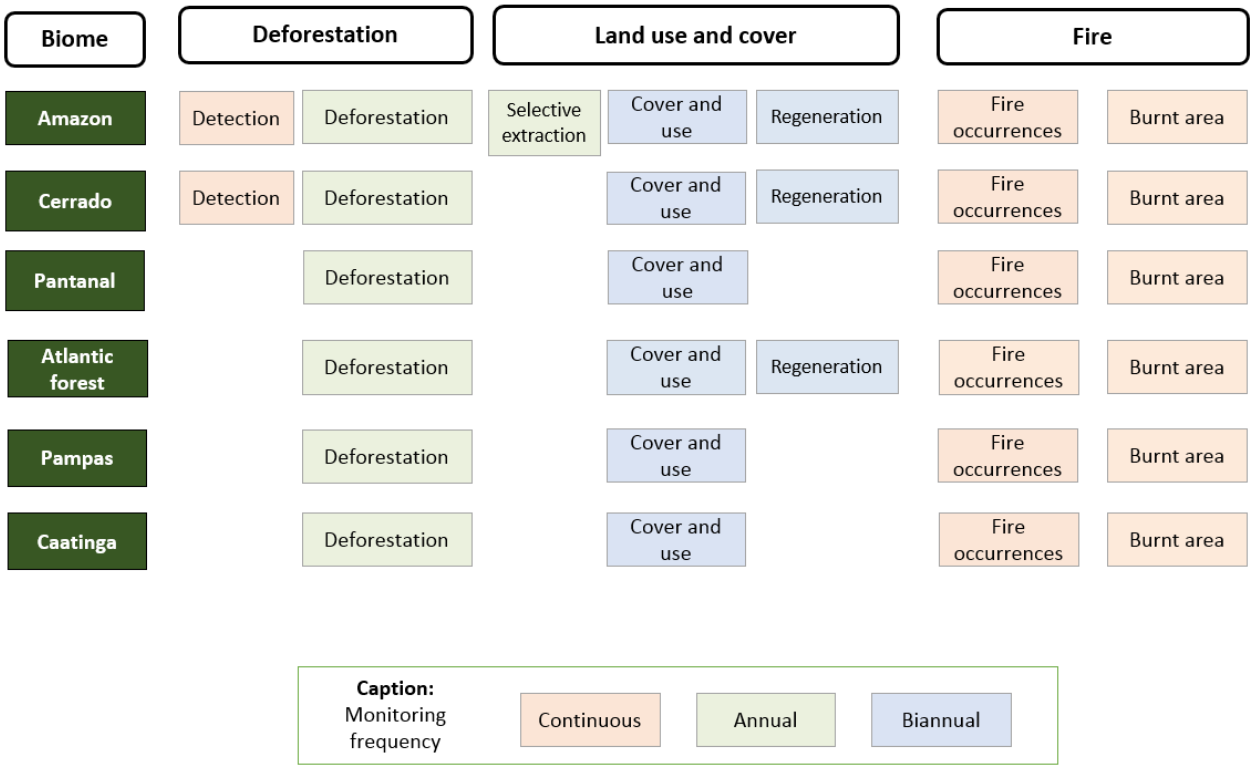

Figure 2. Environmental Monitoring Program of Brazilian Biomes: types and frequency of mapping per biome.

2.4.Protected Areas

According to the legal instruments in force, in Brazil the areas that have some degree of protection can be divided into three major groups, which show the enormous potential of the area. They also reveal how a significant portion of the territory has protection mechanism (Table 7).

The first of these groups would be the protected areas that are a part of the National Protected Areas System – SNUC. Their objective is directly related to biodiversity conservation (Figure 3).

The second group comprehends the quilombo territories and indigenous lands - TIs, which safeguard the social organization, customs, languages, beliefs and traditions of these peoples and communities.

The third group establishes minimum percentages for biodiversity conservation in each biome, through the establishment of Legal Reserves and Areas of Permanent Preservation, according to the Native Vegetation Protection law.

The sum of protected areas is potential location for Brazil to internalize the Aichi Targets and to implement National Target 11, which includes strategic objective C, stated in the Conabio Resolution No 6/2013

Table 7. Groups of protected areas in Brazil

Group	Type of protected area	Legislation	% of coverage on national territory
1	Protected Areas - SNUC *	Law n. 9985/2000	17.2% continental area 1.5% marine area
2	Indigenous Territory	Constitution of the Federal Republic of Brazil from 1988 and Law n. 6001/1973	13.3%
	Quilombo territories***	Constitution of the Federal Republic of Brazil from 1988 and Decrees. 4,886 / 2003 and No. [illegible]	0.14 %
3	Legal Reserve****	Law No. 12,651 / 2012	4.4%
	Permanent Preservation Areas ****		0.9 %

* Data from the National Registry of Protected Areas (CNUC), available at http://www.mma.gov.br/areas-protegidas/cadastro-nacional-de-ucs/dados-consolidados . Accessed on February 4, 2016.

** Data from the National Indigenous Foundation (FUNAI), available at http://www.funai.gov.br/index.php/indios-no-brasil/terras-indigenas . Accessed on February 4, 2016.

*** Calculation performed using the special database of the National Institute of Colonization and Agrarian Reform - INCRA February 2016, available at www.incra.gov.br

**** Data provided by the Brazilian Forest Service. An important observation is that these are preliminary data since it includes data registered solely by land owners from the Rural Environmental Registry, which is later validated by the state agencies.

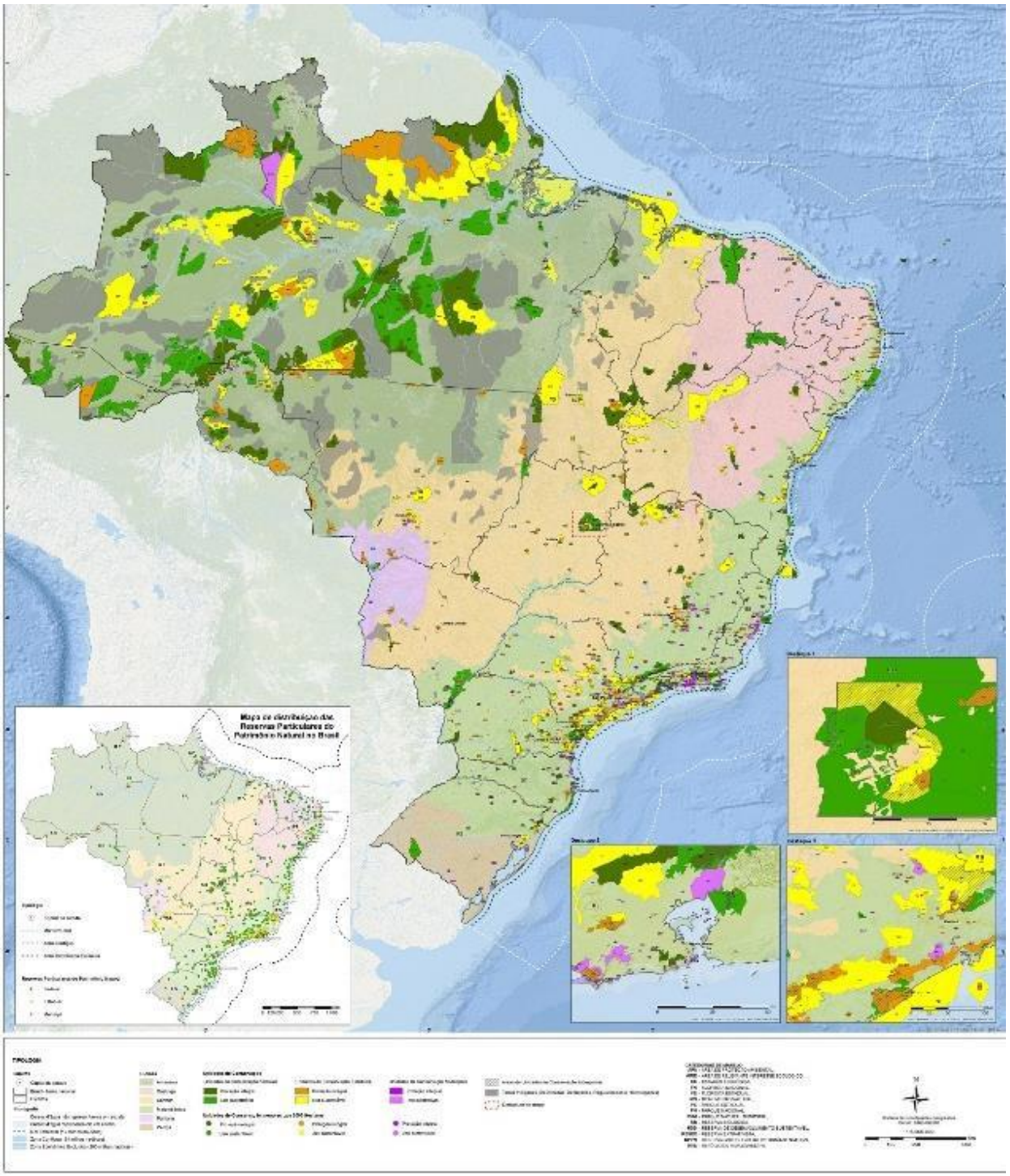

Figure 3. Units of Conservation from the National System and Indigenous Lands

Source: National Registry of Units of Conservation (2016), available at www.mma.gov.br/cadastro_uc

2.4.1 Progress of the ARPA Program

ARPA had its third phase established by Ordinance No. 187 MMA in May 2014, with the aim to complete the consolidation of protected areas and to contribute to their maintenance in the long run. In this context, the Transition Fund arises as a new financial strategy for the development of mechanisms to ensure the implementation and management of UC throughout the gradual increase in the allocation of funds from the federal and state governments, including budget allocations and alternative funding sources until all funding needs are satisfied. This would come about starting on 2039.

Throughout 2015, the program reached 98% of its target of 60 million protected hectares, with support for 18 new UCs. The program currently supports 114 federal and state protected areas distributed in the nine states that make up the Legal Amazon.

2.4.2 Ecological corridors

Ecological corridors are an important tool for biodiversity conservation. Their aim is to enable the establishment and passage of different species through preserved areas (i.e. protected areas), thus ensuring the genetic flow between populations of animals and plants and the continuity of the ecological and evolutionary processes. There are different proposals in approach to the concept of ecological corridors in literature, including the Brazilian official definition given by Law No. 9,985, from July 18, 2000, which creates the National System of Protected Areas in Nature and defines ecological corridors as "portions of natural or semi-natural ecosystems that connect protected areas and provide between them a flow of genes and the movement of biota. This facilitates the dispersion of species and enables the decolonization of degraded areas, while helping to maintain the populations that depend on the larger areas for their survival when the individual units are insufficient". Another factor that should be considered is that the ecological corridors are not political or administrative units, but highlighted areas where coordinated actions among different partners occur in order to protect the biological diversity in the landscape scale. These actions involve the strengthening, expansion and connection of protected areas within the corridor, through various strategies which include fostering the use of low-impact natural resources, such as forest management and agroforestry systems.

Ecological corridors that are officially recognized by the federal and state governments already exist in Brazil. In recent years, the Secretariat of Biodiversity and Forests worked mainly on two corridors (Central Corridor of the Atlantic Forest and the Central Corridor of the Amazon) through the Ecological Corridors Project (PCE). This project was an initiative of the Ministry of the Environment in partnership with the state governments of Bahia, Espirito Santo and Amazonas, was financially supported by the World Bank and the German KfW bank. As the main results of this project, we can highlight a decrease in illegal deforestation rates in the corridors, an increase in the protection of the Atlantic Forest and Amazon ecosystems through the support of consolidating existing UC's, and the creation of about 30 new protected areas by the three levels of government (federal, state, and municipal). This initiative is an excellent example of how joint work between the Union, states, municipalities and civil society is paramount for the commitments undertaken by Brazil in the international arena may be met, once the creation of these UC's contribute to achieving Aichi Target 11, which determines the percentage of protection needed in each of the Brazilian biomes.

Currently, the Secretariat of Biodiversity and Forests is starting a new project in order to build and support the establishment of ecological corridors in Latin America. This is a way to promote the link between important areas for biodiversity conservation while at the same time it avoids biota isolation in "islands" caused by habitat fragmentation and degradation. The Ecological Corridors Project in Latin America was born as an initiative of the Institute of Advanced Studies from the University of São Paulo (IEA / USP). As a multiple authorship project, it is designed to be jointly executed with various institutions and partners from civil society and governmental spheres of the different Latin American countries. The project, which is in construction, will be coordinated by the Ministry of the Environment of Brazil. From this project concrete actions will be developed that seek to strengthen of existing protected areas and establish new protected areas and corridors. In this context, besides the concrete actions in protected areas, environmental agendas that interface with the conservation of biodiversity will be applied, in order to integrate issues such as climate, water and forests in the promotion of biodiversity conservation and the sustainable use of natural resources in the region.

2.5. Access to information on biodiversity

Access to quality information is a fundamental precept of various public policies in the country. A basic condition for achieving participation and involvement from the community in the management and conservation of natural resources is the principle of transparency as it ensures access to knowledge, and the observation of rationality and other principles of sustainability.

2.5.1. Biodiversity Portal

The Biodiversity Portal24 is a virtual platform with the mission to enable public access to a rich scientific universe that has more than one million and a half of incident records on 93,442 species. The initiative is the result of a partnership between the MMA and ICMBio, and was supported by the German Agency for Technical Cooperation - GIZ, as part of the Brazil-Germany Cooperation for Sustainable Development.

Developed by researchers at the Polytechnic School of the University of São Paulo - EPUSP and partners, it gathers information from ICMBio and the Rio de Janeiro Botanical Garden databases.

The initiative enhances networking and brings together databases in order to share this knowledge with society. The portal serves as an additional tool in the process of directing specific research, supporting action plans, and providing support for management strategies.

At this moment databases are available from some of the systems maintained by the Chico Mendes Institute for Biodiversity Conservation (ICMBio), mainly in its Research and Conservation Centers, the Botanical Garden of Rio de Janeiro and other partners. The know-how for the use of biodiversity data is provided through textual and geospatial queries (through filters, spatial layers, maps and polygons), visualization, and downloads of species incident records.

The Biodiversity Portal has also been promoting initiatives and practices between the MMA and its connected bodies dedicated to the publishing and consumption of automated data using open standards and protocols that are widely accepted and used.

[24] The web site portal can be accessed through the link: https://portaldabiodiversidade.icmbio.gov.br/

2.5.2. Information system on the Brazilian flora

In 2010, Brazil was able to reach Target 1 established by the Global Strategy for Plant Conservation (GSPC-CBD), through the Botanical Garden's publication of the Plants and Fungi of Brazil Catalog and through the launch of the first online version of the List of Flora Species of Brazil. This milestone for Brazilian botany was only possible thanks to the commitment and effort of more than 400 taxonomists, both Brazilian and foreigners, who worked on a platform where information about our flora were included and disseminated in real time. The "Brazilian List" project, as it became popularly known, was concluded in November 2015, with the publication of five papers and their respective databases. The new system of the Brazil Flora 2020 project was launched in 2016, coordinated by the Botanical Garden, with the goal of achieving Target 1 established by GSPC-CBD for 2020, with the release of the descriptions, identification keys and illustrations for all species of plants, algae and fungi known to the country.

The Brazil Flora 2020 project is part of the Reflora program and is being implemented with the support of the Information System of Brazilian Biodiversity (SiBBr). At the moment, nearly 700 researchers are networking for the program in the preparation of monographs. These researchers are also responsible for information on nomenclature and geographic distribution (Brazilian scope, endemism and phytogeographic domains), and include valuable data on ways of life, substrate and vegetation types for species included in the monographs. The Brazil Flora 2020 also offers open and free access to its entire database through downloads and web services.

REFLORA Virtual Herbarium of repatriated plants

In December 2010, the Botanical Garden of Rio de Janeiro received from CNPq the mission to build a virtual herbarium to house the images of Brazilian plants that are deposited in herbariums from other countries, creating in a Brazilian public institution the capacity to store and provide quality data about our flora. The K herbarium (Royal Botanic Gardens, Kew) and P / PC (Muséum national d'histoire naturelle, Paris) were the first partners in this initiative, and their images were added to the RB herbarium from the Botanical Garden of Rio de Janeiro. After 2014, with the support of SiBBr, other European and American herbaria were included in the initiative. These are: Missouri Botanical Gardens (MO), The New York Botanical Garden (NY), Naturhistorisches Museum Wien (W), Naturhistoriska Riksmuseet (S) and the Smithsonian Institute (US).

The RFLORA Virtual Herbarium offers its primary data for integration into the Biodiversity Portal and to SiBBr.

Risk assessment system of Brazilian flora

The National Center for Flora Conservation of the Botanical Garden of Rio de Janeiro has been developing and improving an information system for the assessment of the risk of extinction of Brazilian Flora, since 2010. This system enables the organization and validation of data coming from analysts and experts and is a requirement for the implementation of the adopted risk assessment methodology (IUCN). The system also makes spatial calculations of incident range and occupation areas, and also admits spatial and taxonomic validation of incidence records by experts. Finally, the system also offers web services that supply information on the risk of extinction category for the evaluated species and can be integrated with other systems, such as Brazil Flora 2020.

Botanical Gardens of Rio de Janeiro Data Portal

The data portal of the Botanical Garden offers a model of institutional presence on the Internet for institutions that have data on biodiversity and conservation. Released in June 2015, the portal provides access to information systems, databases, documents, maps and spreadsheets that contain data and information on biodiversity and conservation, which were generated or are under the custody of the institution. These resources are managed by a set of free and open source tools which are customized to meet institutional demands and are accessible through web services.

2.5.3. Information system on Brazilian Biodiversity (SiBBr)

SiBBr is an initiative from the Ministry of Science, Technology, Innovation and Communications - MCTIC, through its Secretariat of Policies and Programs of Research and Development - Seped, with technical support from the United Nations Environment Program - UNEP and financial support from GEF.

SiBBr25 is an online platform that aims to gather the highest amount of existing data and information on biodiversity in Brazil which would make it a national biodiversity database. Its goal is to support scientific production, public policy formulation and decision-making regarding conservation and sustainable use of biodiversity, by encouraging and enabling digitalization, disclosure on the internet, integration of free access data and use of information on Brazilian biodiversity.

Still within SiBBr's scope, SBF is investing in the development of a support system for decision making along with MCTI. The objective of this system is to automate processes and tasks whenever possible, to allow greater speed, qualification and less costs in the realization of fundamental analyses for the implementation of public policies on biodiversity. Some examples of these analyses are the processes of identifying priority areas and actions for conservation, connectivity and fragmentation analysis, endangered species evaluation, identification of potential areas for ecosystem services and setting areas for the recuperation of native vegetation. This analysis tool should not be the only reference for decision-making; qualitative, socio-cultural data that contemplates data complexity (such as gender), should also be considered.

The idea of the system is to take advantage of the integration of the databases from the Biodiversity Portal from MMA and SiBBr for the implementation of analysis tools. An important advantage of the system will be to house qualitative and quantitative data in an organized and accessible manner so that whenever new information is presented, the analyses can be reviewed. This strategy will minimize the time and resources currently spent on hiring companies and consultants that assist in the production of these analyses. This will redirect efforts and resources for more effective implementation of conservation actions.

With SiBBr, the Brazilian government fulfills Target 19 of the National Biodiversity Targets for 2020, regarding the integration and availability of biodiversity information.

2.5.4. Management systems for access and benefit sharing

The National Management System of Genetic Heritage and Associated Traditional Knowledge - SisGen, will be the interface between the administrated entities, users, providers and the Board of Genetic Heritage Management, thus fulfilling the obligations contained in Law No. 13,123, from May 20, 2015 and its regulations.

[25] System information about Brazilian Biodiversity. http://www.sibbr.gov.br/

SisGen will be the recipient of all the registries, authorizations, notifications of finished products or reproductive materials, and will generate the respective receipts and certificates. This regularized the activities of those who did not have authorization to access and genetic heritage components and batches, along with the activities of economic exploitation that occurred starting from June 30, 2000, on the date of publication of the first Brazilian standard on the subject, Provisional Measure No. 2,052.

The other proposed system is the traceability system of the activities that result from access to genetic heritage or associated traditional knowledge. It is one of the tools created by the legal framework that increased control over the traceability of accesses, remittances and dispatches, and brought improvements in the monitoring of benefit sharing. Such a system will have the collaboration of various public bodies that regulate

different productive sectors, until reaching the sector of product registration for commercial exploitation. This legal norm also assigns government agencies the function of "checkpoints" to guarantee compliance with the law.

Through the implementation of these systems it will be possible to maintain and manage a greater amount of information on the use of genetic heritage and associated traditional knowledge. Besides this, once connected to other databases and information systems from federal public administration, modern high efficiency instruments can be implemented that have the capacity to verify information on the activities resulting from access to genetic heritage or associated traditional knowledge, as well as those that render economic return.

For the user, the new law provides simplified procedures for research and development activities through a self-registration process, that then can issue receipts and certificates that confirm compliance with Brazilian law. All of this can be done through the electronic system accessible via the Internet. SisGen is already undergoing the final testing stage of its first version and will soon be available this year.

The Biodiversity Law is fundamental to reach national Targets. The new legislation requires the creation of computerized documentation systems for the management of the access and benefit sharing that result from the use of biodiversity and traditional knowledge, and this trickles down into facilitating the achievement of Target 2. It also promotes the integration of biodiversity conservation policies to strategies directed at poverty reduction and public health, as it fosters the responsible use of biodiversity for technological development and innovation in the area of biotechnology.

2.5.5. National Registry of Protected Areas (CNUC)

The National Registry of Protected Areas (CNUC) is maintained by MMA with the collaboration of management agencies from the federal level (ICMBio), and from the state and municipal levels. The main objective of the registry is to provide a database with official information from the National System of Protected Areas - SNUC. The database is made up of information on protected areas managed by the three levels of government and private entities (e.g. RPPNs). The information provided by the registry is mainly related to the physical, biological, touristic and administrative characteristics as well as the geographic location of the protected areas. In addition to providing official information on the SNUC protected areas, CNUC also provides detailed reports on the status of the protected areas, making it easier to perform diagnoses, to identify problems and to make decisions. There are approximately 2, 000 protected areas in the CNUC database at the moment, with a total protected territory of about

1.54 million Km² in Brazil, which corresponds to 17.5% of the continental expansion of the country and 1.5% the marine zone.

3. Legal basis and institutional arrangement for biodiversity actions

The National Environmental Policy, its structure, design and implementation were outlined in Law No. 6938 from August 31, 1981, which also created the National Environmental System - Sisnama.

Sisnama comprehends the agencies and entities from the three levels of government that have attributions and responsibilities directed toward the protection, improvement and recovery of environmental quality in Brazil and that have the objective to establish a coordinated and decentralized set of actions for environmental management in the country, through integrating and harmonizing rules and specific complementary practices in the three levels of government.

Sisnama also has several committees, councils, commissions and other institutional arrangements made up of representatives from various sectors that have the objective of supporting, monitoring and assisting the work of environmental government institutions.

The supervising entity for Sisnama is MMA. It is responsible for the formulation and monitoring of the National Biodiversity Policy, and its synergy between the various sectors and levels of government. This attribution is found under the competencies of SBF.

For biodiversity management, Brazil has the PNB, which contains the principles and guidelines that were established in Decree No. 4339 from August 22, 2002. The general objective of PNB is to promote, in an integrated way, biodiversity conservation and sustainable use of its components, with the fair and equitable sharing of the benefits derived from

the use of genetic resources, from components of genetic heritage and traditional knowledge associated to these resources.

The National Biodiversity Policy is divided into seven components, each with specific targets based on the CBD, which are considered as the main guiding topics that direct its implementation:

- **Component 1:** Knowledge of Biodiversity;
- **Component 2:** Biodiversity Conservation;
- **Component 3:** Sustainable Use of Biodiversity Components;
- **Component 4:** Monitoring, Evaluation, Prevention and Mitigation of Impacts on Biodiversity;
- **Component 5:** Access to Genetic Resources and Associated Traditional Knowledge and Benefit-Sharing;
- **Component 6:** Education, Public Awareness, Information and Dissemination on Biodiversity;
- **Component 7:** Legal and Institutional Strengthening for Biodiversity Management.

According to Decree Nº. 4703 from May 21, 2003, Brazil has two important instruments responsible for guiding the development and implementation of the PNB, based on its principles and guidelines, through the promotion of partnerships with civil society towards knowledge and biological diversity conservation, the sustainable use of its components and the fair and equitable sharing of benefits derived from their use: Pronabio and Conabio.

Conabio is made up of representatives from

governmental bodies and civil society organizations and plays an important role in the discussion and implementation of biodiversity policies.

In addition to these instruments, MMA Ordinance No 287 from August 17, 2012 establishes an internal committee on gender to promote the mainstreaming of the gender perspective in environmental policies. This is an important forum that will follow up the implementation of the NBSAP.

3.1. Legal framework for access and benefit sharing

The management of genetic heritage and associated traditional knowledge under the force of Provisional Measure No. 2186-16, from August 23, 2001, enabled the implementation of instruments and tools to oversee Access and Benefit Sharing – ABS centered on the Genetic Heritage Management Council – CGEN.

CGEN and other certified institutions issued 686 decisions in 2015 that included authorizations for remittances and access, infraction notification rulings and certifications of trustworthy depository institutions. Between 2004 and 2015, 261 instruments on benefit sharing for research and development activities with economic potential were signed.

The MP 2186-16/2001 was an important milestone in the fight against biopiracy in Brazil. However, this rule had requirements that were too rigid and bureaucratic for access to genetic heritage and traditional associated knowledge, which resulted in criticism from the users due to the high transactional cost. This critique arose mainly from traditional peoples and communities, who always demanded more participation in the decision-making process.

Aware of the difficulties experienced in the way that ABS issues were handled, the Executive Branch took the initiative to propose alternatives to these difficulties, taking into account future prospects for the development at the international level of this agenda with the Nagoya Protocol, and drafted a bill that was sent to Congress.

The bill was approved by Congress and then sanctioned by the president on May 20, 2015, resulting in Law Nº. 13,123, which entered into force in November of the same year.

The regulatory process of Law Nº. 13,123/2015 involved indigenous peoples, traditional communities and traditional farmers, who were integrated into the regulatory process through regional and national workshops held over the months of July, August, September and October 2015, in which Law Nº. 13,123 / 2015 was discussed. The workshops were planned by a Working Group created under the National Council for Sustainable Development of Traditional Peoples and Communities (CNPCT). Through the support of Public Administration entities, the Presidential Chief of Staff office consolidated the suggestions in a draft which was submitted to public consultation between March 6 and May 2, 2016. The draft that resulted from this process was sanctioned by the President on May 11, 2016 as Decree Nº. 8772 that regulates Law Nº. 13,123 / 2015.

This new legal framework satisfies the demands from the industry and the scientific community to reduce the financial and regulatory costs of Brazilian biodiversity research activities and technological development, and is at the same time in line with policies that encourage research and innovation in the industry.

This new regulation contemplates several improvements in the government's management agenda, such as the reduction of transactional costs for sectors that are users and the protection of the rights of indigenous peoples, traditional communities and traditional farmers. Overall management was facilitated by the creation of two electronic systems designed to oversee and

trace activities resulting from access.

Law No. 13,123/2015 also creates the National Program of Benefit-Sharing - PNRB which will be implemented by the National Benefit Sharing Fund - FNRB to apply resources in various initiatives such as the implementation of Sustainable Development Plans of Traditional Peoples and Communities, which will stimulate and strengthen the practices of peoples and communities that are relevant for biodiversity conservation.

Another point of interest of the biodiversity-based productive chains is benefit sharing at a single point of the production chain. The law determines that the benefits generated by the finished product be distributed by the last manufacturer in the productive chain, or by the user of the reproductive material (in cases of agricultural activities), and would not need to be distributed by the other intermediate links of the productive chain. The Brazilian biodiversity-based production chains are very fragmented and have a large number of intermediate links that deal with the initial processing of raw materials. The above mentioned provision intends to exempt the cooperatives and micro businesses from unnecessary demands without sacrificing the traceability of the product, while at the same time directing the focus of the payment of the distributed product to the user with the most added value on the productive chain, that is, on the user that commercializes the product.

Brazilian law complies with provisions from international treaties, and foresees benefit sharing in monetary and non-monetary terms, in obedience to mutually accepted terms. The law provides for the equivalent to 75% of the expected monetary return to be applied in benefit sharing projects executed by the user. This provision has the intent of encouraging the use of the non-monetary arrangement.

We expect that transaction costs will be reduced for all of the actors involved (researchers, manufacturers, state, indigenous peoples and traditional communities) through the more clear definition of rules and parameters on benefit sharing. Regulatory costs and uncertainty associated with economic activities resulting from or dependent on access can also be curtailed through this effort.

From the perspective of indigenous peoples, traditional communities and traditional farmers, Law No. 13,123 / 2015 guarantees the protection of their knowledge; the right to participate in national decision-making processes on matters related to the conservation and sustainable use of their traditional knowledge; and the free exchange and dissemination of genetic heritage and associated traditional knowledge practiced amongst them for their own benefit, based on their customs and traditions. The law assures the participation of representatives from these groups in the Genetic Heritage Management Council - CGEN, the national ABS authority, and the Steering Committee of the National Benefit Sharing Fund - also created by law.

The new management regime for access and benefit sharing in implementation in Brazil brings together the most modern international treaties on access and benefit sharing and the most modern regulation instruments with the support of technology, built from the contributions of different user sectors, to strengthen, facilitate, and simplify the agenda for access and benefit sharing, with activity traceability, the reduction of transaction costs, and the implementation of planned and directed application of benefit sharing aimed at increasing efficiency in resource execution.

The new legislation is still in its implementation phase and all the instruments should have been created and be working by the beginning of 2017. From this perspective, the Brazilian experience with this new legislation can greatly

contribute to the implementation of ABS international rules and management tools, and can also support the development and implementation of other countries' national ABS legislation.

3.2. Native Vegetation Protection and Protected Areas Law

One of the greatest advances brought about by the implementation of the Native Vegetation Protection Law, No. 12651 from May 25, 2012 regards the regulation of the protection of large areas of Brazilian territories. These territories include both areas of permanent preservation - APP and legal reserves - RL, and are a great boost for the preservation of habitats and ecosystem conservation in all of the Brazilian biomes.

With the development of the Rural Environmental Registry System - SICAR, for the first time it will be possible to diagnose all rural properties in the country, which will result in the planning and execution of public policies to encourage conservation and recovery of protected areas.

The Program 'Mais Ambiente Brasil' (More Environment Brazil), created by Decree No. 8.235, from May 5, 2014, enables states to create State Environmental Adjustment Programs, that respect the diversity, uniqueness and capacities of each of the states, making it possible to regulate APPs, RLs and other lands of restricted use through conservation and recuperation actions.

The Normative Instruction No. 02/MMA, from May 6, 2014, defines the general procedures of the Rural Environmental Registry - CAR. According to the newsletter published by the Brazilian Forest Service, until June 30, 2016 about 95% of of rural land area that can be registered has already been registered in the system[26].

3.3. ENREDD+ and Forest Conservation

Decree Nº. 8576 was published on November 26/2015, which established the National Commission for the Reduction of Greenhouse Gas Emissions from Deforestation and Forest Degradation, Conservation of Forest Carbon Stocks, Sustainable Management of Forests and the Increase of Forest Carbon Stocks - CONAREDD+.

Ordinance MMA Nº. 370 from December 2, 2015 was published soon after, which established the National Strategy - ENREDD+[27] through a public consultation. This strategy has the general objective to contribute to the mitigation of climate change through the elimination of illegal deforestation, the conservation and restoration of forest ecosystems and the development of sustainable low carbon forest economy, to generate economic, social and environmental benefits.

In order to achieve this overall goal, three specific objectives were laid out to be reached until 2020. One of these specific goals is to integrate the management structures of the National Plan on Climate Change and the biomes Action Plans, seeking the convergence and complementarity with biodiversity policies and forests in federal, state and municipal levels.

Examples of actions carried out by states are in Boxes 4 to 7.

[26] Brazilian Forest Service. Rural Environmental Registry (CAR) Newsletter. Available at: http://www.florestal.gov.br/cadastro-ambiental-rural/numeros-do-cadastro-ambiental-rural

[27] The National Strategy for REDD+ in Brazil (ENREDD+). Available at: http://redd.mma.gov.br/index.php/pt/enredd/documento-da-enredd

Box 4. PSA schemes in Rio de Janeiro

The PSA mechanism is included within the State Program of Conservation and Revitalization of Water Resources (Prohidro), coordinated by the State Program of Payment for Environmental Services (PRO-PSA). PSA initiatives in the state that can be highlighted were those aimed at the Private Natural Heritage Reserves (RPPN), which gained momentum with the implementation of the law on the transfer of funds from Green ICMS - which is the tax on goods and services- (State Law 5.100) to the reserve land owners.

Box 5. São Paulo State Goals pioneer state in the development of a state plan for the implementation of the CBD, the State Action Plan São Paulo 2011-20[1], brings together the existing initiatives in the state that contribute to the 20 CBD targets and identifies new actions for needed for this purpose.

[1] http://portaldabiodiversidade.sp.gov.br/plano-de-acao-de-sao-paulo-2011-2020/

Box 6. Zero deforestation in Mato Grosso

In a parallel event at the UN's 21st Climate Conference (COP 21), the state made the commitment to eliminate deforestation by the year 2020; it is a contribution to the federal government's target for the Amazon Biome established at the COP. According to the state government, such a measure will be brought about through stepping up enforcement and inspection actions, through associated high productivity agricultural investments and rural extension actions.

Box 7. More forests in Espirito Santo

This state action presents considerable progress in the regulation of Payments for Environmental Services - PSA, as the PSA Law was reformulated in 2012 in order to expand the possibility of payment to farmers who adopt practices aimed at environmental conservation, through the possibility of incorporating new modalities to this payment, such as the recovery of degraded areas. This is an important contribution to the Reforestation Program of Espirito Santo, which aims to increase the forest coverage in the state at 80,000 hectares until 2018. The state works on gender inclusion in PSA projects through initiatives specifically directed to women's cooperatives.

3.4. National System of Protected Areas

Law No. 9,985, from July 18, 2000 established the National System of Protected Areas – SNUC[28], which is the group of federal, state, municipal, and district protected areas, arranged in 12 management categories. The specific objectives of these categories vary on issues such as forms of protection and permitted use.

The design of the system aims to enhance the role of protected areas so that they can be planned and managed in an integrated manner, ensuring that significant and ecologically viable samples of Brazilian ecosystems are adequately represented in the national territory.

The Law No. 9.985 / 2000 brought major contributions to the legal framework on Brazilian protected areas:

[28] The Law 9.985/00 named *stricto sensu* protected areas (i.e created for biodiversity conservation) as "conservation units". Here we will refer to these areas as protected areas and this term will also be used for other kinds of *lato sensu* protected areas as indigenous territories and quilombos.

i. the unification of previously scattered legal criteria and procedures;
ii. clear guidance on the general procedures for the creation, implementation and management of protected areas; and
iii. the promotion of integration for the management of protected areas at different government levels (Federal, State and Municipal).

In addition to the UCs that make up the SNUC, other important areas should be listed so that the entire territory that has some sort of protection or use restriction may be covered, as is the case of indigenous and quilombola lands. Recent legal developments should also promote the expansion of efforts for the conservation and recovery of degraded areas, contributing to the connectivity of fragments and UCs.

3.5. Complementary Law No. 140/2011 and synergy with Sisnama

Complementary Law No. 140 of December 8, 2011, establishes the rules for cooperation between the Union and the states, the Federal District and the municipalities regarding environmental protection, and regulates the allocation of responsibilities among the entities that are members of Sisnama. This allows states to take on competing responsibilities in certain matters that are under the Union's discretion to implement and enforce at the state level, such as the National Environmental Policy - PNMA and other national policies related to environmental protection.

In this sense, some states have begun to internalize international commitments in their state policies, contributing to compliance with the conservation targets set at the global level.

In addition to cooperation to meet global targets, the regulation from the provisions of the law has generated progress, such as a clearer definition of the roles and responsibilities in environmental licensing and concession authorizations.

Through the regulation of the role of each state of the federation and the various governmental institutions, the states are given more possibilities to regulate and apply mechanisms that may reduce the pressure on ecosystems, inspect and encourage the conservation and recovery of degraded areas. LC no. 140/2011 brings this possibility of progress and favors the synergy between the states, while reducing the pressure on specific species that have commercial value and increases the effectiveness of inspection, and favors the strengthening of Sisnama and optimizes the resources applied in these actions.

The possibility of payments for environmental services and the more clarified regulation of certain situations prior to the PNMA is also reflected in more concrete actions that result in better opportunities for the growth of conservation efforts in the country.

3.6. Legal framework on gender integration in environmental policies

The importance of the gender approach to biodiversity conservation is supported in the following decrees and laws:

The Federal Constitution of 1988. Equality between women and men is addressed in two articles: Art. 5 and Art. 189.

Ordinance from MMA No. 287/2012. This ordinance created the Internal Gender Committee, which aims to encourage reflection on the inclusion of a gender perspective in environmental policies.

National Plan for the Promotion of Social biodiversity Product Chains (PNPSB). Promote and accelerate the elimination of poverty and

social inequality in rural areas, including inequality related to gender, race and ethnicity, through a sustainable territorial development strategy.

The National Plan for Agro-ecology and Organic Production (PLANAPO II) addresses the gender perspective through 3 goals and 23 initiatives.

The National Policy Plan for Women - PNPM addresses the gender perspective and biodiversity in 3 chapters.

Decree No. 6,040, from February 7, 2007, establishes the National Policy for the Sustainable Development of Traditional Peoples and Communities. The goal is to strengthen programs and actions aimed at gender relations in traditional peoples and communities, ensuring women's contributions and participation in government actions, valuing the historical importance of women and their ethical and social leadership.

The 5th goal from UN Agenda 2030 - Sustainable Development Goals (SDGs) achieve gender equality and empower all women and girls.

4. Design of the NBSAP elaboration process

The historical process of construction of the National Biodiversity Strategy and Action Plan mainly followed these stages:

a) The National Biodiversity Strategy, with the definition of the National Biodiversity Targets for 2020, was prepared through a participatory process named “Dialogues on Biodiversity”;
b) Subsidies for the Government Action Plan for the Conservation and Sustainable Use of Biodiversity were built through a multi-sectorial approach;
c) The creation of the Brazilian Panel on Biodiversity - PainelBio;
d) The participatory construction of indicators for national targets 2011-2020, in partnership with the PainelBio; and
e) the preparation of the 1st Module of the Action Plan for Biodiversity, focusing on actions that are under SBF's responsibility, their indicators and their compliance with the targets set out the previous steps, along with the identification of other actions.

However, given the dynamic nature of the Action Plan, which requires constant monitoring and allows periodic updates, in the 2nd module the participatory processes will be engaged along with the restoration of the review and monitoring of national progress.

This should favor the formal commitment from other sectors towards the necessary actions and initiatives within the scope of the National Biodiversity Targets for 2020.

This sought-after engagement is extremely important for the Action Plan to really become national and multi-sector. This renewed vision with a broader and more purposeful stance from all involved social actors will expand the focus and the actions contained in the Action Plan, since collective effort is needed to ensure the conservation, improvement and recovery of environmental quality and of biodiversity elements.

Thus, the Action Plan seeks to bridge the gap of an instrument that can provide constant and harmonious guidance for the actions aimed at biodiversity. It must be planned and executed by the different sectors, and be specific, measurable, achievable, relevant and timely, and also ensure gender mainstreaming. The NBSAP should be consolidated as a means of interconnection between other national or regional initiatives that address specific issues related to biodiversity, such as genetic resources, invasive species, sustainable

production and consumption, among others.

The structure and periodic update of the NBSAP is also a national CBD commitment, and is an agreement of international collaboration under the United Nations - UN, in order to achieve "conservation of biological diversity, the sustainable use of its components and the fair and equal sharing of benefits resulting from the use of genetic resources by including appropriate access to genetic resources and appropriate transfer of relevant technologies, taking into account all rights over those resources and technologies, through adequate funding".

4.1. Dialogues on Biodiversity

In compliance with commitments to CBD, Brazil defined its National Biodiversity Targets, which are currently in its second cycle. In the first cycle of goals with a deadline until 2010, the process was coordinated by CONABIO, the multi-sector instance that supports the coordination of the implementation of national commitments to CBD.

After the Aichi Biodiversity Targets were defined at COP-1029 (Nagoya, 2010), seeking to improve the national results obtained in the previous period, a broad consultation process has begun construct the revised National Strategy and the 2020 National Biodiversity Targets30. This was done through an initiative called "Dialogues on Biodiversity", which resulted in the definition of a concise set of 20 National Targets.

Fifty-one National Targets were set at that first cycle, which came from a seminar organized by CONABIO. In addition to the 20 members of the Committee, the event - Workshop to Define National Biodiversity Targets for 2010 - had the participation of 30 speakers and other experts from academia and civil society, and representatives of the various Secretariats of MMA and other connected institutions. The 51 targets were approved by Conabio Resolution No. 3, December 200631.

Although major advances have been achieved until 2010 for some of the 51 targets, some challenges still need to be overcome, among which we may emphasize:

a) The need for the engagement of a larger number of leaders in the review of the National Targets and in the update of NBSAP;
b) Definition of a binding legal instrument for NBSAP;
c) Inclusion of monitoring mechanisms to support the achievement of NBSAP targets.

In response to these challenges and in view of the recommendations from CBD, MMA started in 2011, in partnership with the International Union for Conservation of Nature - IUCN, the Institute of Ecological Research - IPE and WWF-Brazil, a process known as *"Dialogues on Biodiversity: Building the Brazilian strategy for 2020"*.

The process was guided through the desire to improve the definition of the methodology of the national targets, avoiding the failures that led to a low level of achievement in the previous cycle, which was also observed in most of the signatory countries of the Convention, while allowing the expansion of the participation of all sectors in the

[29] All multilateral agreements provide meetings between the parties, known as the Convention of the Parties - COP. These meetings have their periodicity established under each of the agreements and are mostly held biannually.

[30] CONABIO Resolution Nº. 06 of September 3, 2013. Available at: http://www.mma.gov.br/images/arquivo/80049/Conabio/Documentos / Resolucao_06_03set2013.pdf

[31] Lemos, CMY. 2011. Dialogue on biodiversity: Building the Brazilian Strategy for 2020. Aichi Targets Newsletter 2011 Volume 1, Issue 2, page 5. Available at: www.cdb.int

construction of the new National Biodiversity Targets for 2020 (Figure 4).

Based on the Future Vision for 2050 from CBD[32], the Dialogues sought, therefore, to build a set of targets with a more defined focus which can be subject to monitoring, and is compatible with the overall Targets and consistent with reality and national capacity.

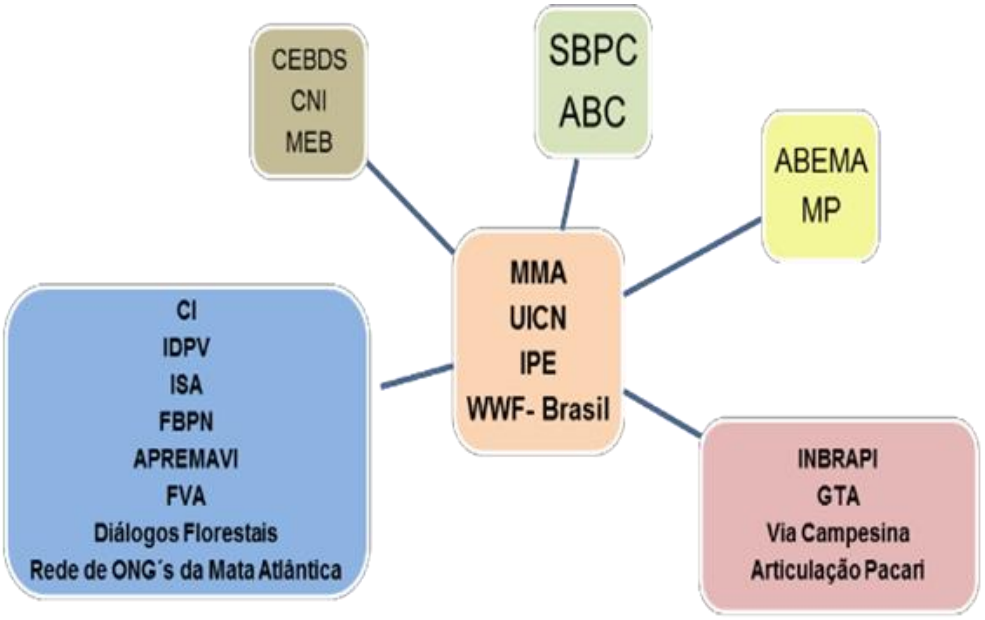

Figure 4. Institutional Arrangement of the Expanded Committee (Dialogues on Biodiversity)

From the many lessons learned during the process, it is important to highlight the governance structure33 that made it possible to deal with the complexity of the process involving a large number of participants from various sectors, structured on two levels:

a) Operational Level: Composed of committees from 5 sectors responsible for actively supporting the organization of dialogues between their respective pairs.

b) Management level: Made up of the four supervising institutions expanded by 19 other representative institutions of each sector, creating a Larger Committee responsible for the strategic guidance of the Dialogue process.

Between April 2011 and May 2012, 12 national events were carried out, totaling more than 400 participants representing about 280 institutions. The documents produced in these events were made available in a virtual environment for public consultation, increasing the participation of civil society, following the steps listed in Figure 5 for the definition of National Targets.

[32] where, in 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and producing essential benefits to all people.

[33] Machado, FS. et al., 2012. Brazilian Biodiversity Targets 2020: participatory construction example in the framework of the Convention on Biological Diversity - CBD / UN. Brasilia: IUCN, WWF-Brazil and IPE, 24p

Figure 5. Summary of the Process of the "Dialogues on Biodiversity"

4.2. Subsidies for the Government Action Plan

From the discussions on the National Targets, at the end of 2011 a partnership was signed between the MMA, the Office of Strategic Planning and Investment of the Ministry of Planning, Budget and Management - MPOG / SPI and Funbio that focused on building a Government Action Plan[34] for the implementation of National Biodiversity Targets for 2020[35].

This initiative was driven by the need to internalize the biodiversity targets in the actions and processes of all sectors in order to minimize or even stop the growing loss of biodiversity experienced in the country. As a first step, the partnership focused its efforts on organizing and establishing the foundations for a Government Action Plan for the Conservation and Sustainable Use of Biodiversity, involving all federal government sectors with the goal obtaining grants by 2014 and guidelines for the preparation of the next Federal Multi-Year Plan - PPA (2016-2019). Throughout the process, 20 Ministries and Departments of the Presidency and connected bodies participated[36].

However, as described below, throughout the rich discussion process developed by the federal government, a strategic decision was made to transform the result of the process by 2014 into subsidies for a Government Action Plan that could provide guidelines for the preparation of the next PPA cycle (2016-2019).

The adopted logical model came from the construction of the federal government's understanding on the issue of biodiversity loss and its consolidation into a problem tree. As a result, 40 interviews with representatives from 17 ministries were carried out in order to study how the working Federal Public Policies (PPA 2012-2015) may be related to biodiversity in a positive or negative way.

At the same time, several meetings were held with the federal government's environmental sector in order to summarize the key elements that needed to be discussed in the inter-ministerial scope for the construction and implementation of the Government Action Plan that was being prepared. Nineteen other interviews[37] with high-level professionals from government agencies who are working

[34] In addition to the previous reference and interviews with SBF technicians: MMA / SBF / Department of Biodiversity Conservation, 2014. Action Plan to Achieve National Biodiversity Targets 2020. Internal draft document from MMA, 86 p.

[35] MMA / SBF / Department of Biodiversity Conservation, 2015. • Subsidies and Guidelines for a Governmental Action Plan for the PPA 2016-19: Conservation and Sustainable Use of Biodiversity. Brasilia, 66 p.

[36] Brazilian Fund for Biodiversity- FUNBIO; National Indigenous Foundation-FUNAI; National Institute of Agrarian Reform and Colonization- INCRA; Brazilian Agricultural Research Corporation- Embrapa; Oswaldo Cruz Foundation- Fiocruz; National Health Foundation- Funasa; Interministerial Commission for Marine Resources- CIRM; Secretariat of Ports from the Presidency; Secretariat of Social Communication- Secom/PR; Chief of Staff/PR Secretariat of Strategic Affairs - SAE; Ministry of Mines and Energy - MME; Ministry of Finance - MF; Ministry of Development, Industry and Foreign Trade - MDIC; Ministry of Agriculture, Livestock and Supply - MAPA; Ministry of Cities - MCidades; Ministry of Science, Technology and Innovation - MCTI; Ministry of Defense - MD; Ministry of Agrarian Development - MDA; Ministry of Social Development and Fight against Hunger - MDS; Ministry of National Integration - MI; Ministry of Culture - MinC; Ministry of Fisheries and Aquaculture - MPA; Ministry of Foreign Affairs - MRE; Ministry of Health - MS; Ministry ofTransport - MT; Ministry of Planning, Budget and Management - MOP; Ministry of Environment - MMA and its related: National Water Agency - ANA, Brazilian Institute of Environment and Renewable Natural Resources - IBAMA, Chico Mendes Institute for Biodiversity Conservation - ICMBio, Botanical Garden of Rio de Janeiro - JBRJ and Forest Service Brasileiro - SFB.

[37] The report on the interviews was completed in April 2012

on the subject of biodiversity were carried out in order to identify the federal government's vision on the causes and consequences of biodiversity loss.

Based on the government's understanding and through the survey of public policies having as a the reference the PPA 2012-2015, the elaboration of a problem tree was carried out, with the causes and consequences of biodiversity loss. Finally, the identification of 87 primary causes were analyzed and organized into three strategic Axes. These were spread out into a detailed set of 158 causes with a second, third, fourth, fifth and even sixth level of importance:

a) Axis 1 Conservation (33 causes);

b) Axis 2 - Habitat (60 causes); and

c) Axis 3 – Valuing (65 causes)

This information was organized for each axis in hierarchical presentation centered on the main problem (loss of biodiversity) in a preassembled problem tree. The three Axes of the tree were elaborated during six workshops held from May to September 2012, where all of the causal relations were discussed and rebuilt. This was done in order to ensure coherence and consistency in the pre-assembly of the cause tree that was submitted for discussion and validated in inter-ministerial workshops resulting in three problem trees [38].

As a next step, the correlation was made between the National Biodiversity Targets for 2020 and the causes that were identified and grouped into the three Axes of the problem tree, in order to identify which ones should be treated with utmost urgency in the Action Plan (Figure 6).

The correlation between the National Biodiversity Targets and the problem tree showed 41 leading causes[39], 38 to be addressed as a priority in order to the achieve all the 20 National Targets. This result was sent to all of the Ministries and agencies involved before the first meeting of preparation of the PPA 2016-2019, as a way for all of the various entities to include these actions in their planning for these purposes.

A preliminary examination on the sufficiency of existing government actions to achieve the goal of effectively combating the causes of biodiversity loss was also carried out, based on the actions of the PPA 2012-2015. 1,303 government actions[40] were identified that[39] contribute directly or indirectly to this goal.

These actions were grouped together by type and were then cross-examined with the identified causes in the problem tree, in order to carry out an effectiveness evaluation. This more detailed analysis resulted in the priority causes being listed according to their level of impact on each Axis[41].

These actions were first grouped together by type. Next, the actions of each group were analyzed individually and correlated to the causes, in order to evaluate the existing capacity of the various sectors to effectively combat and reduce biodiversity loss. This analysis resulted in a list of existing actions that have more impact on the causes of each Axis, which then created a base that identified

[38] It can be seen in the document entitled "Subsidies for Government Action Plan and Guidelines for the PPA 2016-19: Conservation and Sustainable Use of Biodiversity."

[39] The prioritization method adopted the selection of the highest 25% of causes with the highest score (after weighting) on each Axis.

[40] Informed by government agencies involved in the construction of the plan, each according to their own vision.

[41] Found in the document "Subsidies for a Government Action Plan and Guidelines for the PPA 2016-2019: Conservation and Sustainable Use of Biodiversity."

gaps and priority actions to be part of the Government Action Plan.

This document is an important tool for guiding the MMA and its connected agencies and other entities of the federal, regional and local government, along with other stakeholders involved in biodiversity conservation, in the preparation of their action plans to be part of NBSAP within the proposed adherence model.

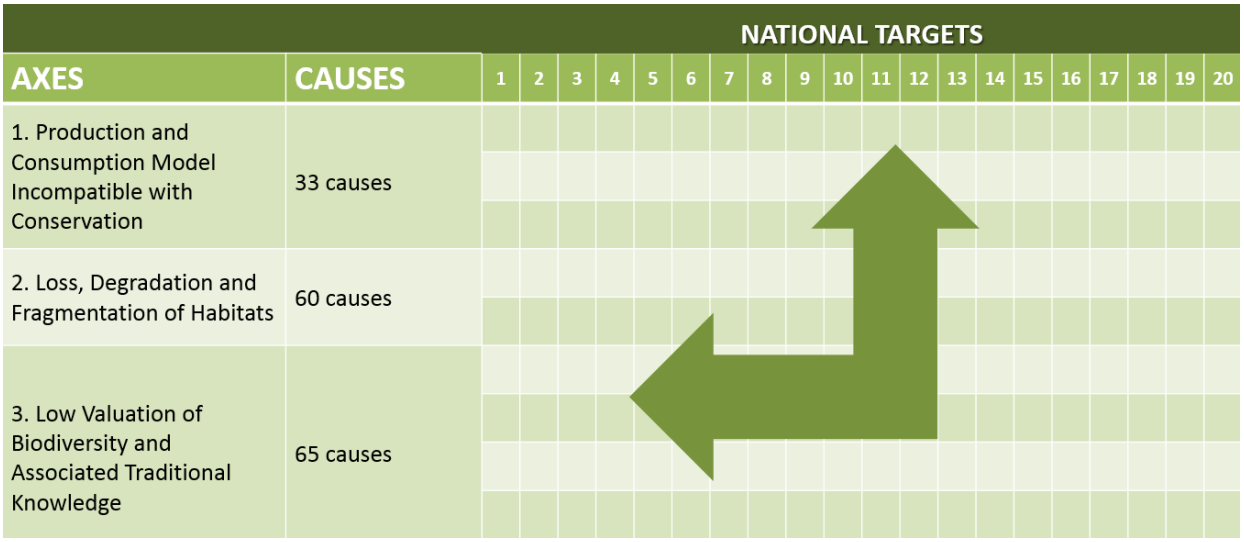

Figure 6. Correlation matrix: the National Biodiversity Targets and biodiversity loss causes.

Source: MMA/SBF/Department of Biodiversity Conservation, 2015.

4.3.PainelBio and biodiversity indicators

At the end of the process of the Dialogues on Biodiversity in 2012, as a complement to the Government Action Plan that was under construction and to ensure the involvement of all sectors, a discussion began on the establishment of a panel composed of multiple actors responsible for promoting the achievement of the National Biodiversity Targets for 2020.

This initiative was formally launched during the Rio +20 (2012) and the proposed format was refined in 2013, resulting in the Agreement that established PainelBio, signed in its first meeting held on May 27, 2014 between the institutions of different sectors that were now its integrating members. Its mission is to "contribute to the conservation and sustainable use of Brazilian biodiversity, promoting synergies between institutions and fields of knowledge, providing scientific information to society by promoting training at various levels and providing support to decision-making processes and public policies in order to reach the Aichi Targets in Brazil."

As agreed in CONABIO, the preparation of subsidies for the development of indicators for the new National Biodiversity Targets became the first task assigned to PainelBio[42]. For this to come about, capacity building

[42] The IUCN-Brazil is the Executive Secretariat of the Brazilian Biodiversity Panel.

actions were taken43 in September 2014, followed by four workshops in which the indicators would be defined.

Each one of the first three workshops addressed one of the five strategic goals of the National Biodiversity Targets. Goals A and E were both covered in the final workshop, completing the cycle in June 2015.

Besides the PainelBio members, these workshops had the participation of various sectors and institutions that are crucial for the strategies implementation, as a way to promote the integration of National Targets to sector-specific policies and actions. Each event involved the discussion and harmonization of concepts to better understand the goals and the development of monitoring indicators.

This cycle of thematic workshops and meetings organized by PainelBio resulted in the following documents: Conceptual Framework for the Application of Indicators to Reach the National Biodiversity Targets and Aichi Targets, and Indicators Framework for National Biodiversity Targets Monitoring44.

Twenty-eight priority indicators for the development of this version of the NBSAP were observed and were forwarded to SBF in November 2015.

As previously mentioned, during the identification process led by PainelBio of indicators for the national Targets, some concepts used in the goals statement were defined in order to clearly and objectively establish the understanding that was incorporated, in fulfillment to the determination found in "Principles for internalization and implementation of national biodiversity targets 2011-2020", CONABIO Resolution Nº. 06/2013.

Table 8 indicates, in bold, the concepts45 that were defined in each of the ten target previously identified as under SBF's responsibility, be it in full or in part, from among the 20 targets established at the national level.

[43] Support from the Biodiversity Indicators Partnership- BIP

1) [44] The Conceptual Framework for the Application of Indicators to Reach the National Biodiversity Targets and Aichi Targets. PainelBio. November 2015.

2) Framework of Indicators for Monitoring of National Biodiversity Targets. PainelBio. November 2015.

[45] The full table along with and the concepts that were discussed (presented in bold), can be found in the document "Conceptual Framework for Application of the Indicators to Reach the National Biodiversity Targets and Aichi Targets", PainelBio 2015.

Table 8. Concepts defined in the National Biodiversity Targets statements

Target	Concepts defined (in bold)
5	Until 2020 the rate of **native environments' loss** will be reduced by at least 50% (compared to the rate 2009), and when possible, brought near to zero. **Degradation** and **fragmentation** will have been **significantly reduced** in all biomes.
6	By 2020, the **management and capture** of any **stocks of aquatic organisms** will be **sustainable** and legal, made with the application of an ecosystem **approach**, in order to avoid over- exploration and to put into practice the recovery plans and steps for **depleted species**. Fishing will be an activity that has no significant adverse impact on threatened species and **vulnerable ecosystems**. The impact of fishing on stocks, species and ecosystems will remain within **safe ecological limits** that are **scientifically established**.
9	By 2020, the National Strategy on **Invasive Alien Species** shall be fully implemented, with the **participation and commitment of states** and through the formulation of a national policy, ensuring **continued diagnosis** and updates of the species and the effectiveness **of Prevention, Containment and Control Action Plans**.
11	By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes
12	By 2020, the **extinction risk of** endangered species will have been significantly reduced and be **close to zero**. Their conservation status, especially of those **suffering from a greater decline**, will be significantly **improved**.
14	By 2020, **ecosystems that provide essential services such** as services related to water and **that contribute to health, livelihoods and well-being** will have been restored and preserved, taking into account the **needs of women, peoples and traditional communities, indigenous peoples and local communities, and the poor and vulnerable**.
16	By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equal Sharing of Benefits Derived from their Use will have **entered into force** and will be **operationalized**, **in accordance with national legislation**.
17	By 2014, the **national biodiversity strategy** will be updated and **adopted as a policy instrument**, with **effective, participatory and updated action plans** that should foresee monitoring and periodic evaluations.
18	By 2020, the **traditional knowledge, innovation and practices** from indigenous peoples, farmers and traditional communities that are **relevant to the conservation and sustainable use of biodiversity** and the normal **use of biological resources** will have been **respected, in accordance with their customs, traditions, to national legislation and relevant international commitments**, and will have been **fully integrated and reflected in the implementation of the CBD** with the **full and effective participation of indigenous peoples, farmers and traditional communities on all relevant levels**.
20	Immediately once the Brazilian Targets are approved, **assessments will be made on the resources needed for its implementation**, followed by the **mobilization and allocation of the financial resources** needed to enable, starting at 2015**, the implementation, monitoring and fulfillment of the goals of the Strategic Biodiversity Plan 2011-2020**.

Adapted from: PainelBio 2015

5. National Biodiversity Strategy

The National Biodiversity Strategy is made up of the National Biodiversity Targets for 2020 (Table 9) and its principles for internalization and implementation (Table 10).

Table 9 National Targets for Biodiversity 2011-2020

Source: CONABIO Resolution no. 06/2013, from September 3, 2013.

Strategic Objective A – Address the underlying causes of biodiversity loss by mainstreaming biodiversity considerations across government and society
National Target 1: By 2020, at the latest, Brazilian people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
National Target 2: By 2020, at the latest, biodiversity values, geo-diversity values, and socio-diversity values have been integrated into national and local development and poverty reduction and inequality reduction strategies, and are being incorporated into national accounting, as appropriate, and into planning procedures and reporting systems.
National Target 3: By 2020, at the latest, incentives harmful to biodiversity, including the so-called perverse subsidies, are eliminated, phased out or reformed in order to minimize negative impacts. Positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the CBD, taking into account national and regional socio economic conditions.
National Target 4: By 2020, at the latest, governments, private sector and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption to mitigate or prevent negative impacts from the use of natural resources.

Strategic Objective B – Reduce the direct pressures on biodiversity and promote sustainable use
National Target 5: By 2020, the rate of loss of native habitats is reduced by at least 50% (in comparison with the 2009 rate) and, as much as possible, brought close to zero, and degradation and fragmentation is significantly reduced in all biomes.
National Target 6: By 2020 all stocks of any aquatic organism are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overharvesting is avoided, recovery plans and measures are in place for depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems, and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, when scientifically established.
National Target 7: By 2020 the incorporation of sustainable management practices is disseminated and promoted in agriculture, livestock production, aquaculture, silviculture, extractive activities, and forest and fauna management, ensuring conservation of biodiversity.
National Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.
National Target 9: By 2020, the National Strategy on Invasive Alien Species is fully implemented, with the participation and commitment of states and the elaboration of a National Policy, ensuring the continuous and updated diagnosis of species and the effectiveness of Action Plans for Prevention, Contention and Control.
National Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other marine and coastal ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Strategic Objective C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity
National Target 11: By 2020, at least 30% of the Amazon, 17% of each of the other terrestrial biomes, and 10% of the marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation, ensuring and respecting the demarcation, regularization, and effective and equitable management, so as to ensure ecological interconnection, integration and representation in broader landscapes and seascapes.
National Target 12: By 2020, the risk of extinction of threatened species has been significantly reduced, tending to zero, and their conservation status, particularly of those most in decline, has been improved.
National Target 13: By 2020, the genetic diversity of microorganisms, cultivated plants, farmed and domesticated animals and of wild relatives, including socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing the loss of genetic diversity.

Strategic Objective D: Enhance the benefits to all from biodiversity and ecosystem services
National Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, traditional peoples and communities, indigenous peoples and local communities, and the poor and vulnerable.
National Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions, including restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.
National Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Strategic Objective E: Enhance the implementation through participatory planning, knowledge management and capacity building
National Target 17: By 2014, the national biodiversity strategy is updated and adopted as policy instrument, with effective, participatory and updated action plans, which foresee periodic monitoring and evaluation.
National Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous peoples, family rural producers and traditional communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, in accordance with their uses, customs and traditions, national legislation and relevant international commitments, and fully integrated and reflected in the implementation of the CBD, with the full and effective participation of indigenous peoples, family rural producers and traditional communities, at all relevant levels.
National Target 19: By 2020, the science base and technologies necessary for enhancing knowledge on biodiversity, its values, functioning and trends, and the consequences of its loss, are improved and shared, and the sustainable use of biodiversity, as well as the generation of biodiversity-based technology and innovation are supported, duly transferred and applied. By 2017, the complete compilation of existing records on aquatic and terrestrial fauna, flora and microbiota is finalized and made available through permanent and open access databases, with specificities safeguarded, with a view to identify knowledge gaps related to biomes and taxonomic groups.
National Target 20: Immediately following the approval of the Brazilian targets, resources needs assessments are carried out for the implementation of national targets, followed by the mobilization and allocation of financial resources to enable, from 2015 on, the implementation and monitoring of the Strategic Plan for Biodiversity 2011-2020, as well as the achievement of its targets.

Table 10. Directives for the internalization and implementation of the national biodiversity targets 2011-2020

Source: CONABIO Resolution no. 06/2013, from September 3, 2013.

i. Promote under CONABIO, whenever necessary, the definition of the concepts employed in the text of the targets, with the purpose of establishing the clear and objective understanding of the intended meaning, including through the constitution of working groups, expert consultations, and technical workshops;
ii. Propose the establishment, under CONABIO, of analysis criteria and indicators for evaluating the implementation process of the national targets, in a participatory manner with different sectors of society;
iii. Propose the implementation of the national biodiversity targets 2011-2020 in a coordinated manner with a national strategy and an action plan for the conservation and sustainable use of biodiversity, recognizing the efforts and policies related to the national targets;
iv. Promote the adoption of incentives aimed at the implementation of the national targets;
iv.b. Promote the establishment of legislation and regulations aimed at the implementation of the national targets;
v. Consider a broad agenda, comprising inter-institutional and multidisciplinary actions to be developed by different agencies of the federal, state and municipal governments, in addition to various sectors of society;
vi. Consider the specific characteristics of each biome and macro geopolitical region of the country, in order to balance the actual risks to remaining ecosystems, technological viability, and economic, social and environmental aspects, taking into account the Ecological-Economic Zonings;
vii. Promote the permanent generation, updating, and incorporation of technical-scientific knowledge in the process of implementing the national targets.

6. Action Plan for Biodiversity: 1st module

The need arose to formulate a new and unique way to establish the responsibility for implementation, monitoring, data generation and disclosure for each of the 20 national targets. This process is a complex challenge in a country that not only is continental, but also mega-diverse.

Therefore, through an innovative initiative, SBF decided to design the 1st Module of the Action Plan for Biodiversity. The National Targets under the responsibility of SBF could in this manner have each commitment for 2020 clearly established and grounded in institutional and financial capacity.

The fulfillment of these commitments requires the hard work and dedication of the teams that are directly involved in planned actions since the legal basis and the financial support from partners and sponsors are already guaranteed and in execution.

In order for the preparation of the 2nd module to come about, it will be necessary to renew the collective construction endeavor, that brings together efforts from different sectors and levels of government to make commitments, so that the roles of each of the entities involved in preparing the document may be clearly established along with and any revisions are necessary for the inclusion of new institutionalized goals.

6.1. NBSAP Working Group 2016 - 2020 71

As a focal point for CBD implementation in Brazil, SBF has been focusing efforts to meet the goals of CBDs Strategic Biodiversity Plan 2011-2020 which includes: "Dealing with the root causes of biodiversity loss by mainstreaming Biodiversity into all sectors of government and society." This is how we seek to strengthen and continue the process of internalization of National Biodiversity Targets.

Among the objectives that define SBFs action guidelines, we may highlight:

- to lead the national strategy of developing the economy of genetic heritage and associated traditional knowledge;
- to conserve Brazilian species, minimizing the threats and the risk of extinction;
- to conserve ecosystems and promote sustainable management of landscapes; and
- to conserve biodiversity in protected areas.

The four major issues (genetic heritage, conservation of species, ecosystem conservation and protected areas) outline the Strategic SBF Plan and define the organization of its departments and teams, converging with the Secretariat's mission to promote - with participation, social inclusion and benefit sharing - the valorization, conservation and sustainable use of biodiversity and traditional knowledge.

This administrative structure reflects the commitment of the federal government regarding the construction of public policies in synergy with the CBD Axes. As additional aspects of this internal governance arrangement, we may highlight: management mechanisms, monitoring, and social participation, as to allow for broad discussions on the obtained results and impacts.

For the preparation of SBF's 1st module of the Action Plans, groups were created involving public officials and servants to address the various issues and promote its strategic alignment. Representatives from each stage participated, on the operational, tactical and strategic levels. This arrangement seeks to ensure the development of actions that support SBF's action capacity.

SBF's internal group is made up of meetings between 15 public servants and key managers from SBF, who have the objective of preparing the action plan and overseeing the governance over the effectiveness of the public policies, evaluating at all times the capacity to implement the originally established NBSAP.

A Government Group was proposed in order to encourage the joint construction with other societal sectors for the 2nd Action Plan module. This would come about through meetings held at the same time when the control of actions in execution are discussed, in order to maintain governance over the implementation efficiency of NBSAP, taking into consideration the constant reflection of how to best allocate the skills and resources present in each of the bodies of the government. Government agencies at the federal, state and municipal levels all must participate, especially those that are connected to MMA (SFB, ICMBio and Ibama) and state environmental agencies (Figure 7).

Conabio's structure was used in the process of mainstreaming and transparency for the efficient implementation of NBSAP. This commission, created by Decree No. 4703 from May 21, 2003, is made up of representatives from government agencies and civil society organizations and plays an important role in the discussion and implementation of policies on biodiversity in the country. The choice of this forum as a mechanism to follow up, discuss, and improve the NBSAP ensures the integration of information between the federal government, academia, states and businesses, and provides the participation of experts to share information and participate in the proceedings.

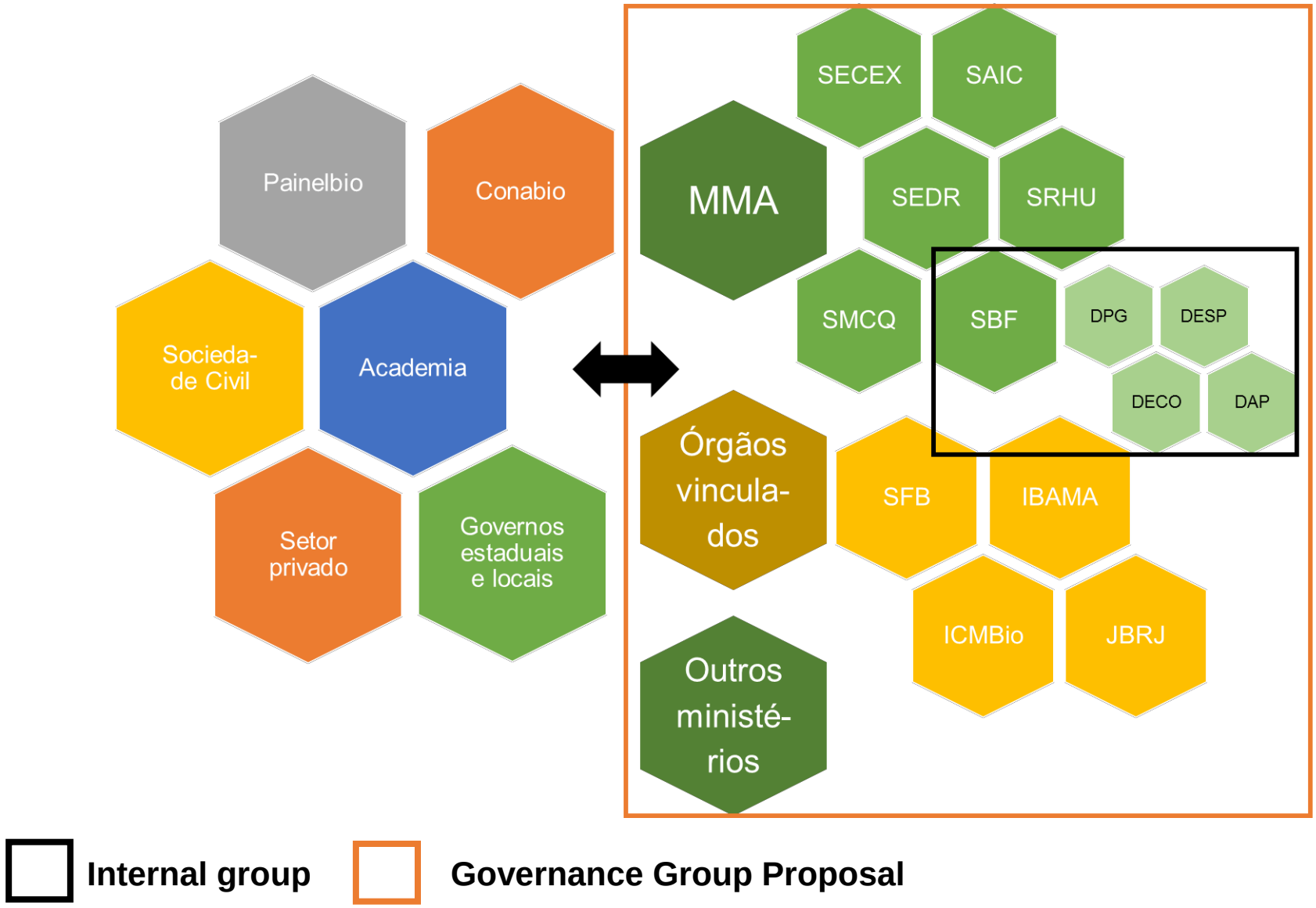

Figure 7. Proposal of a monitoring network for the NBSAP update and implementation of national Targets

This chapter presents SBF's main goals, the strategic actions planned for their implementation, the involvement of partners, the expected results, the monitoring mechanisms, indicators and the established funding capabilities and arrangements.

At this time, the discussion will be restricted only to pointing out that the actions and strategic objectives were based on the National Targets, taking into consideration that the concepts built collectively, bearing in mind the two key issues: the main elements of biodiversity and the fundamental causes of its loss.

6.2.SBF's Strategic planning

As the central organ of the Brazilian policy on biodiversity, SBF updated its strategy in 2015 for the achievement of priority objectives through its Strategic Planning. This update is in line with the MMA's Strategic Planning, which began in 2014 and should be executed until 2022.

Thus, although here the main agenda is the specific actions from SBF, the 1st Action Plan module for Biodiversity also keeps a close eye on the policies, programs and projects carried out by other related departments or entities, in order to encourage the engagement of these partners and the inclusion of their commitments in the next review of the document as soon as it is formalized.

6.2.1. SBF's Priority Agendas

SBF's Strategic Planning is organized into four priority agendas (genetic heritage, species, ecosystems and protected areas) which, in turn, are subdivided into strategic initiatives and well defined products.

We understand that these are the structural axes that should guide the work of SBF in their policies for the conservation and sustainable use of biodiversity, within which are distributed the main actions to be developed under SBF's coordination, considering the temporal horizon of 2020.

These actions are closely associated with Brazil's commitment to fulfill the National Biodiversity Targets for 2020, which reflect the internalization of the Aichi Targets to actions being developed by SBF, which can be seen in Table 11. Whenever possible, a qualified participation will be pursued of urban and rural women (field, forest, and water), indigenous peoples and communities and traditional people in the priority agendas.

The monitoring of SBF's Strategic Planning implementation will be done through supervising the completion deadlines of activities, based on indicators developed especially for that purpose.

In addition to strategic planning, SBF performs a broad portfolio of international projects with actions that contribute to the achievement of the National Targets (Table 12).

Table 11. SBF's priority agendas and the relation of its strategic actions to achieve National Targets: D = Direct, I = Indirect

PRIORITY AGENDAS / TARGETS	PLANNED ACTIONS
A. To preserve Brazilian species, minimizing the threats and risks of extinction; I = (1,2,3,4) and D = (6.9, 12)	1. National Action Plans for the conservation of endangered species.
	2. Shared Management System of Fisheries.
	3. National Program for the Control of Invasive Alien Species.
B. **To conserve biodiversity in Protected Areas. D = (5, 10 and 11)**	4. National Strategy for Consolidation of Protected Areas.
	5. Evaluation of ecological representativeness of protected areas to identify conservation gaps and calculation of Aichi / CBD Target 11.
	6. Elaboration and implementation of SNUC's communication Plan
	7. Expansion of the management capacity of Protected Areas.
	8. Assessment of the conservation status of Protected Areas.
	9. Update of the National Information System Registry of Protected Areas.
C. To **conserve ecosystems and promote sustainable management of landscapes. I = (1,2,3,4) D = (5,7, 10,11,14,15)**	10. Environmental Monitoring Program of Brazilian Biomes.
	11. Update of Priority Areas for the conservation of biodiversity in Brazilian biomes and the coastal and marine zones.
	12. National Plan for the Recovery of Native Vegetation.
D. To guide the National Development Strategy of Genetic Heritage and Associated Traditional Knowledge Economy. I = (1,2,3,4) D = (16,18)	13. Regulation of the legal framework (Biodiversity Law) on access to genetic heritage, associated traditional knowledge and benefit sharing.
	14. National Plan for Awareness and Capacity Building in access to genetic heritage, associated traditional knowledge and benefit sharing.
	15. Intelligence and traceability System with information on genetic heritage and associated traditional knowledge.
	16. Development and strengthening of productive chains that are users of genetic heritage and associated traditional knowledge.
	17. Strategy to promote the Brazilian model of access and benefit sharing in Brazilian and multilateral forums.

Table 12. SBF's portfolio of international projects

SBF 's portfolio of international projects					
Project Title	**Scope**	**Goal**	**Targets**	**Deadline**	**Funding Source**
Protected Areas in the Amazon II (ARPA II and III)	Legal Amazon	Ensure the conservation of biodiversity in the region and contribute to the sustainable development in a decentralized and participatory manner.	Support the protection of at least 60 million hectares of forests in the Amazon by supporting the consolidation of protected areas.	2017	1- Germany 2 - GEF 3 - BNDES
Project "Conservation and sustainable use of biodiversity for improved nutrition and human well-being", known as BFN Project (Biodiversity for Food and Nutrition)	National	Strengthen the conservation and sustainable use of biodiversity through transversal actions and programs that have global coverage and national food security and nutrition strategies.	Improve global knowledge on biodiversity for food and nutrition and the consequent increase in well-being and food safety of the project beneficiaries in Brazil, Kenya, Turkey and Sri Lanka, through the conservation and sustainable use of biodiversity and the identification and dissemination of best practices.	2017	GEF
Biodiversity and Climate Change in the Atlantic Forest	Atlantic Forest, with a focus on the joint protected areas of MAPES (BA), MCF (RJ) and Lagamar (SP and PR)	Contribute to climate change mitigation and adaptation in the Atlantic Forest through biodiversity conservation and the recovery of native vegetation in protected areas clusters	Develop mitigation and adaptation measures with an ecosystem focus for an area of 150,000 hectares in the region protected areas clusters	2018	Germany

SBF's portfolio of international projects					
Project Title	**Scope**	**Goal**	**Targets**	**Deadline**	**Funding Source**
SNUC - Life Web (BMZ / BMU - 2098 10946)	National System of Protected Areas	Enhance the capacities of agencies that are responsible for the National System of Protected Areas (SNUG) as well as its tools for management and financial sustainability of the system as a way to open a closer dialogue with society.	Implement at least five actions or structuring instruments for the consolidation of SNUG, covering issues of management and financial sustainability of the system and a closer approach to society; and the application of instruments for the assessment and monitoring to consolidate the progress in selected protected areas.	2018	Germany
Transition Fund to ARPA for LIFE	Legal Amazon	Ensure the conservation of biodiversity in the region and contribute to the sustainable development in a decentralized and participatory manner.	Consolidate at least 60 million hectares of protected areas in the Amazon biome	2039	1- Germany 2 GEF 3 - Anglo America 4 - IDB 5 - BNDES 6 - WWF and GBMF
Agreement on debt relief in support of conservation and sustainable management of tropical forests - TFCA	Cerrado, Atlantic Forest, Caatinga	Support restoration projects and the protection of species and protected areas; support the development and implementation of management systems; support capacity building for individuals and institutions involved in forest conservation efforts; and development and support the livelihoods of individuals who inhabit rainforests, or	Using debt conversion resources for conservation and sustainable use of tropical forests in Brazil	2017	USA

SBF 's portfolio of international projects					
Project Title	**Scope**	**Goal**	**Targets**	**Deadline**	**Funding Source**
		in its surroundings, in a way that is consistent with the protection of these rainforests.			
Protected Coastal and Marine Areas (GEF Sea)	Marine and Coastal Area	Support the expansion of a globally significant, representative and effective system of Protected Marine and Costal Areas (AMCPs) in Brazil, and identify mechanisms for their financial sustainability	I. Expand the system of Protected Marine and Costal Areas to at least 5% (equivalent to 175,000 km2) of the Brazilian marine territory; II. Promote greater protection of biodiversity in at least 9,300 km2 of marine and coastal areas; and III. Identify, design, and prepare at least two financial mechanisms for implementation that may contribute to long-term sustainability of AMCPs.	2019	GEF
Conservation of biodiversity by integrating ecosystem services into public policies and business activities - TEEB Regional- Location	Cerrado, Amazon and Atlantic Forest	Integrating Ecosystem Services to the Decision Making Processes	Five policies, plans, programs or environmental management instruments at the federal level with valuation tools, 06 states with structured compensation programs and incentive mechanisms to value ecosystem services, methods and tools for the consideration of SE that are available for integration in at least 6 policies, plans, programs and / or tools for planning and / or environmental management at a regional-local level Replicable models of ecosystem services integration into business policies and investment decisions provided by CNI (10 business experiences)	2016	Germany

SBF's portfolio of international projects					
Project Title	**Scope**	**Goal**	**Targets**	**Deadline**	**Funding Source**
			At least 10 small and medium-sized businesses by integrating ecosystem services into their business and financial management At least 05 Brazilian state industry federations of the with training programs for integrating ecosystem services At least 05 Brazilian state industry federations with recommendations for the quantification of ecosystem services in corporate balance sheets.		
(BRA 12) National Biodiversity Planning to support the implementation of CBD's Strategic Plan 2011-2020 (NBSAP)	National / International	Develop the planning of National Biodiversity and support CBD's Strategic Plan 2011-2020	Produce reports and documents foreseen in the design and implementation of activities for the completion of the revised NBSAP	2016	GEF
(BRA 11) Support the implementation of the commitments from international conventions that address biodiversity	National / International	Support the implementation of Brazil's commitments to the various MEAs; and promote synergy in the implementation between different sectors and levels of government.	Support the production of studies, reports and documents, hiring of individuals and / or companies; support the promotion of workshops and activities within the scope of supported projects.	2016	Budget

SBF's portfolio of international projects					
Project Title	**Scope**	**Goal**	**Targets**	**Deadline**	**Funding Source**
Capacity Building and Institutional Strengthening of the National Framework for Access and Benefit Sharing within the scope of the Nagoya Protocol (GEF-ABS)	National	Develop and implement the new national regulatory framework on ABS, as well as the administrative measures to support Brazil's compliance with the provisions of the Convention on Biological Diversity and the Nagoya Protocol.	Ratify the Nagoya Protocol; Approve Regulatory Law 13,123 / 2015; Implement the National Fund of Benefit-Sharing; Facilitate the achievement of 9000 entries and access notifications and / or deliveries of genetic heritage or associated traditional knowledge; Train 700 representatives of indigenous and traditional peoples and communities and traditional farmers	2020	GEF
Consolidation of the National Protected Areas System (SNUC) and Reinforcing the Protection of the Flora and Fauna (GEF-Terrestrial)	Caatinga, Pampa, and Pantanal	Strengthen SNUC and promote integration with other Conservation Strategies and the Development of National Action Plans	1 million hectares in protected areas, strengthening 24 protected areas, 11 PANs, Restoration of 5000 hectares	2021	GEF
Sustainable Amazon Landscapes (GEF Landscapes)	Amazon	Protect biodiversity and implement support policies for sustainable land use and recovery of native vegetation.	Consolidate 60 million hectares of protected areas in the Brazilian Amazon and ensure its long-term financial sustainability; Promote connectivity between forest remains and ecosystems with high ecological relevance; Support forestry recovery and sustainable forest management on private land to ensure the conservation of biodiversity in productive landscapes.	2021	GEF

SBF's portfolio of international projects					
Project Title	**Scope**	**Goal**	**Targets**	**Deadline**	**Funding Source**
Leveraging Conservation in Private Areas	National	Increase sustainable landscape management and enhance biodiversity conservation and the supply of ecosystem services in the protected areas of Brazilian private property.	Ensure the conservation of biodiversity and the provision of ecosystem services in private protected areas, through improvements in institutional coordination, development of guidelines on best practices for sustainable landscape management, establishment of sectoral agreements with the	2021	GEF
Development of Local Communities and Indigenous Peoples, sustainable production based on the use of genetic resources and associated traditional knowledge in Brazil (GEF-Productive Chains)	National	Increase the global, national and local biodiversity benefits through strengthening local supply chains based on regular access to Brazilian medicinal plants, promoting the improvement of life quality of indigenous and traditional peoples and communities and traditional farmers.	* Use medicinal plants in 3 million hectares of sustainable landscapes linked to Local Productive Arrangement of indigenous peoples, traditional peoples and communities and traditional farmers; * Include 30 native species in the compendia of Brazilian Pharmacopoeia	2021	GEF

SBF's portfolio of international projects					
Project Title	**Scope**	**Goal**	**Targets**	**Deadline**	**Funding Source**
Pro-species	National	Reduce the impact on endangered species by mainstreaming the issue in other sector-specific policies, combating illegal hunting and trafficking and developing an alert system and early detection of invasive alien species	Protect 290 critically endangered species; implement policies in 12 key areas for the conservation of endangered species, with a total of 9,000,000 hectares with actions incorporating considerations regarding endangered species; train 200 agents in surveillance activities in the combat against illegal trafficking in critical municipalities; identify introduced or potential invasive alien species and notify institutions to carry out actions; develop a system for the early warning, detection and prevention of the spread of invasive species; develop intelligence to combat the trafficking of wild animals; include in the CAR and the Bolsa Verde (Green Income Transfer Program) criteria priorities for their implementation in important areas for endangered species; develop operation manuals for environmental licensing technicians on mitigation and compensation measures on the impact on endangered species; elaborate territorial action plans incorporating flora and fauna; improving governance arrangement.	2021	GEF

SBF's portfolio of international projects					
Project Title	**Scope**	**Goal**	**Targets**	**Deadline**	**Funding Source**
Matopiba 2020 - On the forefront for a sustainable future	Areas of the states of Maranhão, Tocantins, Piauí and Bahia	Set a new course of development for the region called Matopiba, helping municipalities and farmers to make the transition to sustainable agricultural landscape that will bring together elements of conserved natural capital, effectively sustainable production and effective governance to promote a new model for the production of Brazilian agricultural commodities.	Develop a landscape with 100% of the properties inserted in the Rural Environmental Registry, with zero illegal deforestation and a chain of active restoration compensating for the emissions coming from legal deforestation, with 40% of protected areas in the landscape including protected areas, indigenous lands, legal reserves and permanent preservation areas.	2020	Brazilian Agricultural Sector

6.2.2. Monitoring Indicators

Four indicators were defined to monitor SBF's four priority agendas and can be correlated to the 13 indicators developed by PainelBio for monitoring the compliance of the National Biodiversity Targets for 2020.

Considering the complementary nature of the indicators developed in both cases, the monitoring of SBF's Strategic Planning indicators reveal the level of achievement of National Targets under the direct responsibility of the SBF.

The renewal of monitoring dynamics with a more robust set of indicators developed by PainelBio will allow an integrated analysis of both results.

From the 13 PainelBio indicators that correlate with indicators from SBF, 11 already have information generated by MMA or other institutions, and the other four still require more attention in order to define how the monitoring will be performed.

The indicators presented in Table 13 are the result of work done in partnership with the institutions that are a part of the Thematic Groups from PainelBio and represent the minimum framework of indicators to enable the monitoring of actions and developments related to National Biodiversity Targets selected for direct monitoring by SBF.

The 28 indicators that comprise the 20 National Targets can be viewed in the document "*Framework of Indicators For Monitoring the National Biodiversity Targets*" (PainelBio, 2015).

The 28 indicators suggested in PainelBio's document include surveys and data that was produced by the MMA or other institutions. However, discussions have identified additional indicators that could ensure better monitoring of developments related to the Aichi Targets.

These complementary indicators, however, still depend on further refinement and institutional articulation in order to define mechanisms, timing and accountability in their measurement. It is expected that the activities and discussions in the scope of PainelBio and Conabio will be resumed, so that they may facilitate the adoption of these indicators, allowing a more detailed look at the Brazilian progress in reaching the Aichi Targets.

In Table 14, we highlight the set of complementary indicators that are correlated to the National Targets under the responsibility of SBF and their priority agendas.

Considering the relevant indicators by disaggregation of information by gender and ensure, where possible, the collection of information by urban and rural women (field, forest and water) of indigenous peoples, communities and traditional peoples, within their representative organizations, considering the knowledge that have women in all processes within the local economy.

The direct correlation between the indicators proposed by PainelBio and indicators defined by SBF as part of its strategic planning was summarized in Figure 8.

Table 13 Complementary indicators for monitoring the National Goals under SBF's responsibility 85

Source: adapted from PainelBio

Indicator	Description	SBF's National Targets
Number of fires per biome	Monitors the occurrence of fires and forest fires across the country. The variables used are the occurrences hot spots and the territory in which they occur, which indicates the number and density of occurrences in specific territories in a month or a specific year. The INPE website allows one to disaggregate the information by biome, Amazon, protected areas, state, or country. The monitoring of burned areas is in the final stage of implementation.	5 and 15
Remaining native vegetation coverage	Addresses the remaining native vegetation coverage related to the total area of the regions, having as a reference the baseline of the Probio project.	5, 10, 14 and 15
National extractive fisheries	It displays the volume (tons) and value (R$) national fish production.	6
Quality of inland waters	The display shows the quality of water in some inland water bodies (river stretches and dams), expressed by the Biochemical Oxygen Demand - BOD and the Water Quality Index - WQI.	8
Officially recognized invasive alien species	The variables used in this indicator is the number of terrestrial and aquatic invasive species (marine and freshwater), of microorganisms, of plants and animals. The locations of origin of invasive species are listed, as well as their forms and the consequences of invasions. The indicator is made up of the number of invasive species with some occurrence registered in Brazil until December 31, 2010 or ones that occur outside their original area, for those that come from Brazil itself. The official list of invasive species is still under construction.	9

Indicator	Description	SBF's National Targets
Protected Areas	The indicator expresses the size and spatial distribution of the territories that are under a special status of protection and summarizes the percentage of contribution of the different regimes considered in terrestrial biomes- including marine and coastal areas and inland waters- to achieve the quantitative targets set under national biodiversity targets. The indicator is made up by the number and area (km^2), of the federal, state and local protected areas (UCs), of type of use, and the ratio expressed as a percentage, between the area covered by federal, state and municipal CUs and the total surface of territorial areas in each biome or region.	10 and 11
Management Effectiveness	This indicator quantifies a percentage on management effectiveness needed to reach the target of the considered protected areas.	11
Species of endangered fauna and flora	The indicator shows the number of species of fauna and flora that are extinct and endangered.	12
Species of endangered flora and fauna with action plans for recovery and conservation	The indicator shows the number of Brazilian species of fauna and flora that are threatened with extinction, with National Action Plans (PANs) in relation to all threatened species of Brazilian fauna and flora.	12
Land and Environmental Management Plan (PGTA) of indigenous lands	The indicator shows the number and area of indigenous lands that have PGTAs in each biome. This indicator measures the proportion of indigenous lands with elaborated and / or implemented PGTAs among the demarcated Indigenous Lands through decrees from FUNAI.	14 and 18
Agreements or other benefit-sharing instruments	The indicator shows the number of agreements or other instruments of benefit sharing celebrated with the Union, indigenous peoples, traditional peoples and communities and traditional farmers.	16 and 18

Indicator	Description	SBF's National Targets
Sustainable Use Protected Areas with management tools	The indicator measures the proportion of Sustainable Use Protected Areas (SNUC) such as Resex, RDS, and FLONA with a developed and implemented management tool.	18
Update level of the and National Biodiversity Strategy Action Plans	Check the progress of the updating of the strategy, accounting for completed steps: (i) definition of national targets in 2020; (ii) definition of long-term vision of the NBSAP; (iii) definition of NBSAP objectives and Targets; (iv) preparation of the Action Plan; (V) development indicators; (Vi) preparation of financial resource mobilization plan; (Vii) clearly identified government programs and partners from society; (Viii) sending of the updated NBSAP the CBD.	17

Table 14 Complementary indicators for monitoring the National Targets under SBF's responsibility 85

Indicator	Description	SBF's National Targets
% of endangered species affected by fishing which are contemplated by National Action Plans (PANs) that have been implemented and monitored	The indicator shows the relationship between the numbers of species threatened by fishing that already have action plans, as well as the total number of species threatened by fishing.	6
% of exploited fish stocks outside safe biological limits	Fish with stocks outside safe biological limits are those whose population was exploited beyond the maximum level of sustainable production. Fish stocks within safe biological limits include those operated in or near the maximum sustainable production, as well as fish stocks that are not fully exploited.	6
% of Permanent Management Committees (CPGs) implemented and active	The proportion of working CPGs as measured through regular meetings with scientific sub-committees, subcommittee with operative monitoring and social participation, and the proposition of management or specific action plans.	6
Number of coastal and marine endangered species	Official lists - Number of animal species threatened with extinction and percentage of species in relation to the total number of assessed species. Presence in UCs- Number of animal species threatened with extinction represented in CUs and the percentage of endangered and protected species in UCs in relation to threatened species from national lists. Species threatened with PAN - Number of endangered species and percentage of animal species threatened with PAN in relation to all species of endangered fauna.	10, 12

Indicator	Description	SBF's National Targets
Fragmentation and connectivity rates	Possible indicators will be evaluated based on the conceptual framework described below: the approach on the landscape scale allows other spatial measurements of biodiversity conservation and ecosystem services to be considered in order to ensure connectivity, resilience, ecological representation and the interests of human communities. Furthermore, it is important to consider the interdependence of processes in different scales (e.g. watershed management, land use, land use planning etc.). In this context, different regimes of protected areas can be considered for landscape planning and management considering the principles of equity, effectiveness and representativeness.	11
Fragmentation rate of freshwater environments	The indicator gives information about the fragmentation of aquatic environments through an index that is calculated based on the number of dams per river basin	5
Implementation of the national strategy on invasive alien species	Informs the % of implementation of tools and guidelines from the National Strategy: (i) Management of the National Strategy; (ii) Inter-sector coordination; (iii) Legal infrastructure; (iv) Prevention, early detection and emergency actions; (v) Management - eradication, containment, control and monitoring; (vi) Scientific knowledge generation; (vii) Technical training; (viii) Education and public awareness. The implementation of each of these items will be measured through a sub-indicator. The calculation should consider the individual percentage of implementation of each item, and the indicator will be evaluated by a weighted average of the items.	9

Indicator	Description	SBF's National Targets
Ecological representation index of UCs	Indicator that shows the ecological representativeness in different UCs.	11
Vegetation coverage in APPs and RLs	Vegetation coverage in APPs and RLs per biome according to the Native Vegetation Recovery Law. It should inform the % of APP and RL areas with vegetation coverage in different terrestrial biomes registered in CAR.	11
Recovery of APPs and RLs	Area of APPs and RLs registered in the CAR that are being recovered. Should inform the evolution of the total area (number of hectares) restored compared to the area without native vegetation, based on Planaveg (in preparation) and SICAR.	14
Benefit sharing agreements	Number of agreements to share benefits celebrated with the Union, indigenous peoples, communities and traditional farmers.	16
Ratification of the Nagoya Protocol	Proportion in % of the concluded steps for the ratification the Protocol (1-signature, 2-sending to Congress, 3-ratification by Congress, 4-presidential sanction, 5-deposit of ratification at the United Nations).	16
Mobilization of viable resources for biodiversity	Shall inform on the estimated portion of the resource gap to be mobilized and executed.	20
Difference in resources between the estimated total and that which is executed at the federal level	How long to reach the volume of needed federal funds (total) to implement the actions required to meet the Targets.	20

	Priority Agendas			
	Conservation of species and minimize the risk of extinction	Preserve Biodiversity in Protected Areas	To conserve ecosystems and promote sustainable management of landscapes	The development of genetic heritage and associated traditional knowledge economy
National Targets	6, 9, 12	11	5, 7, 10, 11, 14, 15	16, 18
SBF indicators	% Of the endangered fauna/ flora species with action plans or other instruments for recovery and conservation	% of protected areas of improvement and its level of consolidation	Number of biomes and the coastal and marine zone with updated priority areas	Number of signed agreements on access and benefit sharing for genetic heritage and traditional knowledge
PainelBio indicators - national targets	Volume (tons) and value (R $) national freshwater fisheries production	% of the national territory covered by protected areas	Number of fires in biomes	Agreements or other benefit-sharing instruments
	Officially recognized invasive alien species	% of management effectiveness in protected areas	% of the country's territory per biome covered by native vegetation	% of sustainable use protected areas with management tools elaborated and implemented
	Nº. of fauna and flora species threatened with extinction in the Brazilian biomes		Annual national consumption of pesticides per planted area	
	% of endangered species of fauna and flora with national action plans		Number of organic producers in Brazil registered in the control bodies	
			% of the area of annual crops making use of direct planting techniques	
			Number of Indigenous Lands with Territorial	
			Anthropogenic emissions of greenhouse gases	

Figure 8. Correlation among the priority actions, national targets and monitoring indicators

6.3.Action Plan for Biodiversity

The Action Plan for Biodiversity, 1st module, is presented in Table 15.

Table 15. 1st module of the National Action Plan for Biodiversity

National Target 1: By 2020, at the latest, Brazilian people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
1.1	Preparation and implementation of the Regional-Local TEEB project communication strategy	Communicate the values of biodiversity and ecosystem services and the relevance of considering these services in decision-making by public and private actors.	MMA	CNI	2019	government, private sector	2
1.2	Development and implementation of the communication strategy of the Biodiversity and Climate Change Project in the Atlantic Forest	Communicate the values of biodiversity and ecosystem services, and the importance of the Atlantic Forest in the context of Climate Change.	MMA	Atlantic Forest NGO Network and the Pact for the Atlantic Forest Restoration	2018	government and civil society.	15
1.3	Action plan to implement training of environmental educators, managers and other stakeholders involved with the Biodiversity Agenda	Disseminate information on conservation and sustainable use of biodiversity species.	MMA and connected agencies	ICMBio, JBRJ and MEC	2019	government, academy	7, 12
1.4	Promotion of native species of Brazilian flora with current or potential economic value (Initiative Plants for the Future)	1. Review, organize and publish the results of the survey on the ecological botanic aspects and different possibilities for the use of native flora species with current or potential economic value. 2. Promote the knowledge and sustainable use of species from biodiversity.	MMA	Embrapa, Public Universities, MCTIC, South Region: FAPEU, Midwest Region: Embrapa, Southeast Region: Biodiversitas / Zoobotânica / BH Foundation, Northeast Region: APNE / UFPE, Northern Region: Emilio Goeldi Museum	2016	government and civil society.	4

National Target 1: By 2020, at the latest, Brazilian people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
1.5	Communication and promotion of information about the value of biodiversity and the importance of the ABS management system in Brazil and in the World	Inform and raise the awareness of the population about the environmental, social, cultural and economic Brazilian genetic heritage and traditional knowledge associated with our biodiversity, as well as the other benefits of maintaining biodiversity and ecosystem services.	DPG / SBF	Ascom / MMA, Secom	Beginning in 2016 - continuous	government and civil society.	4, 16, 18

Target 2: By 2020, at the latest, biodiversity values, geo-diversity values, and socio-diversity values have been integrated into national and local development and poverty reduction and inequality reduction strategies, and are being incorporated into national accounting, as appropriate, and into planning procedures and reporting systems.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
2.1	Update of the priority areas for conservation, sustainable use and biodiversity sharing of benefits (Amazon, Caatinga, Cerrado, Atlantic Forest, Pampa, Pantanal, Coastal and Marine Zone)	The second revision of the update process is currently underway, applying the same method used in 2006-2007. The current focus is to improve the use of these priority conservation areas in day-to-day processes of the national conservation agenda and in environmental organizations. Some of the main challenges are: continuous updating of the database; application of cutting-edge technology to ensure continuous use; tools for generating scenarios; creating friendly graphical interfaces, etc.	DECO / SBF	ICMBio, OEMAs, OMMAs	Caatinga, Cerrado and Pantanal: updated in 2016, the rest in: 2017.	government and civil society.	19

Target 2: By 2020, at the latest, biodiversity values, geo-diversity values, and socio-diversity values have been integrated into national and local development and poverty reduction and inequality reduction strategies, and are being incorporated into national accounting, as appropriate, and into planning procedures and reporting systems.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
2.2	Implementation of Environmental Economic Accounts for Water and Forests	To support the implementation and institutionalization of environmental economic accounts of water and forests as satellite accounts in order to integrate data from environmental statistics on the information on economic activities from the System of National Accounts (SNA) of Brazil.	Brazilian Institute of Geography and Statistics - IBGE	ANA, SFB, SRHU / MMA	2019	Government	20
2.3	Integration of ecosystem services in the Federal PPA process (TEEB Regional-Local project)	Integrate criteria and biodiversity values and ecosystem policies, plans, and development process and poverty reduction strategies at the national level through the Federal Multi-Year Plan	Public Ministry	MMA	2019	Government	20
2.4	Spatial distribution and monitoring of key species / endemic / invasive	Integrating biodiversity monitoring (SISBr) to deforestation systems- Prodes / TerraClass / fires- hotspots and burned areas	To be defined	INPE / MCTIC, Embrapa, Ibama, JBRJ and research institutions	2020	Government, academy	19
2.5	Development and implementation of MacroZEEs and state zones	Systematize and generate valid and essential information for the sustainable management of Brazil, harmonizing economic, social and environmental relationships that exist within it, in order to contribute to a process of use and occupation of natural resources available in the most effective way, applied in accordance with the local specificities.	SRHU / MMA	Ministries that make up the ZEE of the Coordinating Committee of the National Territory (CCZEE), institutions that make up the ZEE Brazil Consortium , state governments and civil society	Federal: 2019 States: 2017	Government, states and civil society.	19

National Target 3: By 2020, at the latest, incentives harmful to biodiversity, including the so-called perverse subsidies, are eliminated, phased out or reformed in order to minimize negative impacts. Positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the CBD, taking into account national and regional socio economic conditions.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
3,1	Implementation of the Ecological ICMS (tax on goods and services)	Benefit municipalities that develop actions in relation to the environment by sending ICMS resources - Tax on Goods and Services, which is collected by states. The Ecological ICMS is one of the criteria to transfer these values and rewards to municipalities that have, for example, protected areas and watershed areas.	States	Trade Negotiations Committee	Continuous process of inclusion of new states and implementation of the instrument	government	20
3.2	Integration of ecosystem services in the Ecological-Economic Zoning (Project Regional-Local TEEB)	Develop a methodology for integrating ecosystem services in the construction methodology of the Ecological-Economic Zoning, in order to strengthen the environmental dimension and the principle of sustainability of this instrument.	MMA / GNTB	MMA / PBS members CCZEE	2017	government	2
3.3	Integration of ecosystem services in Management	Apply the results of Corporate Guidelines for the Economic Valuation of Ecosystem Services and develop tools to enable companies to integrate the value of ecosystem services in their management processes.	MMA and CNI	Studies Centre for Sustainability of the Getulio Vargas Foundation	2018	companies	20

National Target 3: By 2020, at the latest, incentives harmful to biodiversity, including the so-called perverse subsidies, are eliminated, phased out or reformed in order to minimize negative impacts. Positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the CBD, taking into account national and regional socio economic conditions.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
3.4	Tool for the analysis of the financial risk in investments and funding related to Natural Capital	1. Provide elements so that finance decision makers - both in companies and in the financial sector - may consider formally and explicitly the risks associated with natural resources and ecosystem services in their processes of identification, analysis and risk assessment. 2. Offer subsidies for reflections on public policies of command and control and economic incentives in Brazil to incorporate natural resources and ecosystem services in decision-making processes in the private sector.	Sustainability Studies Center from the Getulio Vargas Foundation	MMA and CNI	2017	companies	20

National Target 4: By 2020, at the latest, governments, private sector and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption to mitigate or prevent negative impacts from the use of natural resources.

*** There are no specific actions planned for the SBF regarding Target 4**

National Target 5: By 2020, the rate of loss of native habitats is reduced by at least 50% (in comparison with the 2009 rate) and, as much as possible, brought close to zero, and degradation and fragmentation is significantly reduced in all biomes.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
5.1	Implementation of the Environmental Monitoring Program of Brazilian Biomes (MMA Ordinance No. 365, from November 27, 2015)	1. Develop periodic mappings on deforestation and land use in all Brazilian biomes, providing official information with a standardized and comparable method. 2. Promote the coordination of the various agencies of the Federal Government to act in monitoring initiatives by satellite of the vegetation coverage and land use. 3. Guarantee the optimal use of financial and human resources. 4. Provide information to support public policies on biodiversity and climate, with priority for the Cerrado.	SECEX, CPPD / SMCQ and SBF / MMA	INPE, Embrapa, Ibama, MCTIC, universities and others	2020	government, academy	14, 19

National Target 5: By 2020, the rate of loss of native habitats is reduced by at least 50% (in comparison with the 2009 rate) and, as much as possible, brought close to zero, and degradation and fragmentation is significantly reduced in all biomes.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
5.2	Development and implementation of the 4th phase of the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon - PPCDAm	1. Promote the regularization of public land and improve land management. 2. Improve the efficiency of monitoring and control of deforestation, improve licensing procedures for forest management and concessions, increase monitoring to reduce illegal activities, and increase compliance with environmental legislation, especially in the productive sector. 3. Promote the viability of sustainable production chains that represent alternatives to deforestation, promote good practices in agriculture and livestock, increase production and trade of legal timber through sustainable forest management, and generate technology and innovation for sustainable development in the Amazon.	CPPD / SMCQ / MM The	Other departments of MMA and connected agencies, MAP, MCTIC, MD, Chief of Staff / Special Secretariat for Family Agriculture, MDIC, MI, MJ, MME, MT, MTE, MP, MRE, MF, among others, states, NGOs, productive sector.	2016 2019	government, academy, states, companies, civil society	7, 11, 14, 15
5.3	Development and implementation of the 3rd phase of the Action Plan for the Prevention and Control of Deforestation and Fires in the Cerrado - PPCerrado	Reduce the rate of deforestation and forest degradation, and the incidence of fires and forest fires in the Cerrado biome, through joint actions and partnerships between the federal government, states, municipalities, civil society, business sector and academia.	CPPD / SMCQ / MM The	Other departments of MMA and connected agencies, MAP, MCTIC, MD, Chief of Staff / Special Secretariat for Family Agriculture, MDIC, MI, MJ, MME, MT, MTE, MP, MRE, MF, among others, states, NGOs, productive sector.	2016 2019	government, academy, states, companies, civil society	7, 11,14, 15

National Target 6: By 2020 all stocks of any aquatic organism are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overharvesting is avoided, recovery plans and measures are in place for depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems, and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, when scientifically established.

Actions		Goal	Entity in Charge	Possible partners	Deadline	Sector	Interface (other targets)
6.1	Reducing the threat of extinction of aquatic species of Brazilian biodiversity.	1. Evaluate the status of use of the main species in Brazilian aquatic biodiversity that are affected by fishing. 2. Develop and implement recovery plans for fish and aquatic invertebrate species that are threatened with extinction.	MMA	Ibama, ICMBio, MAPA	2019	government	12
6.2	Implementation of the Shared Management System Sustainable Use of Fisheries Resources	Evaluate and propose management measures for fishing activities aimed at mitigating incidental captures of aquatic fauna and the sustainable use of stocks.	MAPA and MMA	Ibama, ICMBio, MAP	2019	government	12
6.3	Strengthen the monitoring system and production of information on fishing activities	1. Produce statistics, observers and onboard maps and research on fisheries. Implement an electronic system for a Source of Fishing Origin Document - DOP. 2. Modernize and expand the National Program of Tracking Fishing Vessels by Satellite- PREPS for monitoring and surveillance of fishing activities.	MAPA / MMA	Ibama, ICMBio, MAP	2019	government	1

National Target 7: By 2020 the incorporation of sustainable management practices is disseminated and promoted in agriculture, livestock production, aquaculture, silviculture, extractive activities, and forest and fauna management, ensuring conservation of biodiversity.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
7.1	Implementation of the ABC Program - Low Carbon Agriculture	Increase agricultural and livestock productivity, while reducing carbon emissions associated and aiding forest restoration.	MAPA	Miscellaneous	in execution	government	14-15
7.2	Support to sustainable management in RESEX, RDS, FLONA and sustainable settlements	Promote the exploration of natural resources with less impact on the environment when possible by ensuring the recovery, regeneration and restoration of the ecosystem.	ICMBio and Incra	MMA, IBAMA and other	continuous	government	14
7.3	Development of Forest Management Plans for Caatinga and Amazon	To promote the management and sustainable forest consumption of wood in the production chains of furniture, construction, energetic purposes, and others.	SFB and states	Ibama, OEMAS, Incra, Industry Associations	continuous	government, companies	14
7.4	Publication of educational material on the importance of conservation and sustainable use of pollinators, with an emphasis on bees	Promote the knowledge and sustainable use of species from biodiversity.	DESP / SBF / MMA	Embrapa and Public Universities	2016	government, academy	1
7.5	Implementation of the Rural Environmental Registry	Integrate environmental information on rural properties, making databases for control, monitoring and environmental planning.	SFB and OEMAs	DECO / SBF	2016	government, states	11, 14, 15

National Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
8.1	To promote the re-evaluation of active ingredients from pesticides that are already registered, for which there is evidence of harm to the environment and that are associated with adverse effects on bees.	Reassess pesticide products are suspected to cause harm to the environment, and based on verified studies and results, establish restrictive or prohibitive measures of the registration of these active ingredients.	IBAMA	Anvisa, MAPA	continuous	government, private sector	4
8.2.	Implement the National Implementation Plan (NIP) from the Stockholm Convention on Persistent Organic Pollutants (POPs)	Protect human health, the biota and the environment from persistent organic pollutants, through the environmentally sound elimination of stockpiles and residues of POPs substances identified in Brazil, implementing reduction strategies of the release of unintentional POPs in national sources and manage areas contaminated by POPs.	MMA, OEMAs, institutions listed in the NIP, the private sector	NGOs	2020	government, private sector	4, 7
8.3	Define strategies to reduce releases of mercury in water, based on the national inventory of emissions and mercury releases	Protection of aquatic organisms from activities aimed at minimizing releases of mercury.	MMA	Oemas, private sector	2018	government, private sector	4
8.4	Develop and implement legislation on the registration and control of industrial chemicals	Create and implement the registration of industrial chemicals and tools for risk analysis of hazardous chemicals (that include an assessment of impacts on biota) for establishing risk management measures of these chemicals, thus minimizing the release of hazardous substances in the environment	MMA	Associations of industries	2020	government, private sector	4
8.5	Conduct monitoring on cetaceans and fish for contamination of	Periodically investigate the contamination of biota by POPs and mercury in order to establish continuous monitoring.	Research institutions	MMA	2020	government, NGOs, academy	4

	POPs and mercury in the Brazilian coast and in the Amazon region	POPs and mercury are neurotoxic, bio-accumulative, carcinogenic and mutagenic substances					
8.6	Control the level of phosphorus in detergents	Prevent eutrophication in natural ecosystems by reducing the content of phosphorus. Phosphorus is an accumulative element and a nutrient that limits the growth of phytoplankton organisms.	MMA	Associations of industries	Continuous	government, private sector	4

National Target 9: By 2020, the National Strategy on Invasive Alien Species is fully implemented, with the participation and commitment of states and the elaboration of a National Policy, ensuring the continuous and updated diagnosis of species and the effectiveness of Action Plans for Prevention, Contention and Control.

Actions		Goal	Entity in Charge	Possible partners	Deadline	Sector	Interface (other targets)
9.1	Development and implementation of control plans for prevention, early detection, eradication and monitoring of invasive alien species.	Review and update the legal framework applicable to the control of input and re-introduction of alien species and develop and edit the official national lists of invasive alien species in each environment (marine, inland water and terrestrial).	MMA	ICMBio, JBRJ, Ibama	2019	government	12

National Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other marine and coastal ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
10.1	Update of Priority Areas for Conservation, Sustainable Use and Sharing of Benefits for Biodiversity for Coastal and Marine Zones	Update the priority areas of the Coastal and Marine Zones through studies to update this tool with applications in systematic planning of biodiversity.	DECO / SBF	Besides ICMBio, Universities, NGOs working with coastal and marine biodiversity, MAPA (fishing), MME (oil and gas), Secretariat of Ports, CIRM, Ministry of Defense (Navy), MCTIC, among others.	2017	government, academy states, companies, civil society	2
10.2	Improve marine and coastal biodiversity monitoring	Generate qualified information for an evaluation on the effectiveness of conservation actions, as well as influence policy and decision-making, both at the local and regional level.	ICMBio	DECO / SBF	2020	government	1.19

National Target 11: By 2020, at least 30% of the Amazon, 17% of each of the other terrestrial biomes, and 10% of the marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation, ensuring and respecting the demarcation, regularization, and effective and equitable management, so as to ensure ecological interconnection, integration and representation in broader landscapes and seascapes.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
11.1	Strengthen the Amazon system of protected area and the connectivity between protected areas (GEF Sustainable Amazon Projects and ARPA Program)	Consolidate 60 million hectares of protected areas.	DAP / SBF	DPCD / SMCQ, ICMBio, OEMAs. Colombia and Peru	2016 to 2021	government, states	5, 12
11.2	Expansion of the National System of Protected Areas in the Caatinga, Pantanal and Pampa biomes (GEF Land Project)	Support processes to create one million hectares of new protected areas and strengthen management and consolidation of UC.	DAP / SBF	ICMBio, OEMAs, communities surrounding protected areas	2017 to 2021	government, states and civil society.	1, 5, 12, 15
11.3	Support to the elaboration and implementation of Management Plans of state and federal UC, including training in this area.	1. Provide planning tools for more effective management of UC. 2. Consolidate and disseminate national guidelines for the development of management plans.	DAP/DBF, States, ICMBio	MMA, Research institutions	2018	government, states	2, 12, 14, 15

National Target 11: By 2020, at least 30% of the Amazon, 17% of each of the other terrestrial biomes, and 10% of the marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation, ensuring and respecting the demarcation, regularization, and effective and equitable management, so as to ensure ecological interconnection, integration and representation in broader landscapes and seascapes.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
11.4	Implementation of the New Registry National Protected Areas	Evolve the current CNUC platform, in order to include the information necessary for the coordination of SNUG, to adequate accessibility standards and the interoperability of systems and technologies.	DAP / SBF	state, municipal and federal management agencies , Ministry of Defense, Ibama, DECo	2018	government, states	19
11.5	Promotion of integrated management of protected areas through the Protected Areas Clusters	Promote integrated management, with a view to subsidizing the conduct of actions within the Mosaics of Protected Areas, increasing the effectiveness of conservation and the efficiency in the management of the areas.	DAP / SBF	ICMBio, state and municipal bodies of protected areas, civil society	2018	government, states	5, 7, 14, 15

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Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
11.6	Strengthening of SNUC management tools: Biosphere Reserves	Strengthen the Brazilian Biosphere Reserve colleges and the Brazilian Commission for the "Man and the Biosphere" Program - COBRAMAB, making possible an international management tool for integrating biodiversity conservation actions, sustainable development, research, education and monitoring in significant portions Of the Atlantic Forest, Cerrado, Caatinga, Pantanal biomes, beyond Central Amazonia, Serra do Espinhaço and Green Belt of the City of São Paulo.	DAP / SBF	Ministries and other institutions that make up COBRAMAB and Deliberative Councils and Regional Committees or State Biosphere Reserves, with special attention to state environmental managers.	2020	government, states	1, 2, 7, 14, 19
11.7	Expansion of the system of marine protected areas (GEF-Sea Project)	Increase the system of Marine and Coastal protected areas reaching a percentage of to 5%(equivalent to 175,000 km²)	DAP / SBF	ICMBio, state management bodies	2020	government, states	5 , 10, 12

ational Target 11: By 2020, at least 30% of the Amazon, 17% of each of the other terrestrial biomes, and 10% of the marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation, ensuring and respecting the demarcation, regularization, and effective and equitable management, so as to ensure ecological interconnection, integration and representation in broader landscapes and seascapes.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
11.8	Study on ecological corridors in Latin America	Promote the connectivity between natural areas in Brazil and also in the border regions with the neighboring countries of Latin America through the Ecological Corridors Project of Latin America	DAP/SBF	REDPARQUES, ASIN, sociedade civil, órgãos estaduais, ICMBio, USP	2020	government, states, civil society	12, 14, 1,
11.9	Strengthening of partnerships between protected areas in the border regions between Brazil (Acre State) and neighboring countries (Peru and Bolivia) in the Amazon (IAPA Project - Integration of Protected Areas of the Amazon)	Promote the exchange of management experiences between protected areas and civil society partners in the Amazon for the construction and dissemination of the "Amazon Vision" of conservation through the facilitation of dialogue among countries and the promotion of conservation actions in partnership.	REDPARQUES, DAP/MMA	FAO, ICMBio, Government of the State of Acre, Peru, Colômbia	2019	government, civil society	5, 12, 14,

National Target 11: By 2020, at least 30% of the Amazon, 17% of each of the other terrestrial biomes, and 10% of the marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation, ensuring and respecting the demarcation, regularization, and effective and equitable management, so as to ensure ecological interconnection, integration and representation in broader landscapes and seascapes.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
11.10	Protected areas and other area-based conservation measures at the local government level.	Strengthen capacities and governance at the local level for the management of protected areas and other conservation measures and disseminate at local, subnational, national and international levels the benefits of protected areas and other conservation measures and the challenges of their management.	DAP/SBF, IUCN Brasil, ICLEI	Brazil, Colombia, Ecuador and Peru	2019	government, municipalities	14, 15
11.11	Development of the protocol of ecological representativeness and identification of conservation gaps.	To coordinate with states and federal government the creation of new UCs and articulate with other sectors the adhesion of other protected areas to compliance with National Target 11.	DAP/SBF and DESP/SBF	Funai, MDSA, Defense Ministry, ABEMA, OEMAs	2018	Government, civil society	5, 12, 17

National Target 11: By 2020, at least 30% of the Amazon, 17% of each of the other terrestrial biomes, and 10% of the marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation, ensuring and respecting the demarcation, regularization, and effective and equitable management, so as to ensure ecological interconnection, integration and representation in broader landscapes and seascapes.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
11.12	To form a bank of areas with loss of forest cover in protected areas	Prioritize actions for the recovery of degraded or deforested areas in order to promote the improvement of the connectivity and integrity of areas destined for biodiversity conservation.	DAP/SBF and DECO/SBF	ICMBIO, IBAMA and state management bodies	2018	government	5, 15
11.13	Adopt SNUC communication plan	Disclose the importance of protected areas for biodiversity conservation and ecosystem services.	DAP/SBF	ICMBIO, IBAMA and state management bodies	2017	government	1, 12, 19

National Target 12: By 2020, the risk of extinction of threatened species has been significantly reduced, tending to zero, and their conservation status, particularly of those most in decline, has been improved.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
12.1	Reduce the threat of extinction of Brazilian biodiversity species, recover their populations and promote knowledge and sustainable use	1. Assess the state of conservation and vulnerability of fauna and flora species threatened with extinction. 2.Publish a national list of endangered species. 3. Develop management tools, including the development of conservation programs for endangered species and implement national action plans. 4. Strengthen and expand biodiversity monitoring programs with emphasis on endangered or special interest species.	MMA	ICMBio, Ibama, JBRJ, research institutions	2019	government, academia	1, 6, 7, 9, 11
12.2	Implementation of the Convention on International Trade of Wild Endangered Fauna and Flora Species - CITES	Assess the impact of international trade on flora and fauna species threatened with extinction within the scope of CITES.	IBAMA	MMA, ICMBio	2019	government	6 , 7
12.3	Development and improvement of federal regulations related to monitoring, management, disposal and recovery of flora and fauna resources	1. Reduce the threat of extinction of Brazilian biodiversity species, recover their populations and promote knowledge and sustainable use 2. Implement and monitor technical cooperation agreements for forest and wildlife management and promote capacity building in agencies part of the National Environmental System - Sisnama, for the operation of information systems (Sinaflor, Sisfauna).	MMA and Ibama	ICMBio and States	2019	government	1

National Target 12: By 2020, the risk of extinction of threatened species has been significantly reduced, tending to zero, and their conservation status, particularly of those most in decline, has been improved.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
12.4	Implementation of the Convention on the Conservation of Migratory Species of Wild Animal - CMS	Preserve on a global scale migratory species of wild animals, including terrestrial, aquatic and bird species.	MMA / SBF	ICMBio, Ibama, SAVE Brazil, MAPA	2023	federal government, academy, civil society, companies, states	1, 5, 6, 11
12.5	Review of legislation that applies to pollinators	Improve the production chain in order to conciliate the interests of use and protection of pollinators.	DESP / SBF / MMA	Ibama, ICMBio, MAPA	2017-2018	government, productive sector	1, 7
12.6	Expansion of fauna and flora protection in Caatinga, Pantanal and Pampa (GEF Land Project)	1. Develop and implement action plans for endangered species. 2. Assess the risk of extinction of species. 3. Assess effectiveness of UCs in the conservation of species.	DESP / SBF	ICMBio, JBRJ, OEMAs,	2017 to 2021	federal government, states, academy, civil society	1, 11, 19

National Target 13: By 2020, the genetic diversity of microorganisms, cultivated plants, farmed and domesticated animals and of wild relatives, including socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing the loss of genetic diversity.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
13.1	Support the Conservation *ex-situ* of Brazilian genetic heritage (Project from the National Benefit Sharing Fund)	1. Enhance the conservation capacity and availability of species with current or potential interest and with economic, environmental, cultural and agricultural value and with potential use for genetic improvement and food safety. 2. Conserve the genetic diversity of traditional local native varieties, developed or adapted by indigenous peoples, traditional communities and family farmers. 3. Provide genetic material expeditiously and burden free for indigenous peoples, traditional communities and family farmers. 4. Implement projects (via National Benefit Sharing Fund).	DPG / SBF	MDSA, Chief of Staff / Special Secretariat for Family Agriculture, MCTIC, MAPA, Embrapa	Starting in 2017 continuous	government and civil society.	2, 16, 18
13.2	Integrating biodiversity in food safety and nutrition policies (GEF Project "Biodiversity Conservation and sustainable use to improve nutrition and human well-being")	1. Demonstrate the nutritional value of agricultural biodiversity and the role it plays in promoting healthy diets and the strengthening of livelihoods. 2. Use the evidence generated to influence policies, programs and markets that support the conservation and sustainable use of agro-biodiversity with nutritional potential. 3. Provide tools, knowledge and best practices for increased use of biodiversity for food and nutrition.	MMA	Chief of Staff/ Special Secretariat For Family Agriculture; MDSA; MAPA; MEC; MS; MCTIC; Conab; FNDE; Consea; Embrapa; FNN; Public Universities.	2017	government, academy	1, 2, 3, 4, 7, 14 and 18

National Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, traditional peoples and communities, indigenous peoples and local communities, and the poor and vulnerable.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
14.1	Implementation of Ramsar Sites (areas of international importance to wetland ecosystems)	Develop an implementation strategy of the Ramsar Convention, focusing on Ramsar Sites.	DECO / SBF	ANA, ICMBio, NGOs, Universities, Ministries, member states that make up the National Wetlands Committee (CNZU), managers of Ramsar Sites	2017	government, academia, states, companies, civil society	10, 11, 14

National Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions, including restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
15.1	Implementation of guidelines and targets on biodiversity from the National Climate Change Adaptation Plan	1. Improve scientific knowledge about the vulnerability of biodiversity to climate change and its role in reducing social and economic vulnerabilities. 2. Implement adaptation measures, including adaptation based on ecosystems.	DLAA / SMCQ and DECO / SBF	Ministries and Sectors related to cities, health, water resources, coastal zones, energy, risk management and disaster, industry and mining, infrastructure, vulnerable groups, agriculture, food security and nutrition	2020	Government and civil society.	1, 10

National Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions, including restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
15.2	Establish a policy and National Plan for the Recovery of Native Vegetation - PLANAVEG	1. Awareness raising: launch a communication movement focused on farmers, agribusiness, urban citizens, opinion and trend setters and decision makers in order to promote awareness on the recovery of native vegetation, its benefits and how to get involved and support this process. 2. Seeds & Seedlings: promote the productive chain of the recovery of native vegetation through increased capacity in vivariums and other structures for the production of native species as well as to rationalize policies to improve the quantity, quality and accessibility of native species seeds and seedlings. 3. Markets: foster markets from which landowners can generate revenue through marketing wood and non-wood products, protection of watersheds and other services and products generated by the recovery of native vegetation. 4. Institutions: define the roles and responsibilities among government agencies, business and civil society, and align and integrate existing and new public policies to promote the recovery of native vegetation.	DECO / SBF	Government: MAPA, MCTI, Chief of Staff / Special Secretariat for Family Agriculture, MF, MP, ABEMA, ANAMMA. Civil society: WRI, IUCN, IIS, PUC-RJ, USP	2016	Government and civil society.	11, 14

National Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions, including restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
		5. Financial mechanisms: develop innovative financial mechanisms to encourage the recovery of native vegetation, including preferential bank loans, donations, environmental compensation, specific tax exemptions and forestry bonds. 6. Rural extension: expanding rural extension services (public and private) in order to contribute to the training of landowners, highlighting low cost recovery methods. 7. Spatial planning and monitoring: implement a national system of spatial planning and monitoring to support decision-making processes for the recovery of native vegetation. 8. Research and development: increase the scale and focus on investment in research development and innovation to reduce costs, improve quality and increase the efficiency of native vegetation recovery, considering environmental, social and economic factors.					

National Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions, including restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
15.3	Promoting sustainable landscapes in the Amazon (GEF Landscapes)	Implement policies to promote sustainable land use and recovery of native vegetation in the Amazon, promoting connectivity.	DECO and DAP / SBF	DPCD / SMCQ, ICMBio, OEMAs. Colombia and Peru	2016 to 2021	government, states	11, 14
15.4	Promote the restoration of native vegetation in the Caatinga, Pantanal and Pampa (GEF Land Project)	1. Develop tools and guidelines for the restoration of native vegetation. 2. Implement restoration in selected areas in order to increase carbon stocks and promote connectivity.	DECO / SBF	ICMBio, OEMAs, Research institutions	2017 to 2021	government, states, academia	1, 11 and 14
15.5	Implementation of the Environmental Adjustment Programs - PRAs	Promote environmental regularization of rural properties and consequent conservation / restoration of PPAs and RLs.	SFB and OEMAs	DECO / SBF	2016	government, states	11, 14
15.6	Improvements of the regulation on production, trade and use of forestry seedlings along with native and exotic plants	Adapt the rules and regulations of IN # 56 to the needs of large-scale production of native seeds and seedlings for recovery purposes.	MAPA	DECO / MMA, SFB, Chief of Staff / Special Secretariat for Family Agriculture	2016	government	7, 14

National Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
16.1	Development and implementation of the National Management System of Genetic Heritage and Associated Traditional Knowledge - SisGen	1. Provide users with a management system to access to components the genetic heritage and / or associated traditional knowledge in an agile, simple, transparent manner. 2. Automatize the steps that make up the management processes of genetic heritage and associated traditional knowledge. 3. Assist the inspection and control activities. 4. Allow the traceability of the use of genetic heritage or associated traditional knowledge and benefit sharing.	DPG / SBF	Anvisa, MCTIC, MF, MAPA, Ibama, Funai, MDIC, INPI, CDN	Beginning in 2016 - continuous	government	18
16.2	Implementation and operation of the National Benefit Sharing Fund Office	Apply the funds from the benefit sharing Fund to support actions and activities aimed at enhancing genetic heritage and associated traditional knowledge and promote their use in a sustainable manner, in accordance with the guidelines from the National Benefit Sharing Program - PNRB.	DPG / SBF	MMA, MF, MDSA, MCTIC, Chief of Staff / Special Secretariat for Family Agriculture, Funai, Iphan, CNPCT, Condraf, NCIP, SBPC, Consea	2016 to 2017	Government and civil society.	2, 5, 7, 11, 13, 14, 18, 19

National Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other goals)**
16.3	Development and implementation of the "Brazilian Portal on Access to Genetic Heritage and Associated Traditional Knowledge"	Create a national reporting mechanism that is able to transmit the information necessary and foreseen for the *"Clearinghouse mechanism"* from the Nagoya Protocol and the Convention on Biological Diversity; as well as facilitate ABS's national communication, within the *"Clearing-house"* National model on ABS.	DPG / SBF	Anvisa, MCTIC, MF, MAP, CNPq, Ibama, Funai, MDIC, INPI, CDN, MinC	April 2017	government	1, 4, 19

National Target 17: By 2014, the national biodiversity strategy is updated and adopted as policy instrument, with effective, participatory and updated action plans, which foresee periodic monitoring and evaluation.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
17.1	Implementation, monitoring and updating of NBSAPs	1. Provide progressive and harmonious guidance for the actions aimed at biodiversity or that are affected, planned and executed by the different sectors, and that are specific, measurable, achievable, relevant and temporal as well as ensuring gender mainstreaming. 2. Contribute to the achieving the Aichi Targets.	PBS / MMA	PainelBio, Conabio	2016	government, academia, states, companies, civil society	0, 1, 2, 3, 4 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20

National Target 17: By 2014, the national biodiversity strategy is updated and adopted as policy instrument, with effective, participatory and updated action plans, which foresee periodic monitoring and evaluation.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
17.2	MMA membership expansion linked to NBSAPs	Ensure the participation of all MMA departments and its connected institutions (JBRJ, ICMBio, Ibama and ANA) in the implementation of National Biodiversity Targets.	PBS / MMA	All departments of MMA and those connected to it: JBRJ, ICMBio, Ibama and ANA	2016	government	0, 1, 2, 3, 4 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20
17.3	Expansion of the multi-sectoral membership of NBSAP	1. Internalize the National Biodiversity Targets in all sectors of society, in order to obtain the necessary integration of all actors to tackle the causes of biodiversity loss and promote its conservation and sustainable use. 2. Present and discuss the NBSAP under Conabio, establishing subsidies for its improvement.	PBS / MMA	Several, in all sectors of society.	2017	government, academia, states, companies, civil society	1,2, 3, 4, 5 , 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20
17.4.	Evaluation and monitoring of the implementation process of National Biodiversity Targets	1. Refine the indicators for the National Biodiversity Targets. 2. Implement the monitoring of National Biodiversity Targets. 3.Define the communication strategy for the monitoring of the National Biodiversity Targets	PBS / MMA	PainelBio, DGE / MMA, IBGE, Conabio	2016	government, academia, states, companies, civil society	0, 1, 2, 3, 4 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20

National Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous peoples, family rural producers and traditional communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, in accordance with their uses, customs and traditions, national legislation and relevant international commitments, and fully integrated and reflected in the implementation of the CBD, with the full and effective participation of indigenous peoples, family rural producers and traditional communities, at all relevant levels.							
	Actions	**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
18.1	Strengthen productive chains of herbal medicines with access to genetic heritage and associated traditional knowledge	1. Strengthen productive chains of products that result from associated traditional knowledge. 2. Promote free trade of products derived from associated traditional knowledge from and traditional peoples and communities.	DPG / PBS and SEDR	MS, Anvisa, MI, MAP, MDIC, Chief of Staff/ Secretariat for Family Agriculture, ICMBio, SFB, Sebrae	2017 to 2019	government, companies	2, 4, 5, 7, 13, 19
18.2.	Capacity building on national and international regulations governing access, delivery and benefit sharing (ABS)	Expand the capacity of different stakeholders on issues such as development of tools to promote the ABS system management in the country; awareness and training for key stakeholders engaged in ABS, with special attention to the training of indigenous and traditional communities (providers) to participate in ABS transactions.	DPG / SBF	MEC, MJ, Funai, Chief of Staff, Ibama, ICMBio, FCP, Sebrae, CNPCT, APIB, Condraf	2016 to 2017	government, companies, civil society	1, 2, 7, 13, 16
18.3.	Fund monographs and clinical studies for inclusion of new species in the compendium of Brazilian Pharmacopoeia	Increase the number of herbal medicines developed from Brazilian biodiversity with utilization recommended by the National Health System.	DPG / SBF	MS, Anvisa	2017 to 2018	government	13

National Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous peoples, family rural producers and traditional communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, in accordance with their uses, customs and traditions, national legislation and relevant international commitments, and fully integrated and reflected in the implementation of the CBD, with the full and effective participation of indigenous peoples, family rural producers and traditional communities, at all relevant levels.							
	Actions	**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
18.4.	Implementation of dissemination strategy for Community Protocols	1. Promote voluntary codes of conduct, guidelines and best practices and / or standards 2. Build the capacity of users and suppliers of genetic resources and traditional knowledge associated with genetic resources. 3. Raise awareness on the protocols and procedures of indigenous and local communities.	DPG / SBF	FCP, FUNAI, GTA, Pacari, APIB, CNPCT	2016 to 2020	Government and civil society.	1
18.5	Training of the Network of Multipliers in Access and Benefit Sharing	Integrate and keep multipliers well prepared in the instructions from the training in ABS	DPG / SBF	States: AC, AP, PA, AM, RO, RR, BA, MG, MS, RS	2016	states	1

National Target 19: By 2020, the science base and technologies necessary for enhancing knowledge on biodiversity, its values, functioning and trends, and the consequences of its loss, are improved and shared, and the sustainable use of biodiversity, as well as the generation of biodiversity-based technology and innovation are supported, duly transferred and applied. By 2017, the complete compilation of existing records on aquatic and terrestrial fauna, flora and microbiota is finalized and made available through permanent and open access databases, with specificities safeguarded, with a view to identify knowledge gaps related to biomes and taxonomic groups.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
19.1	Implementation of a Decision Making Support System for Biodiversity - SINADE	Create an analysis reference module to: 1. Present spatial information. 2. Generate Reports 3. Identify priority areas for conservation, connectivity and fragmentation analysis, identification of sensitive areas for ecosystem services and recovery that may assist in the decision-making process.	Information System on Brazilian Biodiversity - SIB- Br / Ministry of Science, Technology and Information and DECO / SBF / MMA	ICMBio, Ibama, JBRJ, Universities, Research Centers	December 2016 Operation initiation	Government, academia and civil society.	1, 2, 14, 15
19.2.	Promote the synergy between information systems on Brazilian biodiversity	1. Integrate SISBIO systems, Species, Biodiversity Portal, SINADE, JABOT, SIBBr / MCTIC. 2. Enable free access to relevant information on biodiversity. 3. Provide analysis tools for decision makers.	MMA, MCTIC	ICMBio, Ibama, JBRJ	2017	government	1,2

National Target 20: Immediately following the approval of the Brazilian targets, resources needs assessments are carried out for the implementation of national targets, followed by the mobilization and allocation of financial resources to enable, from 2015 on, the implementation and monitoring of the Strategic Plan for Biodiversity 2011-2020, as well as the achievement of its targets.							
Actions		**Goal**	**Entity in Charge**	**Possible partners**	**Deadline**	**Sector**	**Interface (other targets)**
20.1	Design and monitor the Federal Environmental Expenditures	Quantify, analyze and track environmental spending by the federal government, based on the environmental public spending concept.	Institute of Applied Economic Research	MMA, MP, MF	2016	government	2, 17
20.2	Biodiversity spending survey	Conduct a survey on federal, state and private sector expenditures related to biodiversity from 2006 to 2015.	SBF / MMA	Ipea, CEBDS, CNI, states	2016	government, states, companies	2, 17
20.3	Improve a Plan of Financial Resource Mobilization for the conservation of biodiversity (Biodiversity Funding Initiative - BIOFIN Brazil)	Scale public spending on biodiversity in a systematic way to identify gaps and propose innovative funding mechanisms for the conservation and sustainable use of biodiversity. This initiative is complementary to the efforts already adopted by IPEA and the Ministry of Environment to measure expenditures (actions 20.1 and 20.2) and intends to advance for the Strategy Financial Resource Mobilization for Biodiversity	MPOG	MMA, MF and IPEA	2018	government	2, 17

7. Action Plan for Biodiversity: Second Module

The process to update the NBSAP mobilized the participation of many sectors and produced analyses and information of great importance for Brazilian biodiversity, such as the joint identification of the main causes of loss of biodiversity elements, as well as 26 of the most observable consequences of the process biodiversity loss, the extinction of species and the loss of traditional knowledge, based on survey results from the federal government group.

The following fundamental stages that are foreseen in the methodology and update strategy for NBSAP have already been fulfilled:

- Definition of the National Strategy for Biodiversity, through the new national targets for the 2011-2020 cycle (Dialogues on Biodiversity);
- Construction of subsidies for a Government Action Plan for the Conservation and Sustainable Use of Biodiversity (multi-sectorial);
- The creation of the Brazilian Panel on Biodiversity - PainelBio;
- Participatory elaboration of indicators for national targets for 2020; and
- Structuring the preliminary NBSAP document with the 1st Action Plan module.

Four other steps are still needed to consolidate the 2nd Action Plan module, which will include the updated NBSAP version at the national level and include the commitments made by other sectors and government institutions:

- Refinement and adoption of indicators for the National Biodiversity Targets;
- Action Plan Expansion, with a national focus;
- Finalization of the Institutionalized Action Plan; and
- Presentation of NBSAP to CONABIO.

The creation of PainelBio was essential to ensure the broad spectrum of technical contributions in many areas of knowledge covered by NBSAP, considering that the panel has as purpose: to promote synergy between institutions, to disseminate knowledge, to conduct training and support for the decision-making process aiming to reach the National Biodiversity Targets. SBF is seeking to resume the cooperation with PainelBio in order to take the next steps of updating and implementation of NBSAPs.

7.1.Government Bodies

The involvement of stakeholders such as the Ministry of Planning, the Ministry of Finance and the Chief of Staff is of great importance in order for this theme to be absorbed by all sectors of the government. The main objective of the Brazilian government is to build an environment of trust and cooperation with the academic and business sectors as well as with civil society, especially those who have associated traditional knowledge, to promote the sustainable use of Brazilian genetic heritage and the valuing of the knowledge from indigenous and traditional communities and traditional farmers, and generate opportunities for Brazil to strengthen and develop sectors of the economy where the conservation of biodiversity the key element is.

7.1.1. Federal government

The participatory process and efforts for

engagement began in the government sector during the construction of subsidies for a Government Action Plan for the Conservation and Sustainable Use of Biodiversity. Through this process a formal commitment was reached with other ministries and government institutions in order to combat the loss of biodiversity and to foster the achievement of national goals.

Several of the actions taken by the SBF require the coordination and joint action with other sectors of the government, which is critical to the achievement of national goals. Table 10 presents this synergy structured for each of the National Targets presented in the format of the 1st module of the Action Plan for Biodiversity.

7.1.2. State governments

Strengthening the coordination along with all entities of the federation has been a SBF priority and should allow the targets at the subnational level to be established for the creation and expansion of protected areas. This action will come about through direct contacts with state management agencies in order to collect updated information on the broadening of the process, to create of state and municipal protected areas and to identify partnership opportunities between the MMA and the states for the expansion and consolidation of SNUC.

MMA's coordination of SNUC is both to support the expansion of the system through the creation of new UCs, as well as to provide the technical and financial support through various international cooperation projects. This support is directed both to the Federal UCs, whose governing body is the Chico Mendes Institute for Biodiversity Conservation - ICMBio, as well as for the UCs from different states.

7.2.Academia

The dialogue between science and policy is reflected through the improved quality of information for decision making. The Brazilian Academy has much to offer the process of formulation and implementation of public policies, including: technical expertise, generation and interpretation of data and information, international credibility, independence and circumspection46.

Historically, however, there is still a long way to go in order to reach a clear definition of the role of academia in public policy discussions. The government needs more guidance on the how and where to access scientific information in order to find to answer questions about the implementation of public policies. On the other hand, the scientists need to broaden their engagement in the development and implementation of public policies and improve the decisions that affect society as a whole.

SBF outlined an approach to strengthen the use of science-based decision-making processes in public policies for biodiversity conservation in Brazil, based on three axes (Figure 9):

1) systematization, qualification and dissemination of databases,
2) filling scientific gaps on biodiversity, ecosystem services and human well-being, and
3) strategic analyses and subsidies for decision-making on public policy.

This strategy will also contribute to achieving

[46] BLOCKSTEIN, 2002. How to lose your political virginity while keeping your scientific credibility. BioScience 52 (1): 91-96.

the national goals of Biodiversity, particularly Target 19, besides promoting the integration of the academic sector in the 2nd Action Plan module.

Systematization, qualification and releasing scientific databases

Two key points for structuring the scientific knowledge of Brazilian biodiversity would be the integration and systematization of the scientific basis for biodiversity that the country has, taking into account its heterogeneity.

This characteristic is regarding biodiversity information and data formats that come from different research groups and have different objectives, methodologies and vocabularies.

Towards the end of 2015, the Biodiversity Portal was launched, as a response to this situation, and used the data that was available within the federal environmental institutions. (<https://portaldabiodiversidade.icmbio.gov. Br / portal />). As mentioned in item 2.5.1, the Biodiversity Portal aims to provide to Brazilian society, data and information on Brazilian biodiversity generated or received by the Ministry of Environment and institutions linked to it.

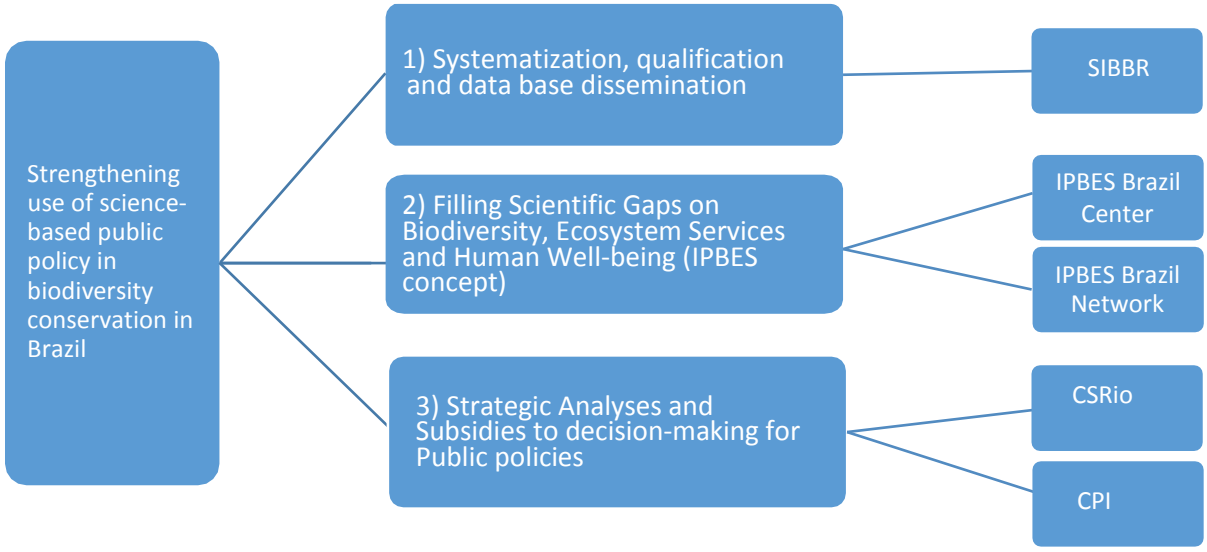

Figure 9. Lines of action for strengthening the use of a Scientific Base

Another important and even more comprehensive initiative is the SiBBr, presented in item 2.5.3. It is important to highlight that the Biodiversity Portal and SiBBr will be integrated in 2016.

Filling scientific gaps on biodiversity, ecosystem services and human well-being

With a well-structured and operational quantitative and qualitative database, it is possible to identify scientific gaps that still exist on biodiversity, ecosystem / environmental services and human well-being, traditional

knowledge along with gender relations and their interaction with biodiversity. To make this possible, we will use as reference the conceptual framework from the Biodiversity Intergovernmental Platform and Ecosystem Services[47] (IPBES) regarding the regional diagnosis on the current state of biodiversity and ecosystem services.

The conceptual framework describes social and ecological key components and the relationships between them and proposes a common language to all scientific works[48]. According to Diaz (2015), this conceptual framework is a highly simplified model of the complex interactions between the natural world and human society and consists of six elements: nature (the natural world with an emphasis on biodiversity and ecosystems), nature's benefits to people (including spiritual, religious, cultural and commercial values), anthropogenic assets (knowledge, technology, financial resources, infrastructure), indirect drivers of change (such as governance and law systems), direct drivers of change (habitat change, climate change) and good life quality (access to water, food, health, education, security, culture, material prosperity, spiritual fulfillment and freedom of choice)[49].

IPBES is conducting global and regional assessments on the status and trends of biodiversity and ecosystem services, the impact of biodiversity and ecosystem services on human well-being and the effectiveness of responses, including the Strategic Plan for Biodiversity and its Aichi Targets and national NBSAPs. These assessments also aim to identify the need for training, knowledge and tools for political support.

The National IPBES report will identify relevant gaps in scientific knowledge in its executive summary. These gaps may be filled by dedicated research, carried out by a research network and a research center which may also support Brazil's position in international negotiations, including in the IPBES itself.

A good example of the interaction between academia and decision makers to fill scientific gaps on biodiversity is the National System of Biodiversity Research[50] - Sisbiota. This system has as its goals: to promote and increase knowledge of Brazilian biodiversity; improve the ability to predict responses for global change, particularly the change of land use and climate change; and create links between research and training of human resources, environmental education and dissemination of scientific knowledge. This system operates with four main themes:

1) Expansion of knowledge on biodiversity;
2) Standards and biodiversity-related processes;
3) Monitoring of biodiversity; and

[47] The Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES) is an intergovernmental body established in 2012 that aims to "strengthen the science-policy interface on biodiversity and ecosystem services to promote the conservation and sustainable use of biodiversity, long term human well-being and sustainable development "(<http: // www. ipbes.net>). IPBES is a collaboration between the four UN entities: UNEP, UNESCO, FAO and UNDP and is administered by UNEP. The IPBES currently has 124 member states and a number of worldwide scientists that contribute to the work of IPBES voluntarily.

[48] Diaz et al. 2015. The IPBES conceptual framework - connecting people and nature. Current Opinion in Environmental Sustainability 14: 1-16.

[49] http://agencia.fapesp.br/marco_conceitual_do_ipbes_e_publicado/20559/

[50] Available on: http://cnpq.br/apresentacao-sisbiota#void

4) Development of bio-products and uses of biodiversity.

This multilateral initiative[51] is coordinated by MCTI through its subordinated bodies and the first call for proposals was launched in 2010 with the approval of research projects in the Amazon, Caatinga, Cerrado, Pantanal, Atlantic Forest and Pampa, and coastal and marine areas and is split into three public calls, according to specific thematic lines:

Public Call 1 - Summary and gaps of Brazilian biodiversity knowledge;

Public Call 2 - Research in Thematic Networks to expand the knowledge of Brazilian biodiversity: biota, functional role, use and conservation;

Public Call 3 - Research in thematic networks for understanding and predicting responses of Brazilian biodiversity to climate change and land use.

Another initiative that contributes to filling scientific gaps on biodiversity is the Environmental Monitoring Program of Brazilian Biomes. Despite the existence of many vegetation coverage mapping initiatives of Brazilian biomes that have been made by government institutions (federal and state) and research institutions, there was still a lack of a set of information on land coverage in the country, that could present data in a frequent, consistent and complementary way on land use and land coverage. Therefore, the Environmental Monitoring Program of Brazilian Biomes was created through MMA Ordinance Nº. 365, from November 27, 2015, whose ultimate aim is to provide the country with a set of information on the remaining native vegetation and the various human activities in the Brazilian biomes detected through satellite .images. The monitoring provided by the program ranges from previous monitoring, such as the Deforestation Detection System in Real Time - DETER and the Satellite Monitoring Project of the Brazilian Amazon Forest - PRODES, performed by INPE, and also provides for the implementation new mappings that deal not only with deforestation on an annual and ongoing basis but also with selective logging in the Amazon, land use and land coverage, recovery (regeneration areas), burned areas and fire outbreaks. A synoptic view of this monitoring, with its various types and frequencies, allows possible information gaps to be identified, and makes it possible to discover what is needed to improve the methodologies employed in the detection processes of these geographical targets. This set of information is important for a better understanding of the ecological, economic and social dynamics that influence the Earth's surface, which are fundamental elements for the definition of public policies related to the conservation and sustainable use of Brazilian biodiversity.

Strategic Analyses and Subsidies for decision-making in Public Policy.

Complementing basic scientific research, it is necessary to work towardsthe development of strategic analyses and subsidies to public policy decision-making through research projects directly applied to public policies that are strategic for SBF and to Brazil's position in international processes.

Some research institutions have already undertaken important work in this area, and the use of existing structures in the research centers

[51] [51] This initiative involves the Ministry of the Environment - MMA, National Fund for Scientific and Technological Development - FNDCT, Higher Education Personnel Improvement Coordination - CAPES, National Council for Scientific and Technological Development - CNPq, and 18 state foundations of support research

can allow the government sector to have a broader view on priorities for monitoring, with greater integration of scientific data in the formulation of public policy.

The development of comparative studies on the conservation efforts of the various countries on specific issues is also an objective to be pursued.

It is necessary to advance the definition of models, processes and tools so that science can effectively be part of the political decision-making process, taking into account social and gender aspects linked to biodiversity. SBF's actions in this regard are guided by the search for the connection between the technical staff and experts. An example of this is the design of the National Plan for the Recovery of Native Vegetation - Planaveg, where there was the joint work between the third sector, academia and government agencies[52] promoting the debate on interdisciplinary issues that are part of the conservation issues.

Experiences like this can be the basis for the actions between research groups and government teams with the participation of the third sector, generating fast responses to emerging issues, based on scientific evidence that can be reflected in the decision-making processes.

The expansion of mechanisms that enable greater integration between the objectives of public policy and the allocation of resources to generate and manage scientific knowledge, as well as to expand synergy is also reflected in the decision-making process.

National Program for Research in Biodiversity and Ecosystems

Initial steps were taken for the construction of a National Program for Research in Biodiversity and Ecosystems, under the coordination of the Ministry of Science, Technology and Innovation with the mission to "propose actions and solutions based on scientific knowledge that enhance national, regional and local strategies for planning and development, was put together in order to support, adapt, and evaluate public policies and promote the conservation and sustainable use of biodiversity and ecosystem services[5353].

The program is directly related to the Strategic Plan for Biodiversity 2011- 2020 from the Convention on Biological Diversity, and is divided into three areas, based on strategic objectives that guide the Aichi Targets and

[52] The development of a proposal for the National Policy and National Plan for Native Vegetation Recovery (PLANAVEG) was signed in 2013 through a Memorandum of Understanding between the MMA and the World Resources Institute (WRI), institution that is a partner in the Global Partnership of Forest Landscapes Restoration (GPFLR -Global Partnership on Forest Landscape Restoration) In the context of this partnership, workshops were held in São Paulo, Rio de Janeiro and Brasilia in September 2013, in order to promote discussions and share information on best practices for the recovery of degraded or altered landscape in Brazil. As participants of these workshops were more than 45 organizations, 70 representatives from NGOs, the private sector, governments and research and extension institutions that work in the area. Participants discussed the opportunities and challenges for the development of a national strategy for the recovery of native vegetation as well as on international best practices and historical examples, in order to identify existing barriers and the success factors that enabled the success of the recovery in Brazil and elsewhere around the world. This process resulted in a preliminary version of PLANAVEG that underwent public consultation for about 6 months. After this period, a working group called GT PLANAVEG, made up of SBF employees, researchers from the Pontifical Catholic University of Rio de Janeiro (PUC-Rio), University of São Paulo (USP), World Resources Institute (WRI), International Sustainability Institute (IIS), members of the International Union for Conservation of Nature (IUCN) and the German Cooperation for Sustainable Development (GIZ). All these participants worked together to consolidate the proposals received during the public consultation and formulated PLANAVEG draft document.

[53] MCTI 2016. Base document: National Program of Research of Biodiversity and Ecosystems.

National Targets for Biodiversity 2011-2020.

Strategic Goal 1 - To propose measures to reduce the direct pressures associated with biodiversity loss and ecosystem degradation;

Strategic Goal 2 - Planning the conservation and restoration of ecosystems and their essential services;

Strategic Goal 3 - Enhance the use of biodiversity and provision of ecosystem services. Each strategic goal is divided into lines of action, which will be the foundation for the construction of the bi-annual plans that will be developed within the scope of the Program.

The program aims to obtain qualified information for the implementation of public policies directed towards the conservation of species and ecosystems, and through articulations and partnerships aims to promote joint actions for the expansion and application of scientific knowledge.

7.3. Civil society

The participation of civil society in the preparation and implementation of the Brazilian government's actions is important for the effective reach of National Biodiversity Targets and the Aichi Targets, and contributes to the social and environmental changes that persist over time.

The very design of the National Strategy for Biodiversity in Brazil began the process of Dialogues on Biodiversity (see item 4.1), which had as a highlight its governance structure and its participatory process, relying on various civil society institutions.

Similarly, PainelBio was created (see item 4.3) as a voluntary and collaborative network of institutions from different sectors of society, through joint actions aimed at the achievement and implementation of the National Targets for Biodiversity.

Civil society also plays a key role in supporting the monitoring of targets, as in the Atlantic Forest Year book Program, carried out by the Institute of Friends of the Atlantic Forest Biosphere Reserve which prepares periodic evaluations of the goals reached in the biome, analyzing the main achievements and challenges for their fulfillment.

One example of the importance of civil society involvement was the sanction of Law No. 13,123 on May 20, 2015, which increased the demand and the favorable environment for the ratification of the Nagoya Protocol (Target 16). In seeking the appropriate involvement of holders of traditional knowledge, there were six regional workshops and a national workshop on the new law for the distribution of benefits and its regulatory process.

These workshops involved family farmers through the National Council for Sustainable Rural Development - Condraf; indigenous peoples through the Technical Chamber of Genetic Heritage and Intellectual Property of the National Policy of Territorial and Environmental Management in Indigenous Lands - PNGATI and APIB; and peoples and traditional communities through the National Commission of Traditional Peoples and Communities - CNPCT.

The activities planned by SBF's staff, within the scope of programs and actions in development, allows civil society boards, commissions and institutions to also be involved in the formulation and implementation of training programs on ABS as well as Community Protocols and for multipliers.

The Community Protocols (PCs) are documents

generated from participatory processes of discussion and deliberation, which are defined and agreed upon by the residents of the communities involved. It includes a whole set of community rules

regarding the use and management of territories, rules on the exploitation of natural resources and the protection of their traditional knowledge.

Experiences such as the Bio-cultural Community Protocol of the Raizeros (cultural knowledge) of the Cerrado, organized by Pacari Articulation, and the Community Protocol of the Bailique Archipelago (organized by the Amazon Working Group, supported by the Ministry of the Environment), along with other development initiatives to foster Community Protocols, are examples to demonstrate the support of Brazilian standards and public institutions toward civil society initiatives for the implementation of Community Protocols, which promote the respect to traditional knowledge, innovations, practices and the customary use of biological resources by indigenous peoples, farmers and local communities that are relevant to the conservation and sustainable use of biodiversity.

Furthermore, we may highlight the initiatives of civil society on self-determination of the right to exercise traditional medicine and the incorporation of the use of herbal medicines in public health. Governmental support has a great potential to promote the strengthening of herbal medicine productive chains with access to genetic heritage and associated traditional knowledge and the promotion of research and clinical studies for the inclusion of new species in the compendium of Brazilian Pharmacopoeia. These initiatives value traditional knowledge, foster innovation, and can result in the sharing of benefits both for holders of traditional knowledge and for society as a whole through improving living conditions and health.

7.4.Private Sector

The role of the Ministry of Environment with the business sector to promote and encourage practices that promote biodiversity conservation has been established through the publication of guidelines (Schaltegger & BESTÄNDIG, 2011; MMA, 2012), projects and the articulation of cooperation agendas with organizations of this sector. The Brazilian business sector has interesting organizational initiatives for the environment, such as the Brazilian Business Council for Sustainable Development - CEBDS and the Brazil Coalition for Climate, Forests and Agriculture, which took on the commitment of restoring 12 million hectares of forest as determined by the Native vegetation Protection Law. Inspired by the Coalition partnership that had effects on an international scale on the climate agenda, SBF intends to foster the incorporation of issues related to biodiversity into initiatives of this nature.

Among MMA's projects, we may highlight the TEEB Regional-Local Project: biodiversity conservation by integrating ecosystem services into public policies and business activities, coordinated by the MMA in conjunction with the National Industry Confederation - CNI, in the context of the Brazil-Germany Cooperation for Sustainable Development. The project operates in the development of concrete examples of the implementation of the integration of biodiversity and ecosystem services in decision-making processes in public and corporate spheres.

At the end of 2015, SBF began preparations for

another project along with the business sector, involving the agricultural sector in the states of Maranhão, Tocantins, Piauí and Bahia, a region known as "MATOPIBA". The objective of the project "MATOPIBA 2020 - Leading a productive and sustainable future", proposed by the Brazilian Rural Society, International Conservation Brazil and the Brazilian Foundation for Sustainable Development - FBDS is to build in this region a sustainable agricultural landscape model, through actions linked to the transformation of production and consumption modes; encouraging compliance with environmental legislation (encouragement to join the Rural Environmental Registry - CAR, preparation and implementation of the Environmental Recovery Program - PRA) and support for the creation, implementation and management of protected areas, with the conservation goal of 40% of this territory in areas under different protection schemes such as protected areas, indigenous lands, legal reserves and permanent preservation areas.

SBF also seeks closer ties with business associations that promote sustainable development and are partners in actions for biodiversity conservation. There is a partnership with FBDS for the diagnosis of the situation of APPs in Brazil. After this diagnosis, it will be possible to have an understanding of how much of the area is actually protected by APPs with vegetation and areas of APP where recovery is needed. This diagnosis is essential so that recovery actions aimed at degraded APPs be conducted in a planned and efficient manner.

Other business organizations that already work on the positive and negative issues of the impact of their activities towards climate change also are starting collaboration with SBF regarding the theme of biodiversity. In this context, a dialogue between the MMA and the Brazilian Industry of Trees - Iba recently began cooperation efforts on issues related to structuring the chain of services for environmental regulation, systematization, and presentation of biodiversity data from the planted forest sector. The native vegetation of the area maintained by this sector is a fairly large area: 5.4 million hectares of natural areas in the formats of Permanent Preservation Areas, Legal Reserves and Private Natural Heritage Reserves (Iba, 2016), which reinforces the importance of establishing partnerships with the industry.

MMA's goal is to strengthen and expand partnerships of this kind by including the business sector as another ally to cooperate in the achievement of conservation goals and the protection of ecosystems and Brazilian species. In addition, MMA seeks to strengthen activities of production chains of herbs with access to genetic heritage and associated traditional knowledge, capacity building in ABS and a structuring project called Cosmetics Based on the Amazon Forest. The actions should include the ventures of women and indigenous peoples and traditional communities.

7.5. Strategic Elements to Reach the National Goals

7.5.1. Communication Strategy

According to the Barometer survey of Biodiversity 2015 carried out in nine countries, Brazilians are among those that are most concerned with the conservation of biological diversity. In Brazil, 92% of respondents said they had heard of the subject.

While these figures point to a large number of respondents who claim to have some knowledge on the subject of biodiversity, we

recognize the need to improve the dissemination of concepts and knowledge, also by promoting the recovery and transmission of popular knowledge that is a part of Brazilian culture and therefore closely related to the use and conservation of Brazilian biodiversity.

Another important point to recognize is the language barrier of countries that do not share the official languages of international conventions and treaties. This makes it difficult for these countries to spread the wide range of information about their actions and activities and provide, with global coverage, information and data produced by the different sectors.

Seeking to overcome these difficulties and to improve communication mechanisms both internally and externally, SBF adopted specific measures to achieve greater short-term effectiveness in disseminating information and thus improving inter-institutional synergy between the various actions, policies and ongoing projects.

As part of the focus of the 1st module of the Action Plan for Biodiversity in the second half of 2015, an Internal SBF Communication Group was created with the mission to coordinate and articulate actions and communication strategies of the different ongoing projects as well as follow-up on the definition of actions to expand communication strategies for all actions of the Secretariat.

A specialist was also hired to elaborate the eventual communications between SBF and CBD in order to ensure transparency of the results and actions related to the fulfillment of the Aichi Targets in the country and its synergy with other MEAs.

The principle of transparency is thus fulfilled, as expressed in Brazilian law and guaranteed to all citizens, in order to contribute to the maturing of the governance processes.

By 2020, the SBF plans to complete a strategic communication plan that addresses new media, social networking and a diverse audience, to assure the universalization of information regarding the Conservation of Biodiversity. This strategy will be extended and will seek to develop tools and forms that can also be reproduced at the local level, by states and municipalities.

7.5.2. Strategy for Action Funding

According to CONABIO Resolution Nº. 6 of 09.03.2013, the planning and implementation of the Biodiversity Strategy and Action Plan (NBSAP) cannot do without a consistent assessment on the needs and applications of funds for the achievement of National Biodiversity Targets.

From this perspective, one of the elements of the National Biodiversity Strategy Action Plan (NBSAP) is the Resource Mobilization Plan, which is being built in accordance to Goal No. 20, which states that evaluations will be carried out on the need for resources to meet the commitments made in the National Targets. This should be followed by the mobilization and allocation of resources to enable implementation.

In order to meet these commitments, as well as to generate consolidated information on environmental spending in the country, the Federal Government has undertaken efforts to increase the level of information of public spending on biodiversity.

In this context, the Institute of Applied Economic Research (IPEA) is finalizing the survey of federal environmental spending on biodiversity conservation between 2006 and

2015, through the Coordination of Studies on Environmental Sustainability (*COSAM*). The methodology used is the *Classification of Environmental* Activities-CEA, which was developed by the United Nations in the *System of Economic and Environmental* Accounts--SEEA. The SEEA consists of a multipurpose conceptual framework which describes the interactions between the economy and the environment and allows for the trackinkg of changes in environmental assets and inventories. From the survey on environmental government spending, standardized classifications are applied to obtain data on biodiversity conservation expenditures. Based on the design and validation of the methodology, data from budgetary and financial execution from the federal government will be systematically classified and made available to decision makers and society.

The SEEA considers three criterion: (i) expenditure must be recorded in the official budget or in the executing institutions (for extra-budgetary expenditure); (ii) information gathered should be internationally comparable with other methodologies to assess the environmental costs; and (iii) the data should make up annual continuous and comparable historical series. The phases planned for this analytical study are: (1) strategic planning of the study; (2) development of the methodology to define the parameters for environmental expenditures; (3) classification of the budget lines for environmental costs; (4) establishment of cooperation agreements with the institutions responsible for providing the relevant data (MMA and Secretary of Federal Budget - SOF); (5) structure of a database that will contain the classification of environmental costs; and (6) data analysis and publication of collected information.

In the future, IPEA intends to transform this study into a permanent research line, with annual data updates on environmental costs and expand the study to include the state and municipal levels. Since 2014, IPEA has been defining a method to classify environmental activities and structure the database of federal budget expenditures.

Moreover, for Brazil to consistently construct and effectively implement its Biodiversity Strategy and Action Plan, information on public spending with biodiversity conservation in the states is fundamental, and is an important step towards knowledge on the current financial input, identification of needs and definition of strategies for the mobilization and intelligent allocation of these resources.

In this sense, the Department of Ecosystems (DECO) from the Secretariat of Biodiversity and Forests (SBF) from MMA is coordinating a survey on state environmental public spending, from which the total biodiversity spending will be obtained.

Parallel to this, in the private sector discussions are being held with the MMA, the Brazilian Business Council for Sustainable Development (CEBDS), the National Confederation of Industry (CNI) and IPEA to define a common methodology for inventorying environmental spending within the private sector. For this purpose, the classification of environmental expenditures from IPEA's methodology will be applied which will involve the analysis of items that are directly and indirectly related to biodiversity.

In addition, Brazil has recently become a member of the BIOFIN initiative (Biodiversity Finance Initiative). The initiative is led by the Ministry of Planning, Budget and Management (MPOG), in partnership with the Ministry of Finance (MoF), the Ministry of Environment

(MMA) and the United Nations Development Program (UNDP). The goal of BIOFIN in Brazil is to systematize public spending on biodiversity periodically in order to identify gaps and propose innovative funding mechanisms for the conservation and sustainable use of biodiversity. Through the consolidation of public spending on biodiversity conservation, we intend to obtain an assessment of the funding needs for the implementation of national goals which will then serve as the basis for the preparation of the Resource Mobilization Plan. This process will include a particular stage to make the classification methodology key (proposed by BIOFIN) used by IPEA compatible with CEA.

Additionally, other efforts are foreseen, such as: (i) seminars with government agencies and experts to discuss and validate the applied methodology; (ii) evaluation of opportunities to include markers related to spending on biodiversity in budget classifications; and (iii) analysis of potential revenue (or avoided costs) and implications of the implementation of new financial mechanisms or the review of existing mechanisms.

Despite the contracts that have been included in recent years in the federal budget, the resources allocated to MMA and connected institutions grew by 14% in real terms between 2010-2014, although it is still one of the lowest among federal agencies in volume of resources.

According to OECD (2015), in 2014, the budget of all of the environmental institutions was 3.6 billion reais, totaling 0.15% of the federal budget. However, it should be considered that since it is a cross-cutting theme, other federal departments and agencies also contribute in much of the public spending on the environment.

Specifically with regard to biodiversity-related programs between 2010 and 2014, the expenditures of the federal budget grew by 50% in real terms, more than the 14% of growth found in environmental management. ICMBio is the institution that manages most of this budget, especially for the management of federal protected areas (OECD, 2015). The potential funds from the Federal Budget via parliamentary amendments (Table 8) should also be considered, which can represent major financial growth to initiatives for the conservation of biodiversity, expressed in the PPA under the program in 2018 - Biodiversity. Several budgets and extra budgetary funds have contributed to the financing of programs aimed at conservation and sustainable use of biodiversity. Examples include the National Environmental Fund, which has allocated 230 million reais since it began; the Fund for Protected Areas, created to support long-term financial sustainability in protected areas; and the National Forest Development Fund, managed by the Forest Service to promote the development of forestry activities (OECD, 2015).

One of the most important funds is the innovative Amazon Fund, created in 2008 for investment in the conservation and sustainable use of the forest and for the prevention and monitoring of deforestation. The Fund is managed by the National Bank for Economic and Social Development - BNDES in coordination with MMA. Most of the funds come from international donors, particularly Norway and Germany but also from companies such as Petrobras. Total contributions received between 2009 and early 2015 reached more than 2 billion reais (OECD, 2015).

The financing of projects with funds from the Global Environmental Fund (GEF) is also part

of the federal government's strategy to comply with the obligations established by the Convention on Biological Diversity (CBD). Comparatively speaking, Brazil has one of the largest GEF projects portfolios worldwide – if all themes are taken into consideration – but with an expressive focus on biodiversity (GEF, 2012). Brazil participates in the GEF since its pilot phase in 1991. It is estimated that until 2013, 51 national projects have been funded, totaling $ 414 million, with about 43% of this value destined to the area of biodiversity. In addition to national projects, the country participated in 34 regional and global projects for an additional 222 million dollars (GEF, 2013b).

As a financial mechanism of the Convention, GEF has contributed to its implementation after being ratified by Brazil, besides supporting the development of the first National Communication to CBD. Several GEF projects in the area of biodiversity have helped the country both in the implementation of legislative issues on biodiversity and in the evolution of the legal framework, as well as in the structuring of an institutional framework focused on the implementation of biodiversity policies.

Currently there are 19 Brazilian projects implemented in the GEF area of biodiversity, totaling US $ 146,873,199.00, in which three of them are coordinated by SBF.

For the next five to six years, seven new GEF projects are being negotiated by SBF, some of them in advanced stages of approval and are foreseen to begin in 2016.

For the implementation of conservation measures and sustainable use of biodiversity, in addition to GEF resources, SBF also benefits from bilateral cooperation, especially with the government of Germany and the United States.

All these advances in actions developed for Biodiversity Conservation in Brazil under the responsibility of SBF include investment from the Brazilian Government through direct or indirect costs, but that undoubtedly contribute greatly to goals at the supranational level, with a focus on Brazil's contribution and responsibility to increasing and improving efforts in the conservation of biodiversity and ecosystems on a global level.

8. Conclusion

The Brazilian NBSAP has developed an innovative approach which is capable of consolidating partnerships and establishing forums for discussion and collective participation, allowing a clear identification of the results achieved up to date in meeting the National Targets. This objective assessment is a responsible statement on the commitments made up to date in the direction of internalizing the objectives established by the National Targets.

The robust NBSAP Update process leveraged until 2015 results in the National Biodiversity Strategy and the 1st module of the National Action Plan for Biodiversity, whose focus is on the actions and commitments of the SBF. For the first time, the tools, strategy and planning actions of one of the institutions that make up the wide range of actors and organizations that share the responsibility for monitoring and fulfilling the National Biodiversity Targets are consolidated.

The publication of this document is therefore the first step towards adding to the information and commitments that are expected to be signed in the 2nd module of the Action Plan and NBSAP reviews.

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