Climate Investment Funds
FOREST INVESTMENT PROGRAM

BRAZIL´s FIP INVESTIMENT PLAN MONITORING AND REPORTING

Investiment Plan endorsement date	**May 4, 2012**
Lead MDB	**IBRD**
Other MDBs	**IDB**
Reporting date	**June 28, 2019**

Classificação		Title	Implementing MDB	FIP funding approval date	MDB approval date
Projects/Programs	Government Projects	**FIP/ABC Project** Sustainable production in áreas previously converted to agricultural use Project (under the Low Carbon Emission Agriculture Plan)	IBRD	Apr 29, 2014	Jul 18, 2014
		FIP/CAR Project Environmental Regularization of Rural Lands in the Cerrado of Brazil	BIRD	Jun 12, 2014	Jul 21, 2015
		FIP/Coordination Project Investment Plan Coordination	BIRD	Mar 12, 2015	Nov 28, 2017
		FIP/IFN Project Forest Information to support Public and Private Sectors in managing initiatives	BID	Oct 29, 2013	Dec13, 2013
		FIP/FM Project Development of systems to prevent forest fires and monitor vegetation cover in the Brazilian Cerrado	BIRD	Jul 17, 2015	Mar 28, 2016
		FIP/Landscape Project Integrated Landscape Management in the Cerrado Biome	BIRD	Jun 19, 2018	Oct 29, 2018
	Special Window	**Projeto FIP/DGM** Dedicated Grant Mechanism for Indigenous Peoples and Traditional Communities	BIRD	Jun 28, 2014	Mar3, 2015
	Private Sector	**Projeto FIP/Macaúba** Development of a Silvipastoril System and Value Chain Based on Macaúba	BID	Jul 1, 2017	Jul 26, 2017

Summary

List of Figures

List of Acronyms

ABC – Low Carbon Agriculture Program
ABEMA – Brazilian Association of State Entities of the Environment
ANAMMA – National Association of Municipal Organs of the Environment
APP – Permanent Protected Area
BNDES – National Bank for Economic and Social Development
CAA/NM – Alternative Agriculture Center of the North of Minas
CAR – Rural Environmental Register
CIMAN –Integrated Multiagency Center for Operational and Federal Coordination in Brasilia, aiming to the field fighting the fire in real time
CNPCT – National Council of Traditional Peoples and Communities
CONAQ – National Coordination of Articulation of Quilombola Rural Black Communities
DEFRA – Department of Environment, Food and Rural Affairs (United Kingdom)
DETER –Deforestation Detection System in Real Time
EAD – Online Education
EMBRAPA – Brazilian Agricultural Research Corporation
FAO – Food and Agriculture Organization of the United Nations
FIP/ABC Project – Sustainable production in áreas previously converted to agricultural use project (under the low carbon emission agriculture plan)
FIP/CAR Project – Environmental Regularization of Rural Lands in the Cerrado of Brazil
FIP/Coordination Project – Investiment Plan Coordination
FIP/FM Project – Development of systems to prevent forest fires and monitor vegetation cover in the Brazilian Cerrado
FIP/Landscape Project – Integrated Landscape Management in the Cerrado Biome
FIP/DGM – Dedicated Grant Mechanism for Indigenous Peoples and Traditional Communities
FIP/IFN Project – Forest Information to suppport public and private sectors in managing initiatives
FIP/Macaúba Project – Development of a Silvipastoril System and Value Chain Based on Macaúba
FREL – Forest Reference Emissions Level
FUNAI – National Foundation for Indigenous People
FUNATURA – Pro-Natureza Foundation
FUNDEP – Research Development Foundation
GIZ – Deutsche Gesellschaft für Interantionale Zusammenarbeit
IADB – Inter-American Development Bank
IBAMA – Brazilian Institute for the Environment and Renewable Natural Resources
IBGE – Brazilian Institute of Geography and Statistics
IBRD – International Bank for Reconstruction and Development
ICMBio – Chico Mendes Institute for Biodiversity Conservation
IFN – National Forest Inventory
IIEB – International Institute of Education of Brazil
ILP - Crop-Livestock Integration
ILPF - Crop-Livestock-Forestry Integration
INCRA – National Institute for Colonization and Land Reform
INESC – Institute of Socioeconomic Studies
INOCAS – Innovative Oil and Carbon Solutions
INPE – National Institute of Space Research
KFW – Kreditanstalt für Wiederaufbau (German Bank)
MAPA – Ministry of Agriculture, Livestock and Food Supply
MATOPIBA – Region composed by the States of Maranhão, Tocantins, Piauí and Bahia
MCTIC – Ministry of Science, Technology, Innovation and Communication
ME – Ministério da Economia
MIQCB – Movement of Babaçu Coconuts Breakers

MMA – Ministry of the Environment
OEMA – State Environment Agency
PCT – Traditional Communities and People
PMABB – Environmental Monitoring Programo f the Brazilian Biomes
PPCerrado – Plan to Prevent and Combat Deforestation in the Cerrado
PRA – Environmental Regularization Program
PREVFOGO – National Cneter for Prevention and Combat of Forest Fires
RL – Legal Reserve
SENAR – National Service for Rural Training
SFB – Brazilian Forest Service
SICAR – Rural Environmental Registration System
SNIF – National Forest Information System
UFG – Federal University of Goiás
UFLA – Federal University of Lavras
UnB – University of Brasília
UNFCCC – United Nations Framework Convention on Climate Change

THE HIGHEST RESULTS OF THE BRAZILIAN FIP INVESTMENT PLAN IN 2018

FIP/ABC Project

- 312,757 ha of degraded pastures recovered in about 1,957 properties in the Brazilian Cerrado region.
- Private sector resources leveraged to recover degraded pastures: for each dollar spent by the project on technical assistance, the beneficiaries invested US$ 7 in inputs and services for pasture recovery.
- Videos produced showing some cases of project success:
  - https://youtu.be/J5d4WHWKUcs
  - https://youtu.be/Rxh4IUTL7FU
  - https://youtu.be/2ki_koaGB-0
  - https://www.youtube.com/watch?v=2EfSlNyZC80
  - https://youtu.be/vLEAqyD8ifo
  - https://www.youtube.com/embed/6qgg7yaTk2w?feature=oembed
  - https://www.youtube.com/embed/IfHBnnZY4C4?feature=oembed
  - https://youtu.be/KHpklOxgeEU

FIP/CAR project

- National electronic system (SICAR) developed and implemented with counterpart resources for the integration and management of environmental information on rural properties and the development of structuring activities that allowed the farmers or state governments themselves, through technical assistance, to register real estate in the CAR.
- 451 professionals from OEMAs trained for the use of SICAR, for analysis and validation of CAR.
- 120,612 small rural properties registered in the CAR.

FIP/Coordination Project

- Workshop on the identification of synergies among the eight projects supported by FIP in Brazil;
- WebSite of the Brazilian Investment Plan for the FIP developed and made available on the link http://fip.mma.gov.br/;
- Institutional video on the Brazilian Investment Plan for the FIP prepared and made available on the link http://fip.mma.gov.br/wp-content/uploads/2018/11/FUNATURA_MMA_V5_HD_Ingles.mp4;
  - Index of satisfaction of the managers of the Projects of the Brazilian Investment Plan/FIP in relation to the performance of the CIP Project Coordination: 100%.

FIP/IFN Project

- Estimation of the carbon stock of the Cerrado (aerial and root) biome forests based on field data collected by the National Forest Inventory, supported the FAO/UN FRA - Global Forest Resource Assessments, which will be launched in 2020;
- Tree and soil sampling at 3,817 points covering an area of 163.4 million hectares of the Cerrado Biome, about 78.9% of the biome;
- 6,457 soil samples collected and analyzed with stored carbon data;
- 49,394 botanical samples collected for scientific identification, with 52% already identified and register of 117 new occurrences in state lists of species and 49 species described for the first time for the Cerrado Biome;
- Survey of socio-environmental data, through 10,301 interviews with rural dwellers, for knowledge on the use of forest resources and the relationship of communities with forests.

FIP Project/Monitoring

- Maps of deforestation of the Cerrado biome for the years 2016, 2017 and 2018 available in http://terrabrasilis.dpi.inpe.br/app/map/deforestation?hl=pt-br e http://terrabrasilis.dpi.inpe.br/app/dashboard/deforestation/biomes/cerrado/increments
- The quality of the deforestation polygons detected in 2016-2018 indicated an accuracy of around 95%.

- Maps of deforestation alerts in Cerrado available at http://terrabrasilis.dpi.inpe.br/app/map/alerts?hl=pt-br e http://terrabrasilis.dpi.inpe.br/app/dashboard/alerts/legal/amazon/daily/
- Cerrado vegetation map with three classes (Florestal, Savânica, Campestre) produced and available in http://terrabrasilis.dpi.inpe.br/
- 30 new fire risk products available at http://www.inpe.br/queimadas/portal/risco-de-fogo-meteorologia.
- Model of ignition and propagation of fire fronts (FISC) developed and available at https://csr.ufmg.br/fipcerrado/.
- Production of the map of phytophysiognomy with three classes (Forest, Savannah, Campestre) available at http://www.obt.inpe.br/cerrado/downloads.html

FIP/Landscape Project

- Presentation and launch event of the FIP/Landscape Project held in Bonn, Germany, during the Global Landscape Forum; and in Katowice, Poland, during COP 24 of the Climate; both in December 2018.

The Brazilian Investment Plan (BIP) consists of eight projects, of which six projects are coordinated by government agencies (FIP/ABC, FIP/CAR, FIP/Coordination, FIP/IFN, FIP/Monitoring and FIP/Landscape). a project aimed at indigenous peoples, quilombolas and traditional communities (FIP/DGM) and a project aimed at private initiative (FIP/Macaúba).

This report presents the activities developed coordinated by government agencies. Progress on the FIP/DGM Project is presented in Form 3.4 of this Report and the activities carried out under the FIP/Macaúba Project are presented in Annex 1.

FIP TABLE 1.1 - THEME 1.1: GHG EMISSION REDUCTIONS OR AVOIDANCE/ENHANCEMENT OF CARBON STOCKS

Country:	Brazil		**Level:**	Investment Plan	
Lead MDB:	IBRD				
Other implementing MDBs:	IDB				
Endorsed FIP funding (million USD):	100,3				
Co-financing (million USD):	26,0				
Reporting period:	**From:**	01/01/2018		**To:**	12/31/2018

Table 1.1	**Unit**	**Reference emissions level/baseline (if applicable)**	**Target 1[1] (Expected results after the financial closure of the last project/program under the investment plan)**	**Target 2[2] (Lifetime projection of expected results of projects/programs under the investment plan)**	**Reporting year Actual annual (accumulated up to 12/31/2018)**
Total land area where sustainable land management and low carbon agricultural technologies were adopted as a result of the Investment Plan	hectares	---	7,653,472	---	22.990.079
Area of landholdings registered in the Rural Environmental Register as a result of the FIP/CAR Project	hectares	---	6,653,472	---	22,256,204[3]
Area where Low Carbon Agriculture Technologies were adopted as a result of the FIP/ABC Project	hectares	---	900,000	---	733,875[4]
Area where low carbon farming practices were adopted as a result of the FIP/Landscape Project	hectares	---	100,000	---	0
Type of forest(s)	Forest, savana and pasture				
Area covered	ha	203.644.800	Area corresponding to the Cerrado Biome		
Investment Plan lifetime	years	10	It considers the date of approval of the FIP/IFN Project (12/13/2013) and the closure of the implementation of the FIP/Landscape Project (12/29/2023).		

1 Target 1: Target achieved during the implementation of the investment plan (ending with the financial closure of the last project supported under the investment plan).
2 Target 2: Projection of the target taking into account the lifetime of the results achieved through the implementation of the investment plan.
3 Area for Rural properties up to 4 Fiscal Modules (around 250 hectares) registered in SICAR, in the municipalities selected until 2018 (counterpart resources invested in the development, integration, training for the use and dissemination of the SICAR and of structuring activities that allowed the farmers or states governments through technical assistance to promote the registration of the farmland in the CAR). The increase in the area registered in the CAR is justified by the fact that two more states (totaling 11) and new municipalities have been included in the scope of the Project. In addition, the market value for CAR enrollment is currently much lower than the amounts charged in the years 2015 and 2016, which led to new registrations of rural properties in the CAR.
4 There was no evolution of the indicator because the number of properties served by technical and managerial assistance remains the same as in 2017.

Specify the methodology (s) used for GHG accounting (for example, by project/program), including the start year and period for the Reference Emissions Level

The REDD + results will be reported by the Brazilian government on a national scale, in accordance with UNFCCC decisions. Funding for REDD + can occur *ex ante*, that is, while developing countries prepare to achieve these outcomes (readiness). Cerrado Biome and other Brazilian biomes are under preparation and demonstration of activities for REDD + activities.

As a substitute for this indicator, areas where sustainable land management practices were adopted as a result of of the Investment Plan will be considered:

• area of landholdings registered in the Rural Environmental Registry (CAR), as a result of the activities of the FIP/CAR Project;

• area where Low Carbon Agriculture Technologies are adopted as a result of the activities of the FIP/ABC Project; and

• area where low carbon farming practices were adopted as a result of the FIP/Landscape Project.

Provide a brief description of the interventions (context and objective)

In the case of the FIP/ABC Project, awareness-raising activities were carried out, as well as training of rural producers in low-carbon technologies, technical and managerial assistance to rural properties and field-day events to disseminate results and technologies. The total area presented in the above indicator (733,875 ha) was calculated based on the area of the 1,957 rural properties and considers that the areas not recovered by the Project or with environmental assets (forests and water bodies) had lower anthropic pressure.

Within the scope of the FIP/CAR Project, investments made with counterpart resources in the development, integration, training for use and dissemination of SICAR and structuring of technical assistance activities enabled the farmers or states governments to promote the registration of rural properties in the CAR, properties of up to 4 Fiscal Modules (around 250 hectares) of the municipalities selected until 2018.

What have been key contributions (successes) of FIP regarding GHG emission reductions/avoidance/enhancement of carbon stock in your country context during this reporting year?

The main contributions of the Brazilian Investment Plan until 2018 were:

- the recovery of 312,757 ha of degraded pastures in about 1,957 properties in the Brazilian Cerrado region;
- leveraging private sector resources to recover degraded pastures: for each dollar spent on the technical assistance project, beneficiaries invested US $ 7 in inputs and services for pasture recovery;
- the development and implementation of a nationwide electronic system (SICAR), with counterpart resources, for the integration and management of environmental information on rural properties;
- the registration in the CAR of 120,612 family farms;
- the training of 451 OEMAs professionals for the use of SICAR, aiming at the analysis and validation of CAR.
- the mapping of plant and soil sampling at 3,817 points covering an area of 163.4 million hectares of the Cerrado Biome, about 78.9% of the biome, and 6,457 soil samples were analyzed with stored carbon data;
- the collection of socio-environmental data, through 10,301 interviews with rural dwellers, for knowledge about the use of forest resources and the relationship of communities with forests;
- the mapping of 100% deforestation of the Cerrado biome for the years 2016, 2017 and 2018;
- the mapping of deforestation (PRODES) of 100% of the Cerrado biome for 2016, 2017, and 2018;
- the development and implementation of the Real-Time Deforestation Detection System (DETER) for the Cerrado.

What have been your key challenges and what opportunities for improvement do you see?

The great challenge is to be able to measure the effect of FIP investments in the Cerrado Biome in relation to reductions of GHG emissions or avoid/increase of carbon stocks. The opportunities identified refer to the possible synergies between the actions of the different projects.

The main challenge for the FIP/CAR and FIP/IFN Projects is related to the implementation arrangement of these projects, which have their budgetary and financial allocations linked to the General Budget of the Union. These projects were limited in their execution due to fiscal constraints imposed by Constitutional Amendment No. 95/2016, which froze government spending for a period of 20 years.

FIP FORM 1.1 - ITEM 1.1: REDUCTIONS OR PREVENTION OF GHG Emission/IMPROVEMENT OF CARBON STOCKS

Level: Investment Plan

Please answer the following question with a narrative description of the results achieved by the FIP investment plan in your country in the reporting year. If data is available, you may also compare progress made in the reporting year to the previous one (i.e., number of hectares reforested). GHG emission reductions or carbon stocks enhancements are reported at start, mid-term, and end of the investment plan implementation.

1. What actions were taken by your country to bring areas under sustainable practices (sustainable forest management or sustainable land management practices) or to reduce GHG emissions/enhance carbon stocks? Please describe tree species planted, benefiting populations, ecosystems and other relevant information.

The FIP Investment Plan in Brazil operates exclusively in the Cerrado biome (Figure 1), the second largest in the country, with 203,644,800 hectares, which still has about 50% of native vegetation. In this biome are concentrated a large part of the agricultural activities of the country, with emphasis on livestock, soy, sugar cane, eucalyptus and subsistence agriculture.

Figure 1 - Map of the Brazilian biomes.
Source: IBGE

The Cerrado is considered a global biodiversity hotspot and shelters the springs of the three largest hydrographic basins in South America (Amazon, San Francisco and Prata), which results in high aquifer potential and favors its biodiversity. Besides the environmental aspects, the Cerrado has great social importance. Many populations survive from their natural resources, including indigenous ethnic groups, geraizers, riverine, babaçueiras, vazanteiros and quilombola communities, besides the urban populations and typical agribusiness farmers. These characteristics make the Cerrado an important biome in the context of GHG emissions.

The FIP Investment Plan has actions that indirectly act to reduce GHG emissions in this biome, through the recovery of degraded areas, control and deforestation control instruments, as well as the collection of forest assets and mapping the loss of vegetation cover.

The FIP/ABC Project works with the recovery of degraded pastures in order to increase their productivity, generating less pressure on the native vegetation to install new pastures. It is also included in the implementation strategy of the ILPF system that advocates the integration in the production of pastures with cultivation of crops or forests that generate the carbon capture. This initiative uses as a strategy for the change of land use and management the training of rural landowners and technical assistance for the implementation of techniques developed by EMBRAPA. FIP/ABC has already recovered 312,757 hectares of pasture degraded in about 1,957 properties in the Brazilian Cerrado region.

Rural Environmental Cadastre (CAR) initiatives, which work with detailed and standardized georeferenced information on the land use of each rural property in Brazil, make it possible to identify forest assets and liabilities, as well as monitor the implementation of the agreements for the recovery of liabilities. The Cerrado biome has about 855,661 thousand rural properties with CAR, with a declared area of 162.722 million hectares[5], with a forest liability of approximately 1.45 million hectares of APP and 8.1 million hectares in RL declared in rural properties enrolled in the CAR until May 2019[6].

The FIP/CAR Project contracted in 2018 and early 2019, four companies to realize 72,000 (seventy two thousand) registrations in the CAR of rural properties with up to 4 fiscal modules in the states of Maranhão, Minas Gerais and Piauí, which will allow the identification of forest liabilities as well as support their recovery through formal agreements between government and rural landowners.

The current target of the FIP/CAR Project foresees the realization of 57,942 registrations of small properties or family rural possessions[7] in the CAR, which would correspond, in the estimate provided in the Project Evaluation Document, to 1.1 million hectares of rural property area registered and monitored by means of geoprocessing and remote sensing tools in the Cerrado biome. However, since the goal of the Project has been established between the years 2012-2013, there will be a need to adjust it. The new goal will be proposed in the restructuring of the project with the World Bank, which will include, in addition to rural properties with up to 4 fiscal modules, registration of Territories of Peoples and Traditional Communities, as well as rectification, analysis of existing registries in SICAR and elaboration of Recovery Projects for Degraded or Altered Areas.

[5] Brazil already has 479 million hectares with CAR.

[6] Data calculated exclusively by interpretation of the information declared in SICAR. The declarations are not yet validated by environmental agencies. The undeclared legal reserve and PPA areas were not accounted for in the liability calculations.

[7] According to Braziliz law # 12.651, Art. 2, item V - small family ownership or ownership: that exploited through the personal work of the family farmer and rural family entrepreneur, including settlements and agrarian reform projects, and considering the sole paragraph of the same article, all buildings up to 4 tax modules are entitled to the same benefits provided for family farming. Fiscal module, according to INCRA, is a unit of measure, in hectares, whose value is set for each municipality considering the type of farm and rural use predominant in the municipality, the average income obtained in the predominant type of farm; other existing holdings in the municipality that, although not predominant, are expressive according to the income or the area used. The size of a tax module varies according to the municipality where the property is located. The value of the fiscal module in Brazil ranges from 5 to 110 hectares.

The Donor Agreement that finances the FIP/Coordination Project was signed between the World Bank and the Pro Nature Foundation - FUNATURA, the executing agency of the Project, in December 2017, declared effective in March 2018, with the closure of activities for December 2022.

The coordination of the Project is under the responsibility of the Ministry of the Environment, which signed a Technical Cooperation Agreement with FUNATURA, which defines the institutional arrangement for its execution (Figure 2).

Figure 2 - Institutional Arrangement of the FIP/Coordination Project

The objective of the FIP/Coordination Project is to strengthen the capacity of the Federative Republic of Brazil to coordinate projects of the Brazilian Investment Plan and to supervise, plan, monitor, evaluate and account for its implementation.

The main actions of the Project are focused on the preparation of an annual report on the monitoring of Brazil Investment Plan; holding of a validation workshop for the annual monitoring report by stakeholders of Brazil Investment Plan; promotion of events and activities that encourage the identification and implementation of synergistic actions among the projects, helping them achieve their objectives. Thus, there is no prediction for the application of resources in physical works and field interventions.

The Project also serves as the executive secretariat of the Interministerial Executive Committee for Brazilian Investment Plan/FIP, a collegial body responsible for monitoring and implementing Brazilian Investment Plan/FIP, composed of representatives of the Ministries of Environment, Science, Technology and Innovation, Agriculture, Livestock and Food Supply and by the Ministry of Economy.

The FIP/IFN Project is collecting, processing and analyzing forest data from the entire Cerrado biome to generate information on diverse characteristics, including the amount of carbon stored below and above the ground. 2,620 collection points were made in 2018, totaling 3,817 points measured to date. The data are in the systematisation phase and correspond to a total area of 163.4 million hectares, or 78.9% of the area of the entire Cerrado biome (Figure 3). In addition, up to 2018, 6,457 soil samples with stored carbon data were analyzed.

The field data collected by the National Forestry Inventory in the Cerrado biome have subsidized the FAO/UN FRA report- Global Forest Resource Assessments, which will be launched in 2020, with information on the carbon stored in the Cerrado forests.

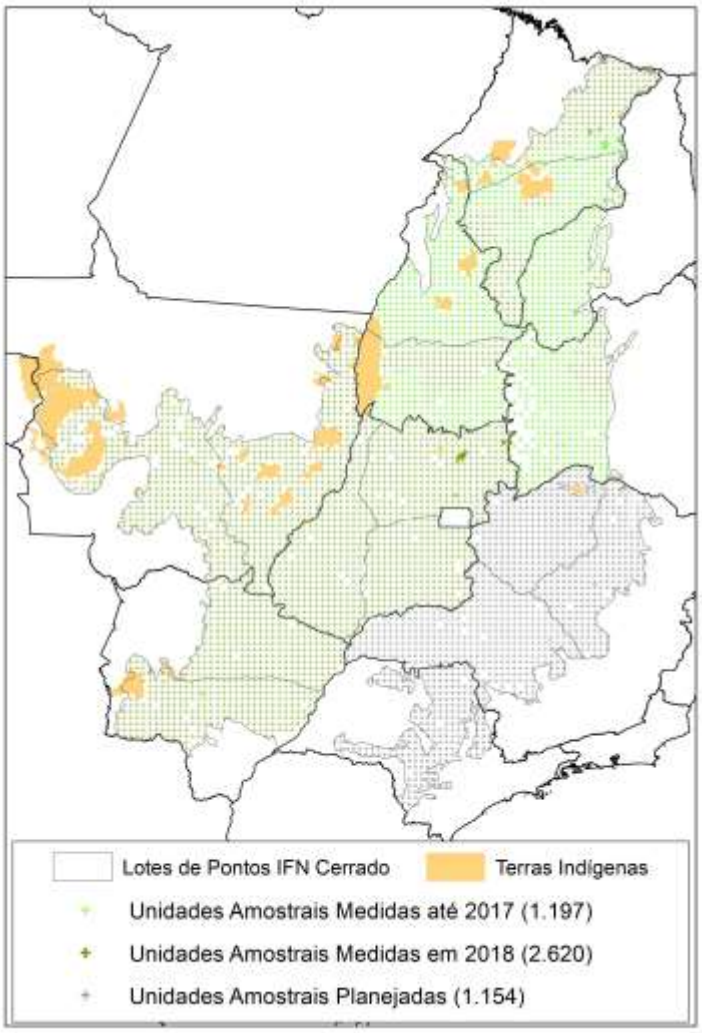


Figure 3 - Points collected until 2018 (green), and points planned for the next years (gray)

For areas of native forests, planted forests and areas classified as other lands with trees, average stock estimates were generated for each forest typology registered in the biome. Estimates of necromass – the quantity of woody material from standing dead trees and fallen to the ground – were also made.

The calculated average stocks were in terms of wood volume, dry shoot biomass and dry biomass of roots, shoot carbon and root carbon. For this purpose, we selected allometric equations and conversion factors that best fit the forest typologies under study.

Socioenvironmental surveys were carried out through interviews with rural dwellers in the Cerrado region, for knowledge about the use of forest resources and the relationship between communities and forests. Up to 2018, 10,297 interviews were carried out, according to the distribution map presented in Figure 4.

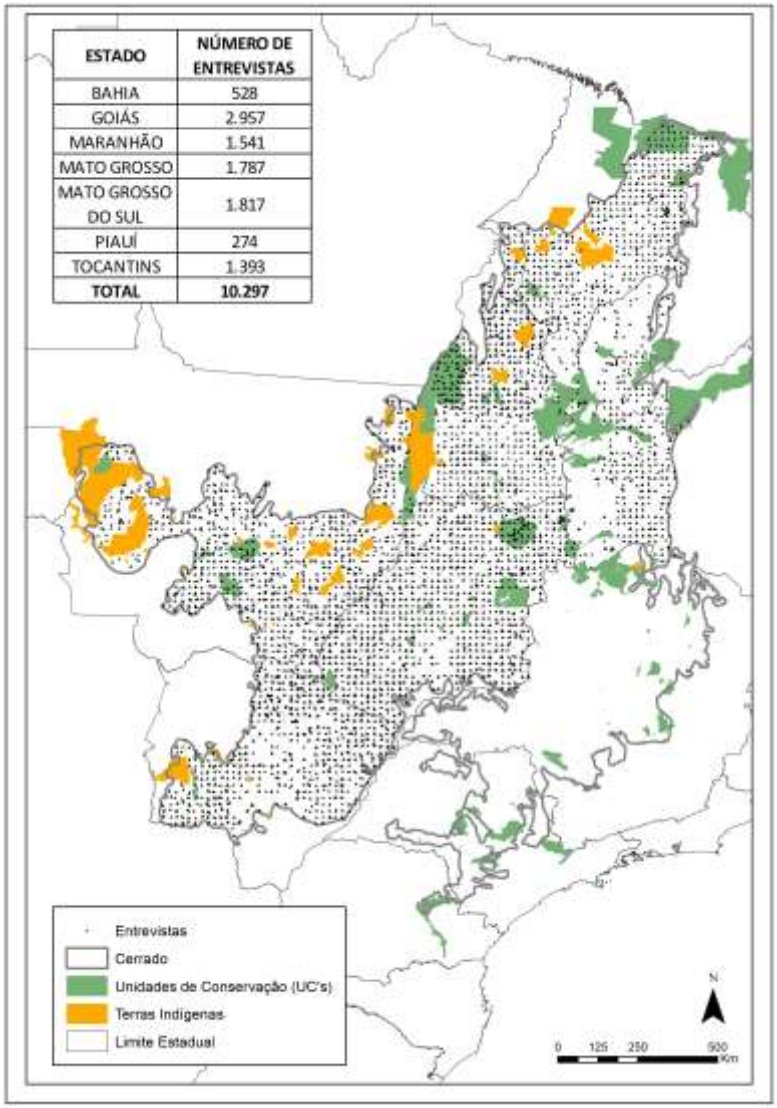


Figure 4 - Distribution of the interviews with rural dwellers carried out under the IFN

One of the issues addressed during the interviews with rural dwellers is about the effect of climate change on their lives, and the attitudes that must be taken to adapt and mitigate these changes. It was found that 59% of those interviewed said that the effects of climate change had affected their lives in the countryside and 5% said they did not know if there was any effect on their lives. As attitudes to adapt to climate change, 37% of respondents cited changes in the routine for self-protection (drinking more water, avoiding sunbathing, wearing full-dress clothes, sunscreen and hats, etc.) and many said do not do anything (Figure 5). Attitudes to mitigate climate change cited mainly forest conservation and protection (53%) and 20% said they did not do anything (Figure 6).

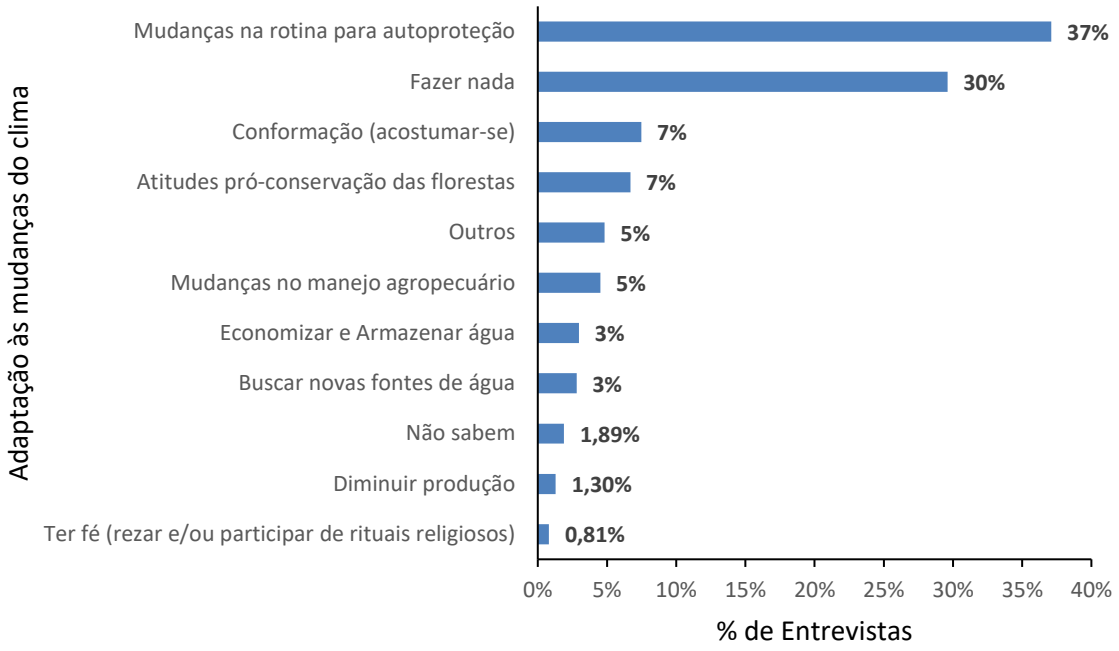


Figure 5 - Attitudes to protect against the changes of the climate pointed out by rural interviewees in the Cerrado (n = 5,653).

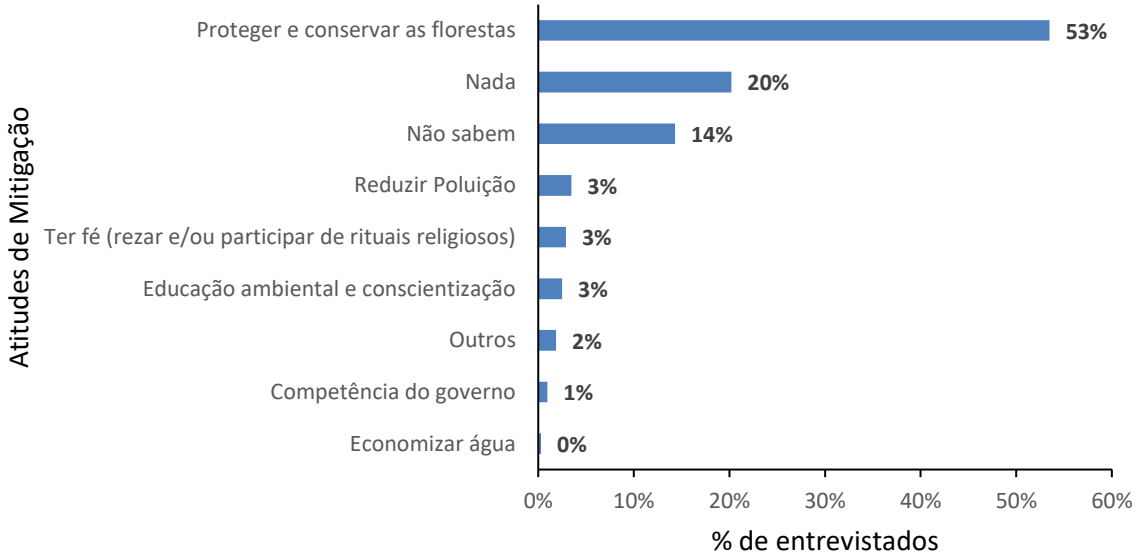


Figure 6 - Attitudes to mitigation against the changes in the climate pointed out by rural interviewees in the Cerrado (n = 8.501).

With the support of some international agencies, Brazil has built the reference level of forest emissions of the Cerrado biome (FREL Cerrado) based on the 2000-2010 maps. Through the Ministry of Foreign Affairs, the Cerrado FREL was submitted for the payment of emission reductions for deforestation in February 2017. The maps of anthropic areas of 2013 and 2015 were also produced, and the map of 2015 became the reference for build the annual deforestation maps for the years 2016-2019, with the support of the FIP. In 2018, the annual deforestation maps (PRODES) were generated for the years 2016, 2017 and 2018, and the Deforestation Detection System in Real Time (DETER) for the Cerrado was developed and implemented.

The FIP/Monitoring Project has a component for mapping deforestation in the 1: 250,000 scale (PRODES Cerrado) and detection of near real-time deforestation (DETER Cerrado) in the 1: 500,000 scale. Cerrado PRODES consists of the mapping of natural vegetation deforestation in the Cerrado Biome (annual rate of deforestation). DETER Cerrado, on a daily basis, identifies the deforestation polygons (increased deforestation) according to data availability and cloud cover. This system is based on Earth observation satellite images and is intended to guide field inspection by the competent bodies.

All data generated by the PRODES and DETER Cerrado systems are used by the Brazilian government to subsidize the environmental inspection actions carried out by IBAMA and other uses, environmental protection and public policies in the Cerrado Biome. This Project is included in the context of the Plan for the Prevention and Control of Deforestation and Burning in Cerrado - PPCerrado. The project has already produced the PRODES and DETER Cerrado data for the years 2016, 2017 and 2018, whose maps and information are available at http://www.obt.inpe.br/cerrado/. Figure 7 shows the areas of deforestation that occurred in 2018. Annual deforestation rates can be visualized on TerraBrasilis platform (Figure 8). Deforestation rates above 6.25 ha are recorded at 5,965 km2, 6,447 km2 and 5,581 km2 for the years 2016 to 2018, respectively. Figure 9 shows the deforestation and forest degradation alerts from May to December 2018.

The FIP/Monitoring Project also has a component to estimate GHG emissions for the Cerrado. Some systems developed by INPE to calculate forest emissions in the Amazon biome are being adapted to the Cerrado biome. The GHG estimation system for the Cerrado consists of 3 modules: INPE-EM/PRODES (clear cut of primary natural vegetation), INPE-EM/IPCC (transitions in land use and cover) considered in the National Communications for the UNFCCC, based on the 2006 Manual (IPCC Guidelines), INPE-EM/DISTURB (fire and degradation processes in natural vegetation, post-disturbance regeneration). The INPE-EM PRODES and INPE-EM IPCC models were specified and implemented. The estimation of emissions with the INPE-EM PRODES model for the Cerrado is available on the website http://inpe-em.ccst.inpe.br/emissoes-brutas-cer/.

The FIP/Landscape Project, approved by the FIP Subcommittee in June 2018 and by the World Bank Board in October 2018, aims to strengthen environmental conservation and recovery practices as well as sustainable low carbono practices in selected basins of the Cerrado biome. Through the project, training and technical assistance activities will be developed for the recovery and conservation of the vegetation of Permanent Preservation Areas (APP) and Legal Reserve (RL) and for the adoption of low carbon agriculture (ABC) practices, with the objective of improving sustainability in rural real estate pastures. The idea is to strengthen the implementation of environmental regulation. The project will give the 4,000 beneficiaries the technical support necessary to comply with the Brazilian Forest Code in rural properties, as well as disseminate the use of sustainable agriculture practices.

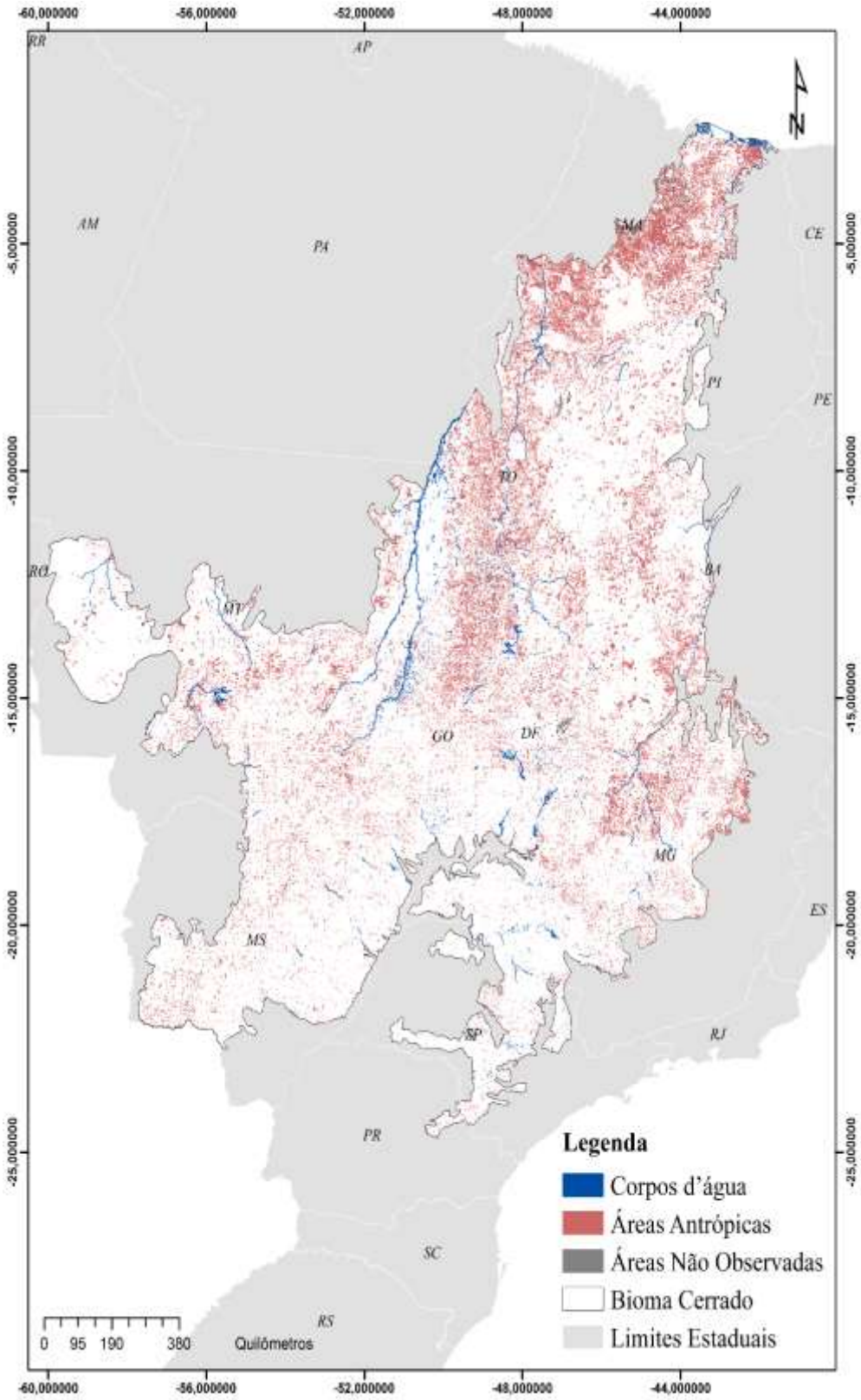


Figure 7 - Mapping of anthropic areas in the Cerrado in 2018.

Figure 8 - Annual rates of deforestation in the period 2001-2018.

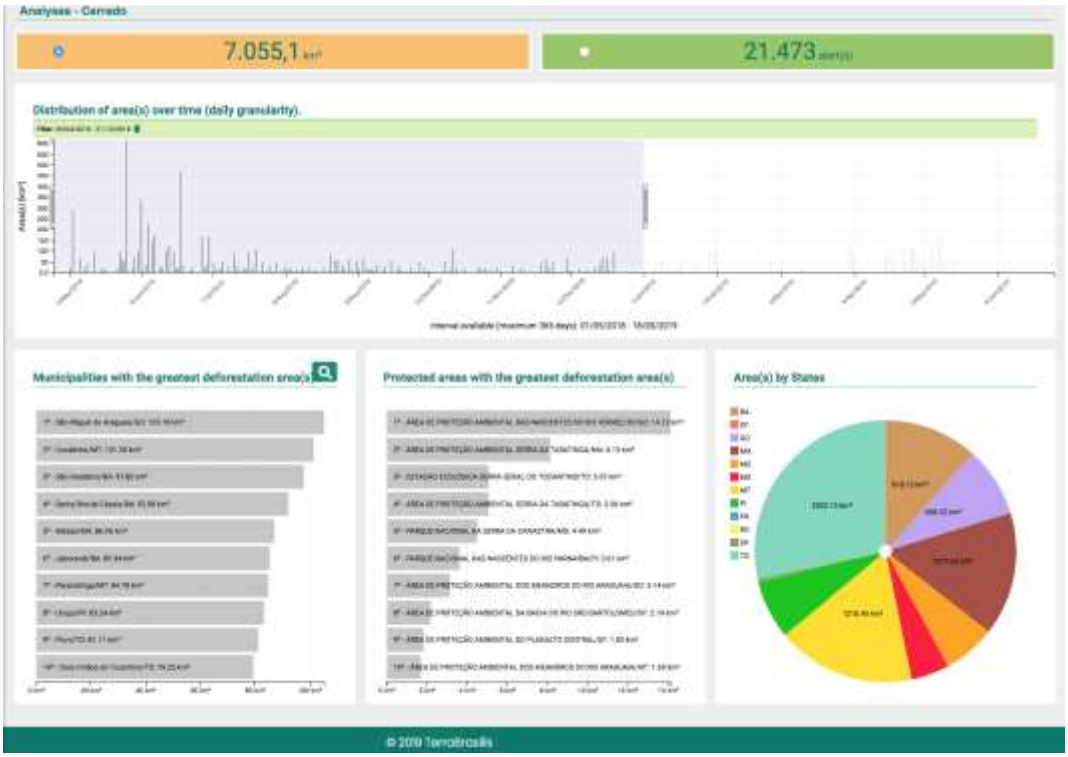


Figure 9 - Alerts on deforestation and forest degradation from May to December 2018.

Events for the presentation and launch of the FIP/Landscape Project were held in Bonn, Germany, during the Global Landscape Forum, and in Katowice, Poland, during COP 24.

The implementation of the FIP/Landscape Project is coordinated by the Brazilian Forest Service (SFB) of the Ministry of Agriculture, Livestock and Food Supply (MAPA) and is supported by the World Bank and a partnership with the German Technical Cooperation Agency (GIZ). the Ministry of Science, Technology, Innovation and Communications (MCTIC), through the National Institute of Space Research (INPE), EMBRAPA and the National Rural Learning Service (SENAR).

FIP TABLE 1.2 – THEME 1.2: LIVELIHOODS CO-BENENEFITS

Country:	Brasil		**Level:**	Investment Plan	
Implementing MDB:	BIRD and BID				
Amount of FIP funding (million USD):	100,3				
Co-financing (million USD):	26,0				
Reporting period:	**From:**	01/01/2018	**To:**	12/31/2018	

Table 1.2B		**Baseline**	**Target at the time of MDB approval**	**Reporting year Actual annual (accumulated up to 12/31/2018)**	**Additional Information**
Please use livelihood co-benefit indicators identified in your investment plan (IP). Use only the number of beneficiaries or households as your metric. If households are used, indicate the average number of people per household and the source for that information. Please also disaggregate for each indicator the number of beneficiaries by gender.					
1. Income Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
2. Employment Indicator: Number of contracted technicians	Total	0	345	555	Consider the sum of the indicators of the Projects: **ABC5+COO1+IFN2+IFN3+MON1**
	Men	0	--	427	
	Women	0	--	128	
3. Entrepreneurship Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
4. Access to finance Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
5. Education Indicator: Number of people trained	Total	0	8,276	16,695	Consider the sum of the indicators of the Projects: **ABC1+ABC2+ABC3+ABC4+CAR1+ IFN1+ MON2+MON3**
	Men	0	--	--	
	Women	0	--	--	
5. Education Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	

6. Health Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
7. Other relevant benefits Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
7. Other relevant benefits Indicator: Number of rural properties enrolled in the CAR municipalities selected until 2018 (CAR2)	Total	--	57,942	120,612	The increase in the number of rural properties registered in the CAR is justified by the fact that two more states (totaling 11) and new municipalities in the scope of the Project have been included. In addition, the market value for CAR enrollment is currently much lower than the amounts charged in the years 2015 and 2016, which led to new registrations of rural properties in the CAR.
What have been key contributions (successes) of FIP regarding livelihoods co-benefits in your country during this reporting year?					
What have been your key challanges anh what opportunities for improvement do you see?					

FIP TABLE 1.2 – THEME 1.2: LIVELIHOODS CO-BENENEFITS

Country:	Brasil		**Level:**	Project	
Implementing MDB:	IBDR		**Project Title**		
Executing Agency:	MAPA/SENAR		**FIP/ABC Project** Sustainable production in areas previously converted to agricultural use Project (under low carb emission agriculture plan)		
Amount of FIP funding (million USD):	10,62				
Co-financing (million USD):	0,51				
Date of MDB approval:	Jul 18, 2014		**Reporting date:**	June 28, 2019	

Table 1.2B		**Baseline**	**Target at the time of MDB approval**	**Reporting year Actual annual (accumulated up to 12/31/2018)**	**Additional Information**
Please, use livelihood co-benefits indicators identified in your Project/program. Use only the number of beneficiaries or households as your metric. If households are used, please indicate the average number of people per household and the source of that information. Please also disaggregate for each indicator the number of beneficiaries by gender.					
1. Income Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
2. Employment Indicator: Number of contracted field technicians (ABC5)	Total	0	81	246	In 2018 there was no change in the number of trained technicians. This was the last year of intervention in Technical Assistance and training, and no new hires of professionals were demanded.
	Men	0	66	193	
	Women	0	15	53	
3. Entrepreneurship Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
4. Access to finance Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
5. Education Indicator: Number of people attending training courses on Low Carbon Agriculture Technologies (ABC1)	Total	0	6,000	8,046	This indicator had its target decreased from 12,000 to 6,000 due to lower demand for courses than expected. In the World Bank report, this indicator is reported as "Producers and trained technicians", and registers the number of 6,333 people, with position on 10/29/2018. The number 8,046 corresponds to 7,800 trained producers + 246 technicians who acted in the execution of the project.
	Men	0	--	6,212	
	Women	0	--	1,834	

5. Education Indicator: Number of people attending the Field Days at the Technical Reference Units (ABC2)	Total	0	1,280	7,379	This indicator had its goal diminished from 6,000 to 1,280 due to the difficulties faced in the implementation of field days. However, after some adjustments in the employed method, there was an increase in the participation of field days, surpassing the second goal of this indicator. In the World Bank report, this indicator is reported as "Number of people who visit the URT during the field days", and registers the number of 5,980 people, with position on 10/29/2018.
	Men	--	--	--	
	Women	--	--	--	
5. Education Indicator: Number of trainers attending training courses on Low Carbon Agriculture Technologies (ABC3)	Total	0	43	53	By 2016, the number of 160 people trained was reported, but that number actually went to enrollment training. By 2017, only the people who completed the training were reported.
	Men	--	--	42	
	Women	--	--	11	
5. Education Indicator: Number of Field Technicians trained to provide technical assistance (ABC4)	Total	0	150	179	In 2018 there was no change in the number of trained technicians. This was the last year of intervention in Technical Assistance and training, and no new hires of professionals were demanded.
	Men	--	--	137	
	Women	--	--	42	
6. Health Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
7. Other relevant benefits Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	

What have been key contributions (successes) of FIP regarding livelihoods co-benefits in your country during this reporting year?

The main advances in the period were the training of rural producers, which resulted in 182 classes being held, training 3,189 people.
Another highlight was the realization of field day events. In 2018 a new strategy for the execution of these events was proposed, being carried out in smaller dimensions, but in greater quantity. This has resulted in a greater participation of producers and technicians. In 2018 the number of people visiting field days was 4,095.

What have been your key challanges anh what opportunities for improvement do you see?

The adoption of sustainable production technologies must be accompanied by the increase of income in the property, this is the main motivator for decision making of the rural producer in the adoption or changes in the management system within the gate. The great difficulty is convincing the producer to make the initial investment to implement the technology. After the producer verifies the possibility of economic gains and the benefits in production that are the result of the technical recommendations, the work of incentive to the implementation of technology, good practices of soil and water management and adjustments in the management becomes easier. The most effective way to demonstrate the full benefit to the farmer is to implement experimental areas within his property, so he can check and compare the situation of pastures with and without intervention. Another way to show the producer all the results of the interventions is through field days.
The following link shows a field day event and technology diffusion: https://youtu.be/3vgVXWUgylk.

FIP TABLE 1.2 – THEME 1.2: LIVELIHOODS CO-BENENEFITS

Country:	Brasil		**Level:**	Project	
Implementing MDB:	BIRD		**Project Title**		
Executing Agency:	Brazilian Forest Service		**FIP/CAR Project** Environmental Regularization of Rural Lands in the Cerrado of Brazil		
Amount of FIP funding (million USD):	32,48				
Co-financing (million USD):	17,50				
Date of MDB approval:	July 21,2015		**Reporting date**	Jun 28, 2019	

Table 1.2B		**Baseline**	**Target at the time of MDB approval**	**Reporting year Actual annual (accumulated up to 12/31/2018)**	**Additional Information**
Please, use livelihood co-benefits indicators identified in your Project/program. Use only the number of beneficiaries or households as your metric. If households are used, please indicate the average number of people per household and the source of that information. Please also disaggregate for each indicator the number of beneficiaries by gender.					
1. Income Indicator:	Total	--	--	---	
	Men	--	--	---	
	Women	--	--	---	
2. Employment Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
3. Entrepreneurship Indicator:	Total	--	--	---	
	Men	--	--	---	
	Women	--	--	---	
4. Access to finance Indicator:	Total	--	--	---	
	Men	--	--	---	
	Women	--	--	---	
5. Education Indicator: Number of people trained in onlyne system - EAD (CAR1)	Total	--	200	451	Data of the training activities for use of the analysis module - CAPCAR Analysis in the EAD system (online distance education - 194 people) and counted the employees trained in person (257 people) during the activities of assisted implantation in the OEMAs of the states of the Cerrado Biome. Cumulative data for the years 2016, 2017 and 2018 for the Cerrado Biome States using SICAR.
	Men	--	--	241	
	Women	--	--	210	

6. Health Indicator:	Total	--	--	---	
	Men	--	--	---	
	Women	--	--	---	
7. Other relevant benefits Indicator: Number of rural properties enrolled in the CAR in the municipalities selected until 2017 (CAR2)	Total	--	57,942	120,612	The increase in the number of rural properties registered in the CAR is justified by the fact that two more states (totaling 11) and new municipalities in the scope of the Project have been included. In addition, the market value for CAR enrollment is currently much lower than the amounts charged in the years 2015 and 2016, which led to new registrations of rural properties in the CAR.
What have been key contributions (successes) of FIP regarding livelihoods co-benefits in your country during this reporting year?					
The main contributions identified in the project implementation refer to the number of technicians from OEMAs trained to use the CAR records analysis module as well as to the number of rural properties registered in the CAR in the municipalities selected as counterpart.					
What have been your key challanges anh what opportunities for improvement do you see?					

FIP TABLE 1.2 – THEME 1.2: LIVELIHOODS CO-BENENEFITS

Country:	Brasil		**Level:**	Project	
Implementing MDB:	BIRD		**Project Title**		
Executing Agency:	MMA/SECEX/DRE		**FIP Coordination** Investment Plan Coordination		
Amount of FIP funding (million USD):	1,00				
Co-financing (million USD):	0,00				
Date of MDB approval:	28/11/2017		**Data do relatório:**	Jun 28, 2019	

Table 1.2B		**Baseline**	**Target at the time of MDB approval**	**Reporting year Actual annual (accumulated up to 12/31/2018)**	**Additional Information**
Please, use livelihood co-benefits indicators identified in your Project/program. Use only the number of beneficiaries or households as your metric. If households are used, please indicate the average number of people per household and the source of that information. Please also disaggregate for each indicator the number of beneficiaries by gender.					
1. Income Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
2. Employment Indicator: Número de técnicos contratados (COO1)	Total	--	--	3	
	Men	--	--	1	Project Management
	Women	--	--	2	Moderators (Stakeholders and Synergy Workshops)
3. Entrepreneurship Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
4. Access to finance Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
5. Education Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
6. Health Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	

7. Other relevant benefits Indicator: Main Project managers satisfied with the performance of the Brazilian Investment Plan performance	Total	--	80%	100%[8]	Result from satisfaction survey.
What have been key contributions (successes) of FIP regarding livelihoods co-benefits in your country during this reporting year?					
What have been your key challanges anh what opportunities for improvement do you see?					

[8] Satisfaction survey data are available in Annex 2 of this Report.

FIP TABLE 1.2 – THEME 1.2: LIVELIHOODS CO-BENENEFITS

Country:	Brasil		**Level:**	Project	
Implementing MDB:	BID		**Project Title**		
Executing Agency:	Brazilian Forest Service		**FIP/IFN Project** Forest Information to Support Public and Private Sectors in Managing Initiatives		
Amount of FIP funding (million USD):	16,45				
Co-financing (million USD):	8,00				
Date of MDB approval:	Dec 13,2013		**Data do relatório:**	Jun 28, 2019	

Table 1.2B		**Baseline**	**Target at the time of MDB approval**	**Reporting year Actual annual (accumulated up to 12/31/2018)**	**Additional Information**
Please, use livelihood co-benefits indicators identified in your Project/program. Use only the number of beneficiaries or households as your metric. If households are used, please indicate the average number of people per household and the source of that information. Please also disaggregate for each indicator the number of beneficiaries by gender.					
1. Income Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
2. Employment Indicator: Number of contracted field technicians (IFN2)	Total	--	176	217	
	Men	--	--	189	
	Women	--	--	28	
2. Empployment Indicator: Number of contracted taxonomists (IFN3)	Total	--	28	26	
	Men	--	--	9	
	Women	--	--	17	
3. Entrepreneurship Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
4. Access to finance Indicator:	Total	--	--	--	Of the 10,007 interviewees in the rural area of the Cerrado, 94% do not know about forest credit.
	Men	--	--	--	
	Women	--	--	--	
5. Education Indicator: Number of trained people in skills and techniques related to the National Forest Inventory (IFN1)	Total	--	260	215	
	Men	--	--	171	
	Women	--	--	44	
6. Health Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	

7. Other relevant benefits Indicador:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
What have been key contributions (successes) of FIP regarding livelihoods co-benefits in your country during this reporting year?					
What have been your key challanges anh what opportunities for improvement do you see?					

FIP TABLE 1.2 – THEME 1.2: LIVELIHOODS CO-BENENEFITS

Country:	Brasil		**Level:**	Project
Implementing MDB:	BIRD		**Project Title**	
Executing Agency:	MCTIC/INPE/FUNDEP		**FIP/Monitoramento (FIP/FM) Project** Development of systems to prevent forest fires and monitor vegetation cover in the Brazilian Cerrado	
Amount of FIP funding (million USD):	9,25			
Co-financing (million USD):	0,00			
Date of MDB approval:	Mar 28, 2016		**Data do relatório:**	Jun 28, 2019

Table 1.2B		**Baseline**	**Target at the time of MDB approval**	**Reporting year Actual annual (accumulated up to 12/31/2018)**	**Additional Information**
Please, use livelihood co-benefits indicators identified in your Project/program. Use only the number of beneficiaries or households as your metric. If households are used, please indicate the average number of people per household and the source of that information. Please also disaggregate for each indicator the number of beneficiaries by gender.					
1. Income Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
2. Employment Indicator: Number of contracted specialists – FM[9] (MON1)	Total	--	60	63	The number of contracted specialists is higher than the target, because during project development some adjustments were necessary in the project due to the complexity of some activities.
	Men	--	--	35	
	Women	--	--	28	
3. Entrepreneurship Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
4. Access to finance Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	

[9] The professionals employed in the FIP/Monitoring Project received training to learn satellite image interpretation methodologies and technologies to identify areas of deforestation and degradation in the Cerrado. These professionals are getting improvement of their professional capacity, with better preparation for the job market.

5. Education Indicador: Number of people trained in the use of fire hazard (MON2)	Total	--	303	334	Training, lectures and technical meetings were held in 2017 in the TERRAMA2Q system: • trainings with about 30-40 hours (33 institutions, 128 people); • lectures about 4 hours and the launch workshop (45 institutions, 175 people); • technical meetings with institutions to train and receive feedback (13 institutions, 31 people).
	Men	--	--	--	
	Women	--	--	--	
5. Education Indicator: Number of people trained in the use of deforestation data (MON3)	Total	--	40	38	In 2018, a workshop was held with the participation of representatives of 19 government institutions (environmental authorities with a mandate to control illegal deforestation) when 38 people were trained. In addition, 95 people from private companies, universities and NGOs also participated in the workshop. However, to be compatible with the World Bank report, which states that only people from government institutions responsible for public policies, deforestation control and fire prevention using information on deforestation and fire risk in the Cerrado will be trained, only the number of these institutions is indicated in the FIP M & R Report.
	Men	--	--	--	
	Women	--	--	--	
6. Health Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
7. Other relevant benefits Indicator:	Total	--	--	--	
	Men	--	--	--	
	Women	--	--	--	
What have been key contributions (successes) of FIP regarding livelihoods co-benefits in your country during this reporting year?					
What have been your key challanges anh what opportunities for improvement do you see?					

FIP FORM 1.2 - THEME 1.2: LIVELIHOOD CO-BENEFITS

Level: Investment Plan

Please Answer the following questions with a narrative description of the results achieved by the FIP Investment Plan in your country in the reporting year. Explain the progress made in the reporting year, compared to the previous one. Please provide one narrative for each relevant aspect, such as income, employment, entrepreneurship, access to finance, education, health or others.

1. Number of beneficiaries:

Due to the diversity of projects of the Brazilian Investment Plan, there are a range of different beneficiaries who stood out until 2018. For example:

- 15,179 rural owners (8,046 trained and 7,379 participants on the FIP/ABC Project field days);
- 555 technicians hired to develop activities in the scope of Brazilian Investment Plan Projects (246 from FIP/ABC, 3 from FIP/Coordination, 243 from FIP/IFN, and 63 from FIP/Monitoring);
- 120,612 family farms were registered in the municipalities selected under the FIP/CAR Project;
- 215 people trained in skills and techniques related to the National Forest Inventory.
- 372 people trained in the use of fire risk and in the use of deforestation data within the scope of the FIP/Monitoring Project;
- 22 thousand accesses per year to the SNIF Portal, being the national and international profiles of: researchers, public agents, businessmen, farmers, teachers and students, among others.

2. Which actions were taken to provide livelihood co-benefits (monetary or non-monetary benefits) that beneficiaries received?

Rural landowners with degraded pastures received training and technical and managerial assistance through the FIP/ABC Project to recover their pastures, increase income and livestock production in the same area. Livestock production and feed were encouraged, mainly through the implementation of the ILP system (crop husbandry integration), which allowed that, even during periods of rainfall, there was an adequate supply of food. This activity breaks a paradigm present in the work routine in the properties, that is, in the moments of the year where the sale of animals is common (at prices below the value) to escape the low supply of food, the producers began to buy animals. Another positive result was the diversification of income. In many cases the producers who produced food for the cattle (silage), obtained productivities more than expected and sold the surplus of food to producers of the region. The beneficiaries went from buyers to sellers of silage, resulting in increased income.

The video in the following link shows an example of a monetary and non-monetary benefit outcome: https://youtu.be/J5d4WHWKUcs

The main beneficiaries of the FIP/Coordination Project are government institutions and implementing agencies, since their objective is to strengthen the managerial capacity of the MMA to monitor the execution of the projects that make up the Brazilian Investment Plan and to boost the performance of projects through generation of synergies between them.

At least 107 private sector technicians were trained by the FIP/IFN Project to carry out the forest survey. These technicians were then hired by the companies that carried out the forest inventory.

The National Forestry Information System (SNIF) provides forestry information widely used by the public and private sector, for example, indicators for the Sustainable Development Objective (ODS) as well as

forest-based industry (NIS) production indicators. In the case of Cerrado SNIF it will be a benefit for rural producers and local cooperatives interested in the use of the Cerrado to produce goods and services.

With regard to the FIP/Monitoring Project, the beneficiaries of information on deforestation and forest fires are the institutions and actors involved in the monitoring and conservation of the Cerrado biome, including INPE, PREVFOGO, OEMAs, Federal Police, municipalities and their firefighting brigades, IBAMA, MMA, MDA, MAPA, ICMBio, FUNAI, SFB, IBGE, protected area managers, academic and educational institutions, civil society organizations and associations of producers and landowners. More than 3,000 clients regularly consult the websites of the entities participating in the Project. They use data mainly for land management, compliance chain for grains and beef and for academic studies on ecology and social economy of the Cerrado Biome.

Statistics on the use of information and data produced by the FIP/Monitoring Project were carried out, as shown in Figure 10, to collect information on how and for which are being used. 60 users answered questions on the form (http://terrabrasilis.dpi.inpe.br/cerrado/pesquisa).

3. Who was involved? Were any partnerships established?

Institutions partner: CONAB, EMBRAPA, FAO, FUNAI, Herbariums (Botanical Garden of Rio de Janeiro, CENARGEM/EMBRAPA and UnB), IBAMA, IBGE, ICMBio, INPE, UFG, UFLA, UnB, OEMAs of the 11 states of the Cerrado biome, representative institutions of rural producers, ISPN, Cerrado Seed Network, Central of the Cerrado and others representative institutions of indigenous peoples and traditional communities.

Executing Institutions: CAA/NM, FUNATURA, FUNDEP, GIZ, INOCAS, SENAR e SFB.

Coordination: MMA, MAPA, MCTIC, ME.

These institutions have a formalized agreement, with or without transfer of funds, through specific instruments, and in some cases counterpart funds have been invested.

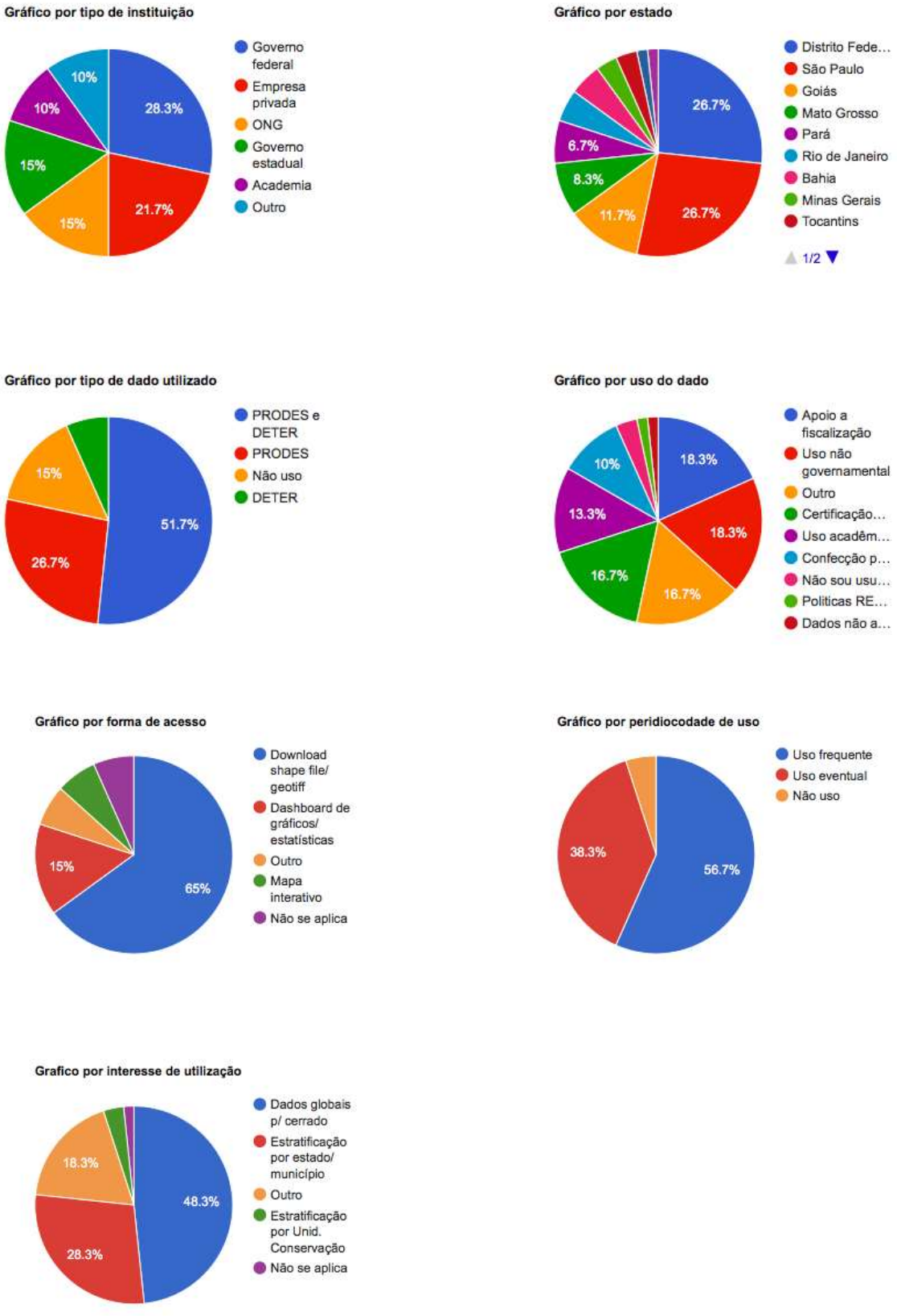


Figure 10 - Use of information and data produced by the FIP Project/Monitoring

4. Why did it make a difference?

In addition to assisting in the implementation of established public policies, the contributions of the Brazilian Investment Plan also potentiated the improvement of the income of some beneficiaries, such as rural landowners who had their pastures recovered or local technicians hired by forest inventory companies.

The federal and state governments are increasing their capacity to plan actions, as they are increasing their socio-environmental database through the actions of the FIP/IFN, FIP/ABC, FIP/CAR and FIP/Monitoring projects. This situation may be oriented to benefit certain strategic groups as more vulnerable populations.

Reclamation of pastures has also reduced the vulnerability of these owners to climate change, such as prolonged periods of drought, since reclaimed pastures have deeper roots due to fertilization and soil organic matter conservation. It is also estimated the increase of the water reserve in the water table, due to the implantation of techniques that increase the infiltration of water in the soil during the rainy season. Water and soil conservation practices were strongly encouraged and implemented and, even in a short period of implementation, allowed positive results to be observed by producers. The higher rainwater retention and consequent food production were observed in less than a year (Figure 11).

Figure 11 – Contour line image retaining rainwater a and allowing greater infiltration of water into the soil.

The photos in Figure 12 show the result of the implementation of a level contouring system, followed by the implementation of a well managed pasture in the same year.

Before

After

Figure 12 - Result of the implementation of a system of contour lines

Of the properties that received technical and managerial assistance, some 88,325 hectares were directly recovered through ABC technologies. This means that the farmer applied other procedures or management practices that were not previously applied, such as: implementation of contour lines, correction of soil with limestone, correction of soil fertility, planting of more suitable forage variety, piling and rotational grazing of the area, or even the implantation of the crop-livestock integration system. With each Real invested by the project in the hectare, the producers invested to implement these technologies, on average, R $ 7.20. However, preliminary data indicate that the effect of the recovery of these 88,325 hectares of pastures reflects the indirect recovery of other areas, which have become more productive even with little or no investment with less direct investments. This is because the increase in the supply of food in the intervention areas provides a reduction in the grazing pressure in the adjacent pastures. In these places, it is considered that there was an indirect recovery provided by the better management of the animals in the pastures, which is also part of the list of technologies advocated by the ABC Plan. It is estimated that the sum of the areas of direct intervention with the adjacent areas results in a total of 312,757 hectares.

In the case of the FIP/CAR Project, the partnership with UFLA, as a counterpart in 2018, developed computerized systems to implement the public policy of environmental regularization, with SICAR as one of the main products. SICAR is the national electronic system for the integration and management of environmental information on rural properties throughout the country. This information is intended to subsidize policies, programs, projects and activities of control, monitoring, environmental and economic planning for the promotion of sustainable productive activities, management of native vegetation of the Cerrado and the fight against deforestation. State environmental agencies use SICAR as their systems for realizing CAR, enabling the decentralization of environmental management, combined with the standardization of data that make management feasible at the federal level (http://www.car.gov.br).

The availability of data on the forests in the Cerrado carried out by the FIP/IFN Project, as well as the ways to access and use their resources in a sustainable way, are the means to promote the maintenance of this biodiversity mainly in rural areas. The organization and availability of reliable information in a single portal and of easy access, facilitate the use of this information that is generally dispersed in several databases.

In the case of the FIP/Monitoring Project, mapping deforestation and the annual inventory and early warning systems on deforestation and forest fires in the Cerrado began to be built in 2017. Updated monitoring of deforestation was not available prior to the implementation of this project. Since 2018, deforestation mapping and early warning systems are producing data daily and are already providing information on the Internet. In addition, it is expected that by the end of 2020 Brazil will have all biomes monitored to control deforestation in the Cerrado biome. In this project, fire risk models are being built. The wild fire risk model developed at INPE (http://www.inpe.br/queimadas/) is one of the indicators of the susceptibility of vegetation to be burned. The fire risk propagation model uses better vegetation maps and includes new physical variables such as altitude and latitude, using more reliable meteorological data and integrating it with the FISC model developed at UFMG (https://csr.ufmg.br/fipcerrado/). The simulation of fire propagation for forest fire prevention and planning is being developed for the National Parks of Serra do Cipó, Serra da Canastra and Chapada dos Veadeiros. The following link shows fire simulation videos https://csr.ufmg.br/fipcerrado/.

The collection of information on deforestation and forest fires, generated by the Project, are official government data and will be used to prevent and combat deforestation and degradation of the Cerrado Biome, according to the PPCreado document.

5. Will benefits last after the Project is completed? Explain.

Yes, all the projects of the Brazilian Investment Plan for the FIP leave assets and data capacities that will give continuity to the consolidated public policies, such as monitoring and control of the Cerrado deforestation, registration of rural properties and traditional communities, forest survey and emissions.

The increase in income is a great motivator for the continuity of implementations, even after the end of the project. The technical follow-up allowed the behavioral change of the producer that started to observe the property management as a priority. The methodology passed on is expected to be constant. Other indirect benefits are also permanent, such as strengthening family succession.

The following link provides a video that shows unexpected project results: https://youtu.be/Rxh4IUTL7FU.

In the case of the FIP/CAR Project, the need for continuity of the implementation of public policies for environmental regularization in rural properties, through CAR and PRA (Environmental Regularization Program), will maintain partnerships between federal and state governments, as well as the use of SICAR and data generated by the project.

In the case of the FIP/IFN Project, technicians trained in forest surveys and botanical identification may be hired for other inventories and surveys in the Cerrado. The information obtained from the forest surveys, as well as those divulged in the Forest Information Systems - SNIF, can be used by researchers and students, consultants, producers and agricultural technicians.

In the case of the FIP/Monitoring Project, mapping systems and alerts on deforestation have been constructed for the years 2016, 2017 and 2018. These systems will continue to provide information to civil society and government openly on the Internet if there is a financial investment as of 2021. The benefits are demonstration of concept on deforestation and fire monitoring, fire risk assessment and GHG emission estimates. Federal and state institutions may use the data provided by the Project for land management and to address REDD + initiatives. As stated above, it is essential that sustained funding be granted by the government to achieve the NDC - Determined National Contribution for GHG mitigation planned for the next decade. After 2021, these systems will cease unless there is financial support to

continue the monitoring activities of the cerrado, as well as for its continuous improvement and technological upgrades.

6. How do they impact vulnerable groups?

Vulnerable groups and their constituencies will have access to systematized and available information through public and transparent data systems. The information available is related to: products resulting from the sustainable use of Cerrado species, the evolution of deforestation, fire places, environmental assets and liabilities in rural properties, floristic composition, wood volume, biomes and forest carbon stocks and reduction of greenhouse gas emissions.

The information systematized from the social and environmental surveys of the FIP/IFN Project will support public policies aimed at vulnerable groups, as well as monitoring the evolution of these policies by civil society. A total of 10,297 interviews were carried out with residents of the Cerrado rural area, to know about the use of forest resources and their relationship with forests.

The socioenvironmental data were analyzed, based on these interviews, in the states of MA, PI, BA, TO, GO, MT, MS and DF. It was verified that 60% of the interviewees use timber forest products, being 59% for domestic use and 19% for commercial use. In the northern region of the Cerrado, a higher percentage of respondents stated that they use these products (80%). The main uses of timber forest products are for firewood (72%) and posts and stakes (61%). Regarding uses of non-timber forest products, 69% of respondents stated that they use these products. The uses of fruits (68%) and peels (49%) stand out. Other important products also mentioned by the interviewees were honey, leaves, roots and seeds. Figure 13 presents the percentages of respondents who use wood and non-timber forest products by state, and Figure 14 shows the types of products most used by the interviewees.

Also analyzed were the data of 3,510 sample units on the occurrence of erosion and signs of anthropism; besides analysis of biophysical aspects of the forests related to the sanity of 311,170 trees sampled. It was observed that 26% of the points visited showed signs of erosion. The main causes of anthropism were traces of domestic animals (40%) and signs of fires (31%). Regarding tree health, it was verified that in the Northern Cerrado (MA, TO, PI and BA) there is a higher percentage of healthy trees (51%) compared to the Southern region (GO, MT and MS) with only 29% of healthy trees.

Vulnerable groups are those that generally have less time and ability to access and interpret many data sources, the National Information System (SNIF) portal captures information in large trade databases, statistical bases that bring together several segments, and separates those relative to the forests facilitating the user's access and indicating the original reference sources.

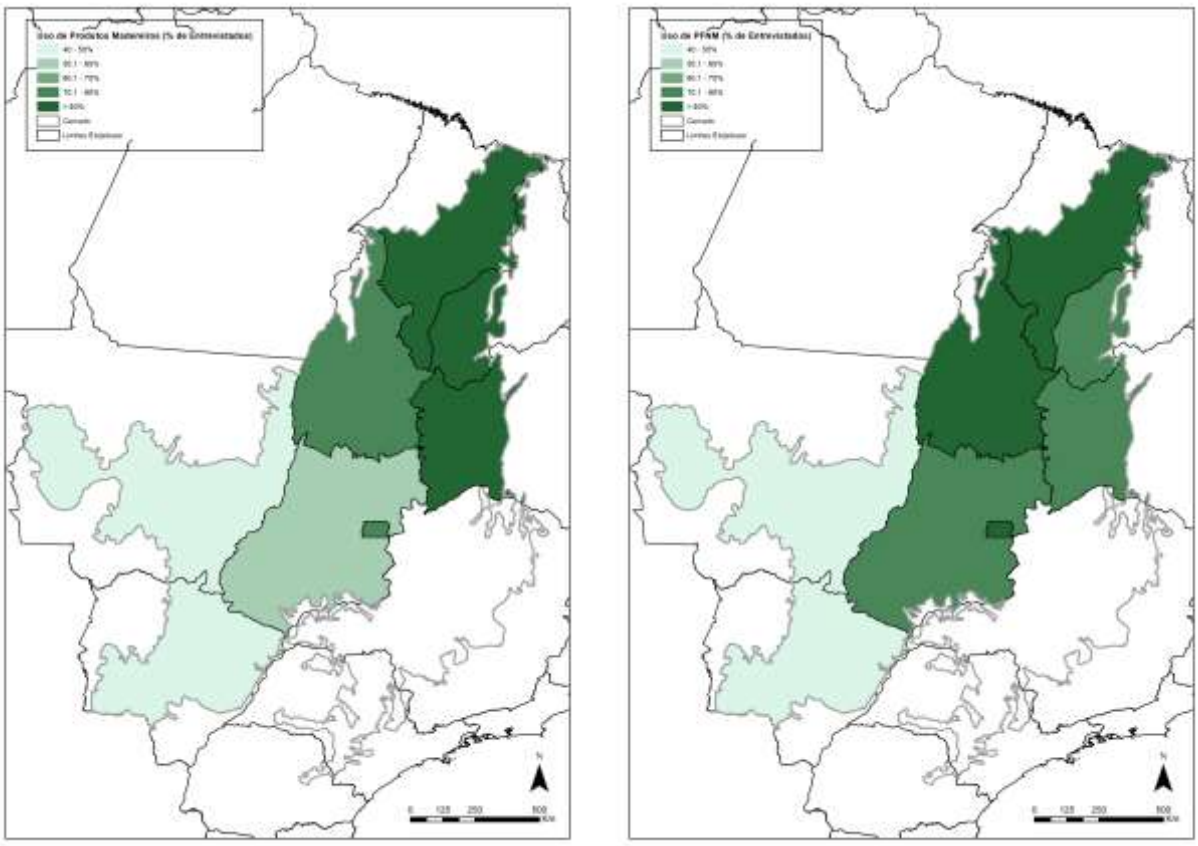


Figure 13 - Percentage of respondents using timber forest products (E), and non-timber forest products (D), by state.

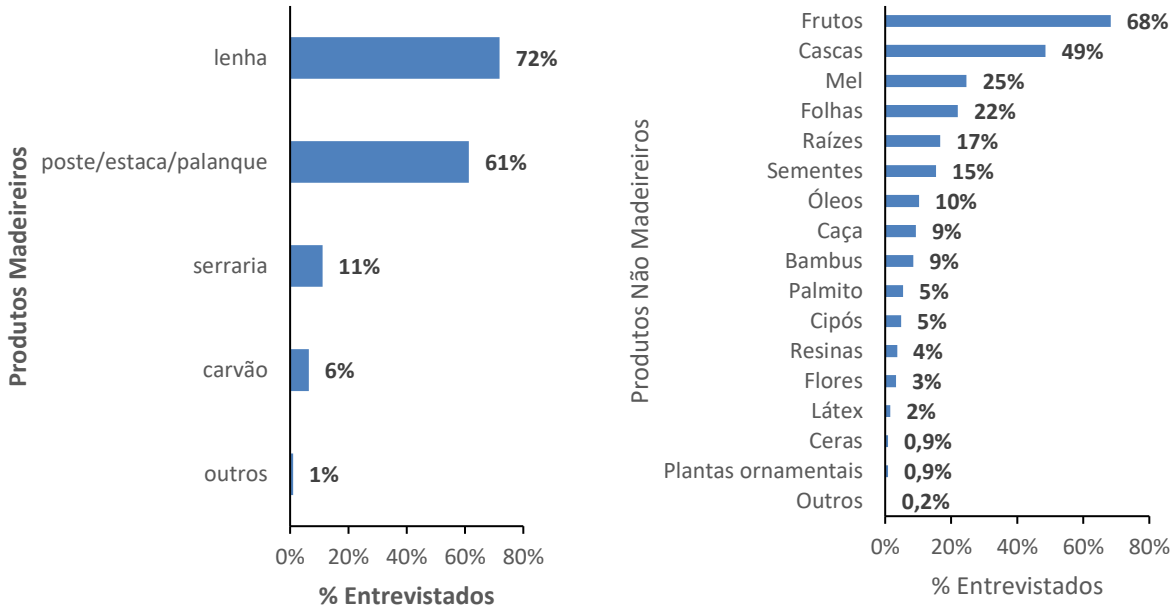


Figure 14 - Percentage of respondents using timber forest products (E) (n = 6,244) and non-timber forest products (D) (n = 7,208), by type of product.

FIP FORM 2.1 - THEME 2.1: BIODIVERSITY AND OTHER ENVIRONMENTAL SERVICES

Level: Investment Plan

Please answer the following questions with a narrative description of the results achieved by the FIP investment plan in your country in the reporting year. Explain the progress made in the reporting year, compared to the previous year.

1. Which activities have been conducted in the reporting period to reduce the loss of habitats and other nevironmental services?

The FIP Investment Plan in Brazil has initiatives related to the monitoring of deforestation in the Cerrado, burnings, forest survey, identification of environmental assets and liabilities in rural properties and adoption of low carbon technologies (recovery of degraded pastures, crop-livestock integration -forest, no-till and planted forests). All these initiatives affect the conservation and/or restoration of environmental habitats and services, as well as the implementation of public policies.

The FIP/ABC Project increased the productivity of pastures and agricultural crops through fertility techniques and soil management and conservation, as well as the improvement of rainwater infiltration made possible by the installation of terraces, planting techniques and other conservation techniques. As an indirect consequence, we have a decrease in the pressure on areas with native vegetation.

In addition to the interventions and productive areas, the project is encouraged to improve the quantity and quality of the water by means of specific works to rebuild the native forest.

The following link contains a video that shows a result where the product feels the need to recompose to impact on the productive parameters of the activity: https://youtu.be/pqXm2UTbGv8.

The FIP/CAR Project produced the Terms of Reference (TdRs) for carrying out the activity of small rural property registrations and PCT Territories in the CAR. TdRs were also developed for contracting companies for the activities of rectification and analysis of CAR. These activities will allow identifying where the environmental assets and liabilities of each rural property are and guiding their recovery, increasing the area of native vegetation, creating ecological corridors for the fauna and conserving areas of water production.

Up to 2018, 49,394 botanical samples were collected for scientific identification of the species in the scope of the FIP/IFN Project, in 3,817 points of the Cerrado biome, located in the states: BA, PI, MA, TO, MT, MS and GO, 40,074 (81%) trees and shrubs. The information generated from these collections will subsidize public policies aimed at the conservation of areas of relevant importance for biodiversity and the sustainable use of forest resources in the Cerrado.

It was possible to start some meetings with possible partner institutions in the production of data for use in the Cerrado SNIF, being: CONAB, IBGE, EMBRAPA, MCIT, ISPN, Cerrado Seed Network, Central of the Cerrado.

The portal was migrated to the latest existing versions that will enable advances in the technologies used in the portal, immediately the access reporting system was improved enabling better knowledge of users accessing the portal.

Advances were made in the forest information base that will enable the disaggregation of forest data to the municipal level.

The FIP/Monitoring Project has already developed a system to map deforestation and indicate the susceptibility of vegetation to be burned, which will help the Brazilian government to monitor the Cerrado's environment through more accurate data. Consequently, these actions are expected to reduce deforestation and illegal burning (Figure 15) and, consequently, reduce habitat loss. The forest fire propagation and risk models were developed in this project and are being tested in three protected areas (Chapada dos Veadeiros National Park, Serra do Cipó National Park, Serra da Canastra National Park), which, when the management and monitoring of fire prevention in protected areas. Figure 16 illustrates the fire management planning and the presentation of the partial results of the model of fire, fuel and fire probability spread in the Serra do Cipó National Park.

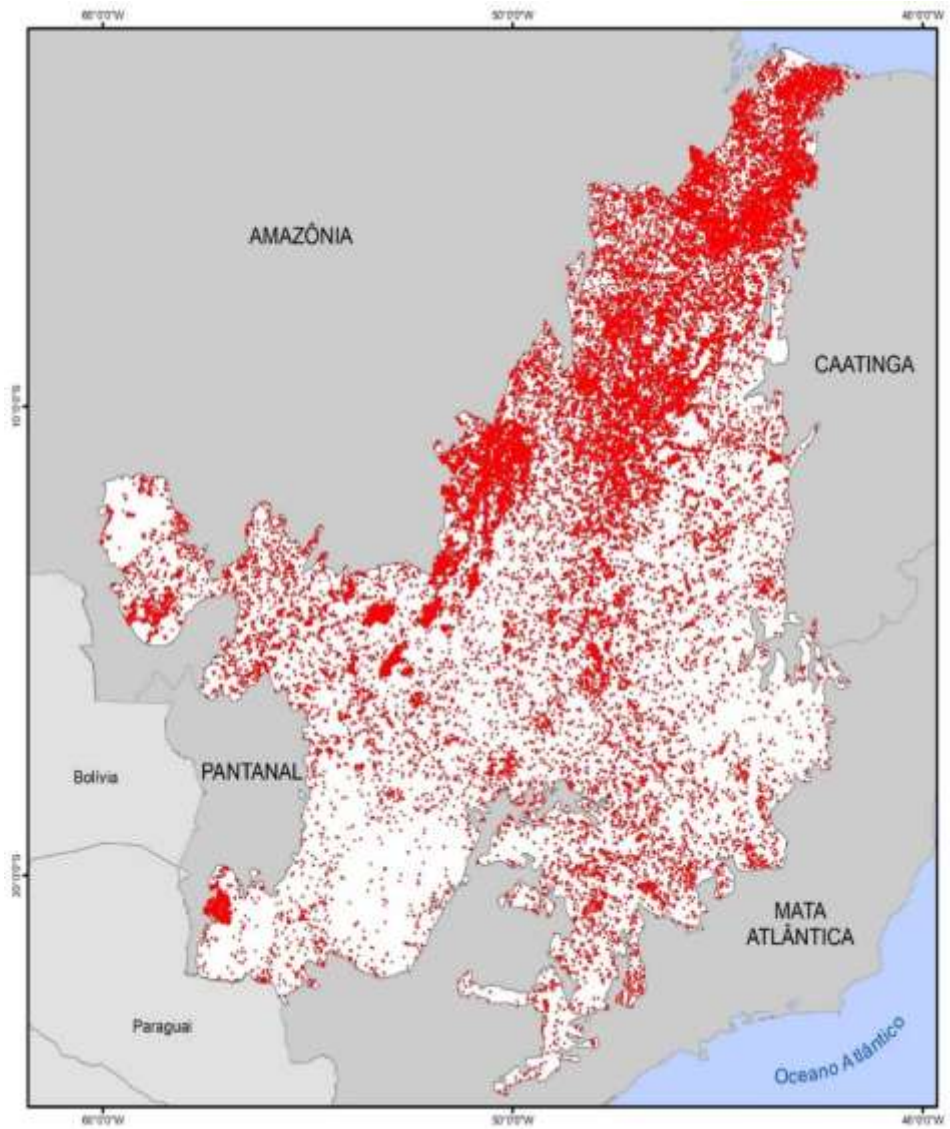


Figure 15 - Evidence of Heat (1998-2018), updated every 3 hours
Data available in http://www.inpe.br/queimadas

Figure 16 - Fire management planning and presentation of the partial results of the fuel fire and fire probability propagation model in the Serra do Cipó National Park
Information at http://csr.ufmg.br/fipcerrado/

The FIP/Landscape Project has the potential to positively interfere with biodiversity and ecosystem services, as it supports low-carbon farming practices in selected river basins, promoting the recovery of degraded pastures (reducing erosion), recovery of APPs and RLs, restoration of landscapes and increasing carbon stock in private rural properties and traditional communities' lands in the Cerrado Biome.

2. What have been key contributions (successes) of FIP interventions regarding biodiversity and environmental services your country context during this reporting year?

The 312,757 ha of reclaimed pastures are located in 1,957 rural properties, which occupy an area of about 733,000 ha. In these properties, the areas not recovered or with environmental assets (forests and water bodies) had less anthropogenic pressure, which allowed an improvement in the environmental services.

In more specific situations, the recovery of springs located inside the properties is performed (Figure 17), which results in water of better quality and quantity to the animals. Below some images of a spring being recovered as direct action the project.

Figure 17 - Spring Recovery

For the knowledge of the forest biodiversity of the Cerrado, the botanical samples collected by the FIP/IFN Project are allowing to identify the species, their distribution, as well as their usefulness to local communities and landowners. In this way, it will be possible to monitor the level of conservation of the species and the type of environmental service they provide.

The botanical identification work of these plants is underway. By the end of 2018, about 45% of the plants collected had already been identified up to the taxonomic level of species. A total of 1,467 species, 806 genera and 160 families were identified (Figure 18).

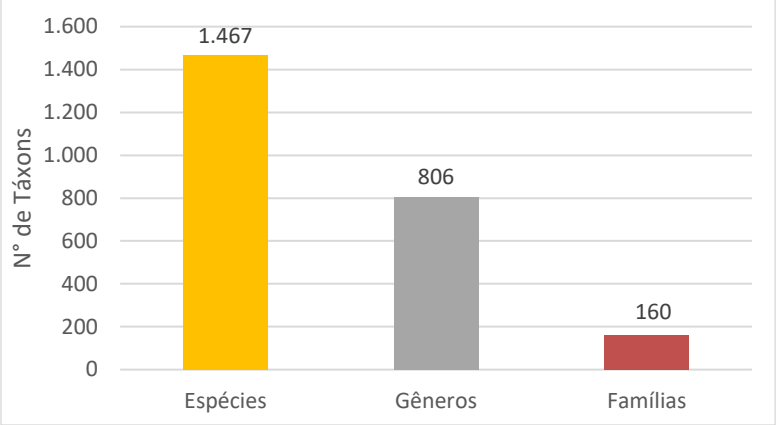


Figure 18 - Number of taxa that have already been identified by 2018

Considering only some preliminary data of the states of MA, TO, PI and BA, we can already glimpse the following information:

- There are 117 species with new occurrences on state species lists;
- 49 species are described for the first time for the Cerrado Biome;
- 4 possible new species for science were found by the FIP/IFN Project;
- The extremely rare species Aiouea macedoana Vatimo-Gil (Lauraceae) that had been collected only once in the history of science, classified as endangered, or practically extinct, was rediscovered by the FIP/IFN Project.

As botanical identifications are advanced, more information of this kind will be presented.

For the knowledge about the environmental services of the Cerrado forests, a study was carried out based on 7,943 interviews with rural dwellers and it was verified that legal reserve, protection of springs, water production and the raising of domestic animals are the main forest environmental services cited by the interviewees (Figure 19).

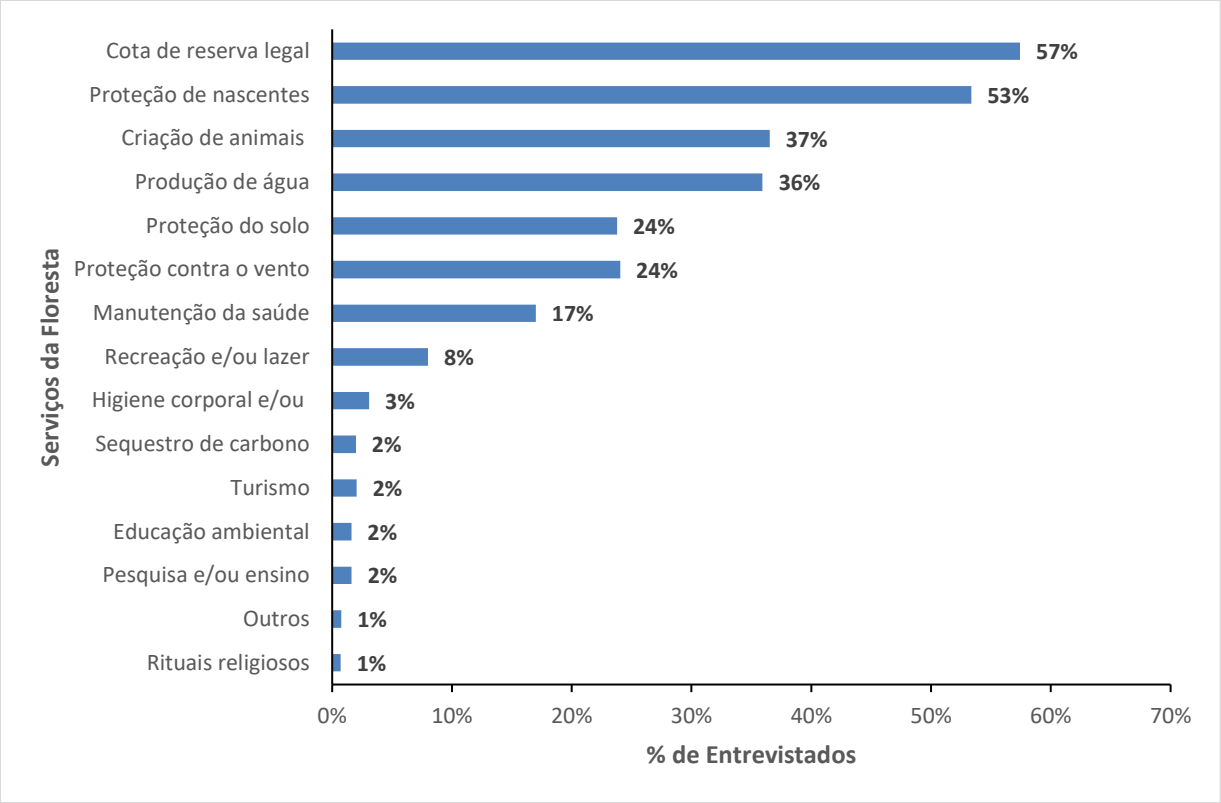


Figure 19 - Forest environmental services cited by rural interviewees in the Cerrado (n = 7,943).

The mapping of Cerrado deforestation by the FIP/Monitoring Project began in the main expansion region of the Brazilian agricultural frontier, where the highest deforestation rates of the Cerrado, called MATOPIBA, are currently found. The annual deforestation data of the Cerrado for the years 2016, 2017 and 2018 are already available on the internet (www.obt.inpe.br/cerrado). In parallel, the Project developed a system to produce daily alerts of changes in the natural vegetation of the Cerrado, called DETER Cerrado. Deforestation data are being made available in almost real time to IBAMA for environmental monitoring actions. Therefore, the monitoring of deforestation and indirect burning contributes to preserve the biodiversity and the various environmental services of the Brazilian Cerrado.

3. What have been your key challenges and what are opportunities for improvement?

The adoption of sustainable production technologies must be accompanied by the increase of income in the property, this is the main motivator for decision making of the rural producer in the adoption or change in the management system within the gate. The great difficulty is convincing the producer to make the initial investment to implement the technology. After the producer verifies the possibility of economic gains and the benefits in production that are the result of the technical recommendations, the work of incentive to the implementation of technology, good practices of soil and water management and adjustments in the management becomes easier. The most effective way to demonstrate the full benefit to the producer is to implement experimental areas within your property. Thus, he can verify and compare the pasture situation with and without intervention. Another way to show the producer all the results of the interventions is through field days (Figure 20).

Figure 20 - Field day photo of the FIP/ABC Project

The main challenge regarding botanical identification of plants collected under the FIP/IFN Project is the large volume of plants to be identified in a relatively short time of the project. In addition, there is another factor that hinders the taxonomic determination of the individuals, which is the fact that 85% of the samples were collected in the sterile stage, that is, without the presence of flowers and/or fruits.

To overcome this challenge of accelerating bottlenecks and data insertion in the IFN system, a further 14 consultants were hired over a period of 100 days by the GEF project in support of the IFN (FAO). This was because there was no possibility of hiring more consultants for the FIP/IFN Project due to the government's budget constraints. Therefore, during the months of October, November and December 2018, these consultants joined the FIP consultants team, totalizing 26 consultants working together to identify, catalog and digitize the botanical samples. Concomitantly, renowned botanists from different taxonomic groups and from different institutions, including from the outside, have been brought in for the botanical identification of the major groups.

The specialist in the Fabaceae family of the Botanical Garden of Rio de Janeiro, Dr. Haroldo Lima, was invited again by the IFN to assist in the determination of plants collected by the FIP/IFN Project, belonging to this family, which includes the largest number of individuals collected until So. In fact, he indicated that possibly a plant of this family collected by the FIP/IFN Project in the Cerrado of Bahia is a new species of plant. For this to be confirmed, there is a need for more collections and more studies. But he also said that this was already expected, because there are many areas of the Cerrado where there was no collection of plants and, as the IFN collects systematically every 20 kilometers, there is the possibility of discovering new species for science. He and his team of researchers will try to schedule a mission to find more individuals of this species in those areas where it was first collected and could later publish the taxonomic characteristics of this new species.

In addition to this, several other experts have contributed to IFN in botanical identifications. In September and October, we brought the Italian specialist in the Rubiaceae family, Dr. Piero Delprete (Figure 21), who currently works in French Guiana, but who knows the Cerrado plants very well. Another renowned botanist who came to the invitation of IFN was Dr. Vinícius Souza, a professor at the University of São Paulo and author of several books on plant systematics and who has just released a book identifying plants in the Cerrado. All these experts contribute not only to the identifications but give a greater support to the taxonomic determinations of plants collected by the IFN, providing a greater credibility in the botanical information.

Figure 21 - Specialists Dr. Piero Delprete and Dr. Vinícius Souza, respectively, identifying plants of the IFN Cerrado.

Figure 22 - IFN botanical identification team in the Cerrado, made up of taxonomists and technicians, as well as herbaria curators.

The advancement in partnerships with data-producing institutions to enable access to information and the creation and construction of the specific portal model for Cerrado SNIF using the available sources.

Finally, the mapping of Cerrado deforestation, carried out by the FIP/Monitoring Project, had as its main technical challenge the description of the physiognomic characteristics of the native vegetation and its similarity with some deforested areas. The use of satellite images makes it difficult to distinguish between artificial pastures and native grasses. These situations require complementary activities, such as the use of other satellite images and fieldwork activities. Some areas with native vegetation also present challenges in their classification, since they present a level of environmental degradation that affects the density of native trees and shrubs, making it difficult to classify the category of native vegetation to which it belongs. Despite these difficulties, the specialists working on this project are developing a semiautomatic system to map the physiognomic characteristics of the native vegetation in the Cerrado. The first level of this classification (Forest, savanna and pasture) is already developed, and until June 2019 will be available on the internet.

4. Other criteria:

FIP FORM 2.2 - THEME 2.2: GOVERNANCE

Level: Investment Plan

Please answer the following questions with a narrative description of the results achieved by the FIP investment plan in your country in the reporting year. Explain the progress made in the reporting year, compared to the previous one.

1. How has FIP contributed to ensuring that stakeholder processes allow the participation of marginalized or vulnerable groups, such as women and indigenous or traditional groups, in forest-related decision-making processes?

The FIP Investment Plan in Brazil has in its planning the inclusion of marginalized groups as direct beneficiaries.

In the FIP/ABC Project, the 1,957 cattle ranchers with areas of degraded pasture, more vulnerable to climatic extremes, have been able to advance to higher levels of production. The incentive to use technologies and practices of water and soil conservation allowed the adequacy of properties resulting in an increase in the supply of food to the animals and consequently increase of income, as shown in the following link: https://youtu.be/2ki_koaGB-0.

The FIP/CAR Project has as its implementation strategy the registration, rectification, analysis and PRA of rural properties in the CAR, as well as the registration of PCT Territories that make use of land as a way of life and subsistence. The process of environmental regularization through CAR includes guidance on the use or limitations of its forest assets, as well as the need to recover forests in areas required by law.

The FIP/IFN Project is conducting social and environmental research through interviews (10,297 conducted up to 2018) with rural dwellers to understand the use and importance of forest resources for these communities to subsidize policies that favor vulnerable groups.

One of the analyzes carried out from these interviews is the participation of forest products in household income. After analyzing 10,007 interviews, it was verified that 31% of respondents stated that forest products participate in family income. It is observed that there is a greater participation of the forest products in the family income in the northern states of the Cerrado (48%) (MA, TO, PI and BA). Probably because in this region the forest cover is larger (Figure 23). Another factor that may affect participation in family income is the predominantly domestic use of timber forest products (59%) and non-timber (66%) and low commercial use (19%) of both products.

The interviews conducted for the social and environmental information surveys of the Cerrado, within the scope of the FIP/IFN Project, contemplate women's responses. This survey will allow a study on the uses of forest products by women and their perceptions about forests and their importance in their lives. From these studies, it will be possible to develop appropriate policies for women. Of the 10,183 interviews conducted in the Cerrado, 68% were men and 32% women.

- Timber Forest Products (PFM):
  - ✓ 6,004 or 59% of the respondents answered using timber forest products
  - ✓ 62% of men interviewed use PFM;
  - ✓ 52% of women interviewed use PFM.

- Non-wood forest products (PFNM):
  - ✓ 2,850 or 28% of the respondents answered using non-timber forest products
  - ✓ 28% of men interviewed use PFNM;
  - ✓ 27% of women interviewed use PFNM.
- Forestry Environmental Service (SA):
  - ✓ 7,831 or 77% of the respondents answered using forestry environmental services;
  - ✓ 79% of men reported using forestry environmental services;
  - ✓ 73% of women reported using forestry environmental services.

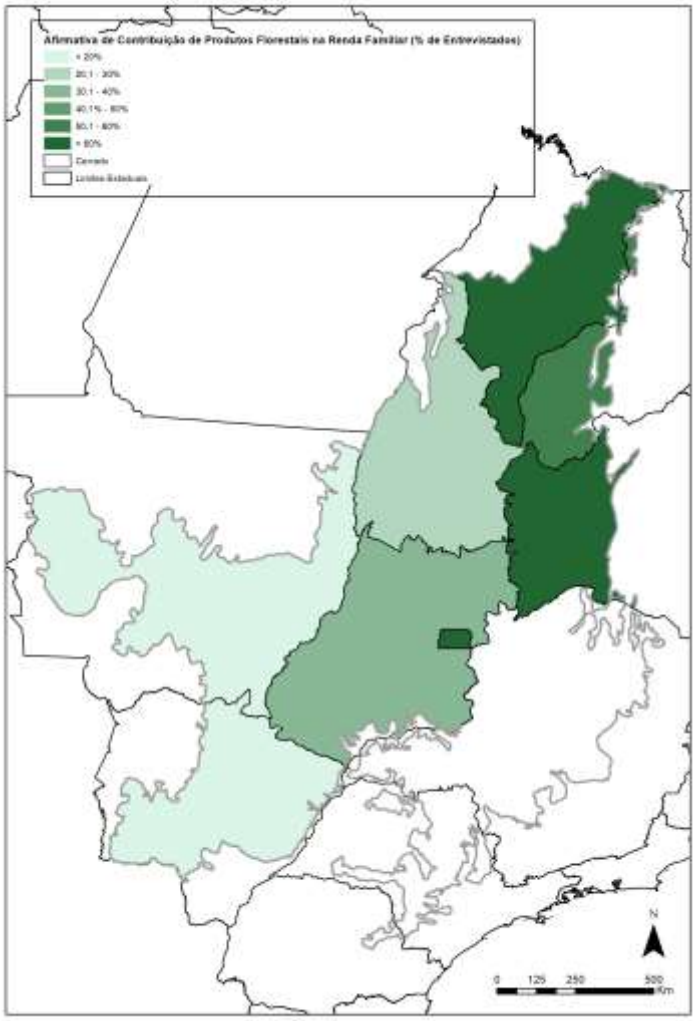


Figure 23 - Percentage of respondents who stated that forest products contribute to family income, by class and state

Vulnerable groups are those that generally have less time and ability to access and interpret many data sources, the National Information System (SNIF) portal captures information in large trade databases, statistical bases that bring together several segments, and separates those relative to the forests facilitating the user's access and indicating the original reference sources.

2. How has FIP contributed to the quality, timeliness, comprehensiveness and acessibility of forest-related information available to stakeholders, including public notice and dialogue on pending actions?

The FIP Investment Plan in Brazil has a wide diversity of publics and the technologies for access to various information have been scaled according to their profile.

The FIP/CAR Project, with counterpart resources, improved SICAR, allowing it to work with a greater diversity of publics (for example: PCT), including module for recovery of degraded areas), as well as Project.

Regarding the FIP/Coordination Project, the year 2018 represented the first year of project activity, when some initiatives related to the communication process and monitoring of project execution were developed, such as the development of the e-site of the Investment Plan. The site focuses on the dissemination of the most strategic data and information of each of the projects and enables a monitoring of the physical and financial execution of the Brazil Investment Plan by stakeholders in the biome, policy makers of other agencies and civil society interested in preservation of the environment (Figures 24 to 26).

Also worthy of note is the preparation of an institutional video about the purposes and scope of the Brazilian Investment Plan for FIP and its 8 current projects, which can be accessed through the following link:
http://fip.mma.gov.br/wp-content/uploads/2018/11/FUNATURA_MMA_V5_HD_Ingles.mp4

Figure 24 – BIP/FIP hotsite

Figure 25 - Information on the BIP/FIP Projects

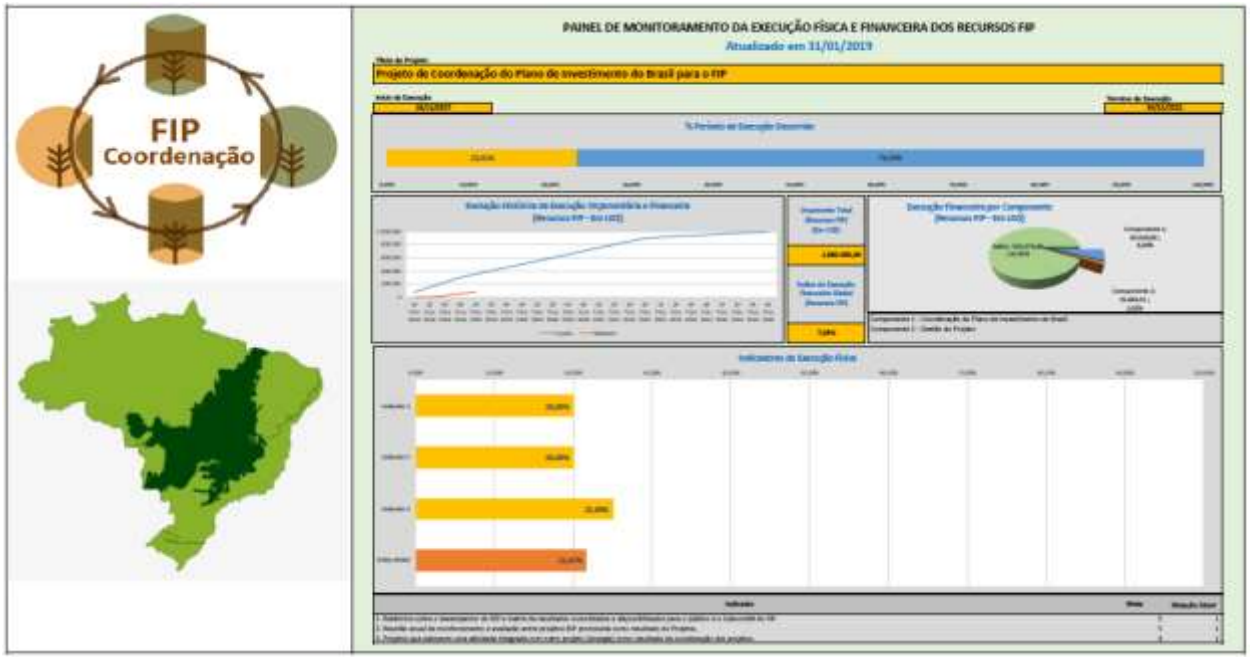


Figure 26 - Dashboard with indicators of physical-financial execution of Projects

Within the scope of the FIP/IFN Project, whose public has a more technical profile, the event "Meeting with the National Forest Inventory - Situation and Prospects", in Brasília-DF, was held on December 18, 2018. The event was attended by 72 professionals representing the federal and state governments, research institutions and universities, companies involved in the collection of data in the field, Public Prosecution, among others (Figure 27).

Figure 27 - Event "Meeting with National Forest Inventory" – December, 2018

The objective was to take stock of the progress of the National Forest Inventory throughout the country. The program included a retrospective on forest inventories in the country and a general presentation on the IFN, with lectures on biophysical and socioenvironmental data, landscape analysis and contributions to national botany.

In the event, the institutional video of the National Forest Inventory - IFN was launched, available at the following link:

Institutional video (4 'version that was launched at the event): https://youtu.be/OV7gGYCjaRw
Institutional video (Extended version): https://youtu.be/5KHOlawBpcU

The field work and the FIP/IFN Project Quality Control were also given continuity through the Diário de Campo and the availability of these images, after editing and treatment, on the Flickr of the SFB (IFN Photos Cerrado on flickr: https://www.flickr.com/photos/florestal/albums/72157697675261564).

The National Forest Inventory has frequently participated in the National Botany Congress, the largest of its kind in the country, and presented the results of the FIP/IFN Project. Participation takes place physically through a stand, where methodologies and results are presented to the academic and scientific community of the botany area and, where possible, also through lectures and round tables on the floristic surveys carried out. IFN is the largest collection of flora in the country and one of the largest in the world, the main objective of participation in this congress is to disseminate the results, which can be used in the

scientific work and research of students and professionals. In addition, this participation aims to stimulate the interest of students, young professionals and scientists in this initiative, who can work from the field work to botanical identifications in the herbaria.

Figure 28 - Experts identifying plants collected in the FIP/IFN Project during the 69th National Botany Congress held from July 8 to 13, 2018, Cuiabá - Mato Grosso

For the real-time monitoring of the progress of IFN field data collection, an interactive map was developed, available on the IFN website at the Brazilian Forest Service (https://sistemas.florestal.gov.br/mapas/geifn/). In this map it is possible to view and obtain information on the number of points planned for the Cerrado biome under the FIP/IFN Project, the number of points contracted and executed. It is also possible to obtain this information by state, Meso-regions, Watersheds and Conservation Units.

SNIF plays an important role in providing forest data and information, as well as ways of accessing and sustainable use of forests.

Figure 29 - Follow-up of IFN field data collection

The FIP/Monitoring Project developed the system for data dissemination and fires of the Cerrado deforestation, to disseminate official data in a regular and transparent manner to civil society and government. Information on deforestation in the Cerrado was disseminated through the TerraBrasilis platform (http://terrabrasilis.dpi.inpe.br/) via Webservice. Managers, such as mayors and governors, as well as journalists, students, researchers, and the public, can access the data of their interest compiled, updated and presented more easily, directly in the Web environment. available on an Internet portal (http://www.inpe.br/queimadas/portal/). Estimates of GHG emissions based on the models developed in this project are available on the internet at http://inpe-em.ccst.inpe.br/pt/home/. These GHG emissions models will be used to improve the methodology for calculating emissions projections in Brazil, which is the responsibility of the working group coordinated by the Ministry of Science, Technology, Innovation and Communications (MCTIC). The results of GHG emissions are available in the National Emission Register System (SIRENE) (htpp://sirene.mctic.gov.br). Reference reports of the II Emission Inventory are available at: htpp//sirene.mctiv.gov.br/publicacoes.

Efforts and actions (workshops, trainings and meetings) are being carried out to disseminate the data, products and events related to the FIP/Monitoring Project as the technical activities are carried out. Such results are posted on websites and events such as meetings and trainings. Figure 30 illustrates the meeting held at INPE, from February 20 to 21, 2018, in which the UFMG team went to know the databases provided by INPE, used as variables of the Fire Risk models, in order to do so, integration of the INPE-Burned component to the UFMG-Fire Propagation component.

Figure 30 - Meeting held at INPE in February 2018

In addition, the results have been published in different media, as illustrated in the following examples.

Figure 31 - Information on deforestation in the Cerrado reported in the media

In 2018, a seminar was held to present the first results of the PRODES and DETER systems as well as the technologies developed for the production and dissemination of the data and services generated under the FIP/Monitoring Project. Some information about the Workshop held on 27 and 28 September can be found on the website http://www.inpe.br/workshopfipcerrado/.

3. What have been key contributions (successes) of FIP regarding forest governance in your country contexto during this reporting year?

The FIP/CAR Project has promoted the integration of SICAR with the state systems, promoting the implementation of public policies at federal and state level, such as environmental monitoring of rural properties, territorial management and environmental regularity.

The results obtained by the FIP/IFN Project are unpublished in the Cerrado biome. Systematized information on botanical species, type of vegetation used by local populations, laboratorial analyzes of soil fertility and measurement of carbon stocks can be made available to the public and decision makers and subsidize the formulation of public policies in different areas.

The data from deforestation in the Cerrado Biome generated by the FIP/Monitoring Project, delivered for the years 2016 to 2018 added to the mapping of deforestation in the Amazon, guarantee a baseline of information on deforestation in 73% of the Brazilian territory. These data support government actions to strengthen policies to prevent and control deforestation and land use, such as monitoring, climate change and connectivity with biodiversity. Finally, it is hoped that the results of this project will contribute to the development of new production standards that guarantee the preservation of forests and the social, environmental and economic development of the Cerrado Biome, avoiding the environmental and social problems resulting from illegal deforestation activities.

It is important to point out that SNIF has carried out the integration of the information sources produced in the various projects of the FIP. We can cite the use of INPE Monitoring data to produce databases on Brazilian forests, as well as the use of information from the National Forest Inventory and the CAR for availability in SNIF.

4. What have been your key challenges and what are opportunities for improvement?

An opportunity for improvement and synergy includes the availability of CAR liabilities data from the properties worked by the FIP/ABC Project with the objective of identifying how the adoption of low carbon technologies influenced land use change and the adjustment of forest liabilities.

In the FIP/CAR Project, the governance challenge includes the complexity of building a system that harbors environmental data from all states, considering the differences in each region. This required a great deal of effort in creating and developing improvements to the SICAR system, with all communication standards between the state systems and SICAR, among other operational issues. For this purpose, two meetings were held with the OEMAS involved to present the proposals, results and suggestions for adjustments.

One of the major challenges relates to Brazilian budget laws and Development Bank standards, leading to some conflicts in the management of projects. The first reduces the amount of donation resources that can be used annually and the second pressures for better financial performance. The solution could include a flexibilization or adjustment of financial performance goals in the face of constraints imposed by factors that the executors have no control over.

In the case of the FIP/IFN Project, a good opportunity was to develop the SNIF for a single biome, in the Cerrado case, allowing the presentation of data and information that are peculiar to the Cerrado biome.

Another challenge in the FIP/Monitoring Project would be the non-guarantee of the use of deforestation data and reports of fire outbreaks. In 2018, actions to promote the dissemination of data were initiated to assess the existing demand for this type of data and to use it according to the demand of different user groups (government, academia, civil society, private sector). A form has been prepared (http://terrabrasilis2.dpi.inpe.br:30004/cerrado_pesquisa.php) to generate user statistics. The Workshop 'Deforestation Monitoring in Brazilian Cerrado by Satellite' was held on September 27 and 28, 2018 to disseminate the results and training of users on the information, maps and systems developed under the FIP/Monitoring Project. During the Workshop, about 133 people were trained on the use of data and tools to access data, including representatives from governmental and nongovernmental institutions and other institutions working on land use and deforestation control in the biome. These workshops enable beneficiaries to generate analyzes from primary data to produce useful information to implement public policies and to combat deforestation and forest fires. The presentations are publicly available for download at the link http://www.obt.inpe.br/cerrado/apresentacoes-workshop.html.

5. Other criteria:

The integration of actions developed by the FIP Investment Plan in Brazil until 2018 illustrates the ability of government agencies to promote the complementarity of their actions in support of the common goal of mitigating the effects of climate change on the country's second largest biome. Regarding governance, the work was carried out throughout the year in partnership between several ministries and government agencies, with face-to-face meetings, seminars and ongoing dialogues among the institutions involved in the projects, to promote synergy among the projects of the Investment Plan.

FIP FORM 2.3 – THEME 2.3: TENURE, RIGHTS AND ACCESS

Level: Investment Plan

Please answer the following questions with a narrative description of the results achieved by FIP investment plan in your country in the reporting year. Explain the progress made in the reporting year, compared to the previous year.

1. Which actions have been taken to improve the legal frameworks to protect forest-related property rights and access for all forest stakeholders, including women and indigenous people?

The FIP Investment Plan in Brazil does not have actions that act on issues that directly influence the ownership of the land and the distribution of benefits with the populations served. The best contribution of the projects to the theme refers to the systematization of primary data on the situation of land tenure in the region worked, which can subsidize related public policies. Through the systematization of SICAR data, it is observed that:

a) Smallholders own 92% of the number of properties but occupy 31% of the territory;
b) Medium-sized properties hold 6% of the number of properties, but occupy 18% of the territory;
c) Large properties hold 2% of the number of properties but occupy 51% of the territory.

There is great potential in all states assisted by the FIP/CAR Project to carry out CARs of People's Territories and Traditional Communities, which justified a proposal to increase the target of enrolling PCT territories from 10,000 families to 25,000 families. The CAR is an important environmental management tool so that the Traditional Territories gain visibility of the public power and are contemplated by public policies of environmental regularization and other socio-environmental policies more qualified. In addition, the CAR elaboration process is an opportunity to strengthen communities, both in their ability to organize politically (for information and documents that are important for claiming rights) and in their environmental and territorial management strategies.

In the case of SNIF, information is produced on the community use of the forest as a form of maintenance of this type of use, as well as on this type of forest, including areas with indigenous lands.

2. What have been key contributions (successes) of FIP regarding forest tenure, rights and access in your country during this reporting year?

The FIP Investment Plan in Brazil has no contributions in this area.

3. What have been your key challenges and what opportunities for improvement do you see?

Approximately 140 PCT territories in the Cerrado Biome, with about 21 thousand families, were registered by CAR, through previous initiatives to the FIP/CAR Project. Even with the documentary precariousness regarding land ownership and the difficulty of access to the roads, the CAR made it possible to identify and locate these communities for the first time. According to the institutions representing these communities, there are still many non-registered areas in the CAR, making the FIP/CAR Project a great opportunity to meet this demand.

4. Other criteria:

FIP FORM 2.4 - THEME 2.4: CAPACITY DEVELOPMENT

Level: Investment Plan

Please answer the following questions with a narrative description of the results achieved by the FIP investment plan in your country in the reporting year. Explain the progress made in the reporting year, compared to the previous year.

1. Which actions enhanced institutional capabilities to develop and implement forest and forest-relevant policies at the national, regional and local levels

The FIP investment plan in Brazil supported the construction of data storage and analysis systems, as well as the collection of primary data related to deforestation, fires, assets and liabilities in rural properties, botanical information and forest GHG emissions. This information enhances the government's ability to make forest policy based on systematized scientific data and analyzed on demand.

The FIP/ABC Project implemented training and technical assistance actions for rural producers. The results achieved are being evaluated to understand the effectiveness of the ABC Plan and thus to use it strategically for forest policies. Positive results from the FIP/ABC Project and from the ABC Plan itself were taken to international events as success cases, where the use of technologies and the provision of technical assistance had impacts on the increase of income and productivity in the properties.

Figure 32 - SENAR Participation in Bonn, 2018 - Global Landscape

Figure 33 - Participation of MAPA, Embrapa and SENAR in Katovice, 2018 - COP 24

The FIP/CAR Project aims to strengthen the capacity of the Ministry of Agriculture, Livestock and Food Supply (MAPA) and State Environmental Agencies (OEMAs) to implement CAR, with all its stages, as a mandatory tool for the environmental regulation of rural properties.

SFB improved SICAR and trained OEMAs technicians through resources accounted for as counterpart (Figure 34). The FIP/CAR Project resources will also allow, among other benefits: (1) creating the necessary conditions for the eleven selected States of the Cerrado biome to implement the CAR in all its stages, including technical, legal and financial assistance to support improvements institutional and operational; (2) the purchase of equipment and materials; (3) provision of training for the actors involved, and; the improvement of the logical network and the expansion of capacities for the operation of SICAR.

Figure 34 - National Meeting of SICAR - 2018

At the end of 2018, the FIP/Coordination Project promoted the "Workshop on the Identification of Synergies between the Projects of the Brazilian Investment Plan for the Forest Investment Program (BIP/FIP)", with the objective of identifying possible synergies between the eight projects that make up the Brazil Investment Plan, prioritize them according to the interest of the parties involved and the feasibility of realization and plan the implementation of the synergies selected for the 2019 fiscal year.

Thirty-six people participated: managers, coordinating agency technicians, representatives of the World Bank, executing agencies and other strategic partners.

During the event, it was identified the need for constant and effective communication among the managers of the Brazilian Investment Plan for the implementation of coordinated actions. It was also highlighted the importance of seeking joint and collaborative solutions, especially in relation to governance factors that can guarantee the adequate execution of resources and the continuity of the programe (Figures 35 and 36).

Figure 35 - Photographic record of the Synergies Workshop of the BIP/FIP Projects

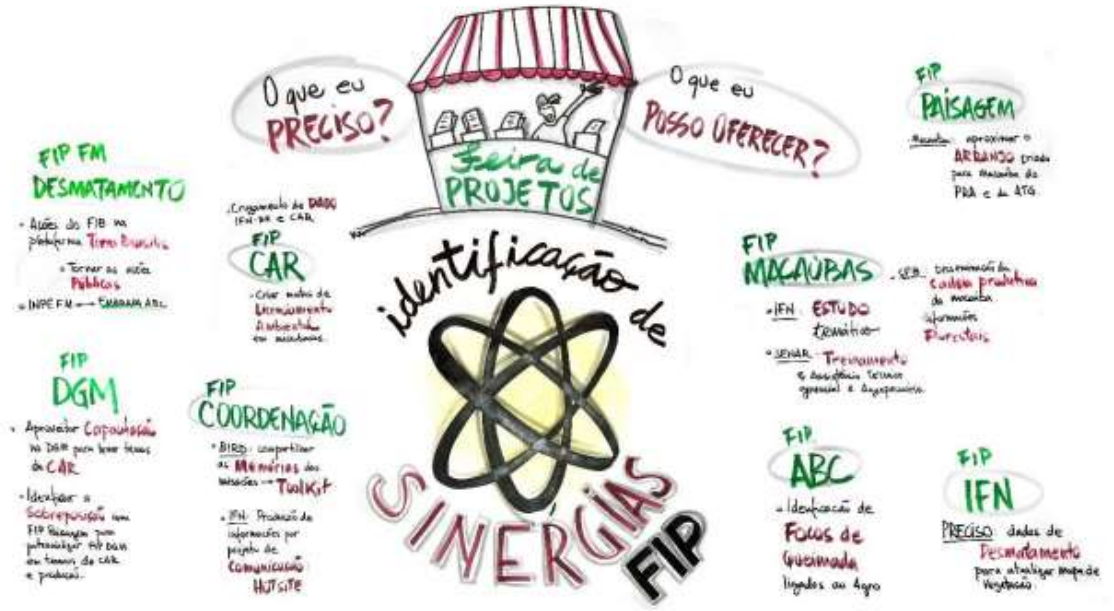


Figure 36 - Observations of the participants of the event

At the closing session of the event, the project coordinators presented an Action Plan for the implementation of the 29 synergies identified, with the necessary actions, a responsible team and a schedule of actions to be implemented in 2019. The complete report of the event is available in the link: http://fip.mma.gov.br/wp-content/uploads/2018/11/Relatorio_FIP_Sinergias_MariaEugenia_Fernandes_revisado.pdf

On December 18, 2018, the "Meeting with the National Forest Inventory - Situation and Perspectives" was held in Brasília-DF. The event was attended by 72 professionals representing the federal and state governments, research institutions and universities, companies involved in the collection of data in the field, Public Prosecution, among others. The results presented and discussed increased the knowledge of the professionals involved, who will strengthen their institutions and the capacity to generate new research, programs and projects.

Three types of training were also carried out for the Forest Information Management team. The first one to use the Joomla platform, which is used in the National Forest Information System - SNIF and necessary for updating the site / portal and inserting new data. The second was the training of the team was in Tableau for initiation on the upgrade of the pre-existing panels. The third training was carried out for the use of protocols for accessing APIs from potential data sources of Cerrado Forest information with potential for integration into Cerrado SNIF.

The results produced by the FIP/Monitoring Project are important sources of information to support the implementation and enforcement of environmental legislation and promote decision-making regarding policies to prevent and control deforestation and degradation in the Cerrado Biome, as established in the PPCreed plan. By 2018, 30 new fire risk products have already been generated. Figure 37 illustrates some of them. Fire Risk products (Figure 38), as well as others, are available at the INPE Burned Program Portal and can be accessed in http://www.inpe.br/queimadas/portal/risco-de-fogo-meteorologia. These products support the activities of important government institutions, such as CIMAN, ICMBio, ONS, PrevFogo, responsible for the implementation of forestry policies. Also in 2018, new data on deforestation provided by PRODES and DETER Cerrado were widely disseminated and debated in the newspapers and on the Internet. Thus, it is expected that the results of this project will stimulate the forest-based economy and contribute to the development of a productive matrix, economically competitive and with the least possible impact on the Cerrado Biome.

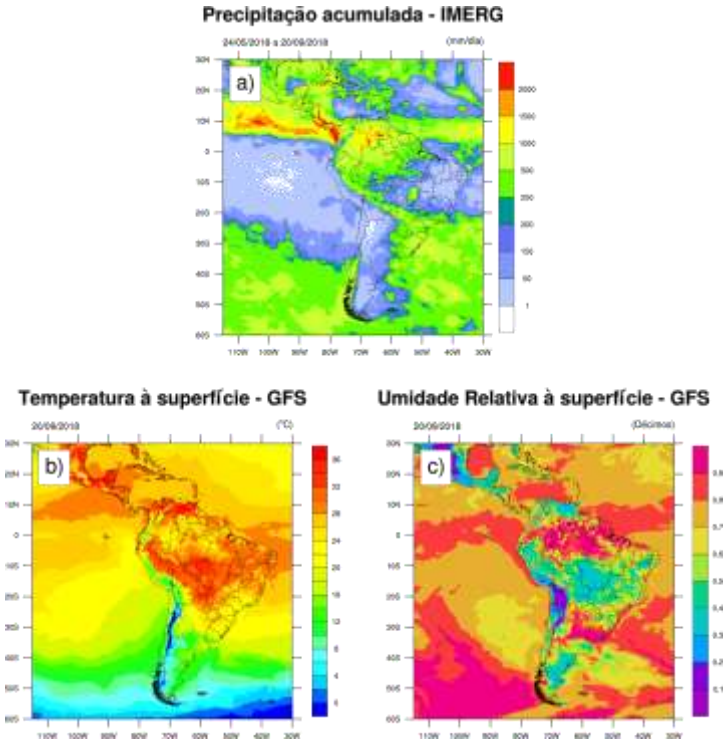


Figure 37 - Meteorological data used in the calculation of the Fire Risk
(http://www.inpe.br/queimadas/portal/risco-de-fogo-meteorologia)

Figure 38 – Fire Risk Map for 9/20/2018
Maps are available at http://www.inpe.br/queimadas/portal/risco-de-fogo-meteorologia.

2. Through which actions did FIP improve capacities of stakeholders in forest and land use planning and management?

FIP's investment plan in Brazil improved the performance of the different institutions involved, as it allowed specific systems in their areas of activity to be built and improved, as well as the collection of primary data.

The FIP/ABC Project implemented training actions for an audience of 7,800 people and provided technical assistance to 1,957 rural owners. Discussions with different actors encouraged the construction of a methodology to evaluate the impact of the project interventions, using three groups: a) without training and without technical assistance (control group); b) with training and without technical assistance; c) with training and technical assistance. The results will be used for policy discussions using the ABC Plan as a strategy to reduce pressure on native vegetation and reduce GHG.

In order to monitor the results of this impact assessment, a system was created that observes the evolution of the application of technologies in the properties of each evaluated group. This system georeferenced areas and intervention and indirectly benefited areas (Figure 39).

The FIP/CAR Project through the CAR enrollment of small rural properties corroborates the completion of the CAR elaboration phase, since the rural properties that were registered are in areas that had not yet received assistance from the public power and through FIP/CAR project have been and are being addressed. OEMAs are also benefiting from the first actions of the Project (counterpart resources) through the improvement of SICAR, as well as the development of new technical capacities, such as CARs analysis.

The botanical identification teams of the IFN are made up of botanical consultants, taxonomists and herbal technicians who can work with a huge quantity and variety of botanical samples from the entire Cerrado biome. This is a unique opportunity in the country, because projects of this size, with such a wide range are extremely unusual. The experience that these professionals acquire working at the IFN will strengthen the installed capacity in the country in the area of botany.

The FIP/IFN Project counts on the partnership of numerous botanist specialists. They are renowned professionals in the academic world and reference in the botanical determinations that they make. Periodically, they are invited to visit the herbaria whose taxonomic groups of their specialties are in great quantity or are difficult to identify among the botanical samples collected in the Cerrado. After the work of recognition and botanical determination by these specialists, they are also invited to provide training on their specialty to the generalist consultants contracted for identification in the herbaria. With this, the high-level scientific knowledge that these specialists hold can be incorporated into the work team of the FIP/IFN Project. In addition to these invited experts, there are other visiting experts or staff from the partner institutions that contribute diffuse capabilities to the IFN teams.

In addition, in the herbarium of UnB, partner of the FIP/IFN Project, students of botanical disciplines of the university are learning vegetal taxonomy and techniques of herbarium with the botanical material collected by the Cerrado. In these disciplines, students must complete 40 hours of internship, in which they learn from the preparation of exsicates and management of the collection to identify plants of the main botanical groups of the Cerrado. These stages are guided by the curator of the herbarium and Professor Carolyn Proença. To date, more than 20 students have done internship on herbarium techniques and botanical identification of Cerrado plants.

Perimeter of property

Production area

Area with technology implemented

Area of native vegetation (APP + RL)

Comparative table of areas before and after the project

Figure 39 - System that observes the evolution of the application of technologies

The FIP/IFN Project has also contributed substantially to the training of young forest and botanic engineers in forest inventory techniques both through the courses offered and through the unique opportunity to develop practical work that enhances knowledge of the vegetation and social realities of the Cerrado. This experience will remain in the future after the end of the project in any work that these professionals will participate, generating greater and better opportunities in the labor market, including other cycles of the National Forest Inventory that may be implemented in the country.

The IFP/IFN Project has completed the construction of the IFN's specific data storage system for the Cerrado, which will be national. Primary data from more than 3,817 conglomerates have already been entered into the corporate system maintained by SFB, as well as the SNIF database. The publication of the report on the forest survey of the Federal District has already provided information for the planning and management of forests and the reports of the states where the data collection was completed in 2018 are being elaborated (MA, TO and GO).

The FIP/Monitoring Project adapted the methodologies used to measure Amazon deforestation for the Cerrado, creating PRODES Cerrado and DETER Cerrado. The same occurred with the GHG emission and fire risk models for the Cerrado Biome. Therefore, forest monitoring was expanded from 47% to 73% of the Brazilian territory, providing strategic information for the planning and management of forest and land use, as well as compliance with the national and international commitments assumed by the Brazilian government, such as the Agreement of Paris and the Agenda 2030, with the 17 Objectives of Sustainable Development.

3. What have been key contributions (successes) of FIP regarding capacity development in your country context during this reporting year?

FIP's investment plan in Brazil has developed new capabilities both at the institutional level and in the different actors involved. At the institutional level, the incorporation of the Cerrado biome into the routine activities of some institutions (FIP/Monitoring), construction of new information systems (FIP/IFN) and, in addition to developing a large training strategy through partnerships with institutions strategy (FIP/ABC).

Capacity development at the individual level is related to the courses promoted by different institutions for different actors, such as self-employed technicians and public employees of OEMAs (FIP/CAR), rural producers (FIP/ABC) and forest technicians (IFP/IFN).

In addition, the FIP/CAR Project contributed with activities related to the development of SICAR, which provides access to a significant amount of information for various public policies in rural areas, as well as progress in the stages of the environmental regularization process, such as elaboration of the CAR analysis module, available to OEMAs that use the Federal System, SICAR.

4. What have been your key challenges and what are opportunities for improvement?

The challenges of the FIP Investment Plan in Brazil can be divided into two groups: a) the challenge of incorporating information and project results into public policies; b) difficulties in enabling people to incorporate new knowledge into their available actions.

In the first group, the quantity and quality of the unpublished information provided by the projects present details of the country's forest reality that challenge managers in the use of information in the short and medium term. There is also the challenge of building synergies between different institutions

in building joint actions to systematize information according to specific demands to implement forest policies.

In the second group, the challenges are the large numbers of people to be trained, the diversity in educational level, as well as the great distances that different groups encounter.

In the FIP/ABC Project, the reduced number of technicians to execute the Project requires a great deal of effort to deal with the different fronts that need to be met (technical, administrative, financial) for a good project execution. Trained technicians will work on the new FIP/Landscape project.

A challenge in the FIP/Monitoring Project is to obtain data on deforestation with quality, considering that the data produced in this project are used by the government to take actions to prevent and monitor deforestation in the Cerrado Biome. Consequently, deforestation maps must have an accuracy of 95% or more. To obtain the accuracy of the mapping for the years 2016 to 2017, on 08/28/2018 to 02/09/2018 fieldwork was carried out, considering municipalities with different environmental and socioeconomic conditions. In these field works were used electronic forms, GPS, drones and photographic cameras. To date, 121 deforestation polygons have been validated and 2,077 km have been traversed in the region of MATOPIBA (agricultural border of the Cerrado, formed by stretches of the states of Maranhão, Tocantins, Piauí and Bahia). The accuracy of mapping deforestation was greater than 95%. Videos of these field works are available at http://terrabrasilis.dpi.inpe.br/download/fip/Campo-31082018.mp4.

5. Other criteria:

FIP FORM 3.1 - THEME 3.1: THEORY OF CHANGE AND ASSUMPTIONS

Level: Investment Plan

Please explain how the implementation of the FIP investment plan is contributing to transformational changes in addressing the drivers of deforestation and forest degradation in your country. Please report progress on the theory of change and assumptions at mid-term and end of the investment plan. If Projects start at different points in time, the FIP country focal point may decide which point in time best represents the mid-term of the investment plan.

1. Please briefly describe how FIP contributed to transformational changes in addressing the drivers of deforestation and forest degradation in your country as presented in the endorsed FIP investment plan. What is the value added of FIP?

The FIP Investment Plan in Brazil operates with different fronts that interfere with the dynamics of conservation and degradation of the Cerrado biome. The actions involve mapping of deforestation and fires, calculation of GHG emissions, detailed survey of primary vegetation data, georeferencing of rural properties allied to its forest assets and liabilities, and technical assistance for recovery of productive areas.

The FIP/ABC Project trained 7,800 people and provided technical assistance to 1,957 rural owners, focusing on the recovery of degraded pastures. It is believed that the recovery of these pastures contributes to reduce the pressure on the forest area.

The FIP/CAR Project provided the training of technicians of the OEMAs in 2018 for registration of PCT territories in the CAR and use of the analysis module so that, by 2019, these technicians can better monitor the contracting of more than 50 thousand new small rural properties and areas with traditional communities, as well as for the rectification of records with eventual inconsistencies identified by the OEMAs. In this way, the forest assets will be identified and guidelines on their conservation will be identified, as well as the identification of forest liabilities and orientation for their recovery, leading to the strategy of environmental regulation.

The FIP/IFN Project has already collected detailed forest data of about 78% of the Cerrado biome by 2018. The systematization of the data will allow understanding the value of the forest and thus change the view of government and society on the forest and appropriate use of the forest resource. The occurrence and distribution of forest species will contribute to the identification of areas of higher value for conservation and species vulnerability. The importance of timber and non-timber forest products to rural communities has been verified, which should affect decision-making on the expansion of agricultural frontiers and their impacts on these communities. Policies should focus on the valorisation of forest products. For example, the importance of the use of bark for rural communities has been highlighted, which deserves further studies on these uses, probably for medicinal purposes and on the use of tree bark in a way that is sustainable and does not provoke the death of these trees.

The promotion of alternatives of use, access techniques to the forest resources of the Cerrado provide amplify the use and value of products of forest origin in the Cerrado. This type of relationship, when employed by the rural producer, enables income generation and adds value, with the consequences of maintaining the natural forest and guaranteeing the various benefits of environmental services, soil protection and water supply guarantee.

INPE, through the FIP/Monitoring Project, is developing a deforestation monitoring system to assist government agencies in controlling illegal deforestation and to produce annual deforestation maps and statistics to assist carbon balance accounts, prevention of deforestation, evaluation and decision-making, as well as academic research. The Cerrado biome has never had such a monitoring system at the level of detail that was adopted (spatial resolution of 20m to 60m). A series of deforestation maps for the period 2000 to 2018 has been published and is already in use. In 2018, the deforestation alert system to control deforestation became operational, providing data to IBAMA for environmental monitoring actions. Providing up-to-date information on the deforestation process allows public safety agencies to promptly take on-site inspection to contain deforestation in progress and to enforce fines and legal action. This result was observed in the Amazon region immediately after providing clear and transparent information on deforestation, and it is expected that the same result will occur in the Cerrado Biome, inhibiting illegal deforestation.

The promising results of some of these projects have contributed to synergistic actions among some institutions in the elaboration of the FIP/Landscape Project, which integrates the successful actions of some projects, making them complementary and focused in regions of the Cerrado with high levels of environmental degradation.

2. Please assess how well the theory of change and underlying assumptions described in the endorsed investment plan are playing out in practice, what can be learned, and whether corrective measures need to be taken.

The construction of the FIP/Landscape Project can be considered one of the most important changes in the architecture of FIP projects in Brazil, since implementation will integrate the successful actions of the FIP/ABC, FIP/CAR and FIP/Monitoring projects.

In the case of the FIP/CAR project, it is important to note that due to the time interval between the elaboration of the Project and the beginning of its execution, there was a significant change in the context and status of the process of environmental regulation of rural properties in the country. So far, much of the success of policy implementation has come from other sources of investment and from the dedication of the institutions involved in the process. In spite of this, the FIP/CAR Project continues to be extremely relevant to the country, since there is still a demand for registrations of rural properties and territories of PCT in SICAR, the next stages of CAR, such as: rectification, analysis and implementation of PRAs are crucial for the continuity of the implementation of the Law on Protection of Native Vegetation (Forest Code) and which may be supported through the FIP/CAR Project.

FIP FORM 3.2 - THEME 3.2: CONTRIBUTION TO NATIONAL REDD+ AND OTHER NATIONAL DEVELOPMENT STRATEGIES AND UPTAKE OF FIP APPROACHES

Level: Investment Plan

Please describe how FIP enhanced and/or advanced the national REDD + process (including REDD + readiness and performance-based mechanisms) and relevant development strategies.

The Brazilian Investment Plan for the FIP has some actions related to REDD +. The data collected by the FIP/IFN Project will substantially improve estimates of forest carbon stocks. The calculations on GHG emissions and the mapping of deforestation and fires of the FIP/Monitoring Project provide quality information for the emission reduction policies in the Cerrado, such as the ABC level contributions at the property level.

REDD + results will be reported by the Brazilian government on a national scale, in accordance with UNFCCC decisions. Funding for REDD + can occur ex-ante, ie as developing countries prepare to achieve these results (readiness). The Cerrado Biome and other Brazilian biomes are in the preparation and demonstration phase of activities for REDD +.

As a substitute for this indicator, areas where sustainable land management practices were adopted as a result of the Investment Plan will be considered:

- área de imóveis registrados no Cadastro Ambiental Rural (CAR), como resultado das atividades do Projeto FIP/CAR;
- área onde as tecnologias de agricultura de baixo carbono são adotadas como resultado das atividades do Projeto FIP/ABC; e
- área onde foram adotadas práticas agrícolas de baixa emissão de carbono como resultado do Projeto Paisagem.

FIP FORM 3.3 - THEME 3.3: SUPPORT RECEIVED FROM OTHER PARTNERS INCLUDING THE PRIVATE SECTOR

Level: Investment Plan

1. Please describe how bi- and multilateral development partners supported the interaction of FIP and other REDD + activities.

To assist in the process of botanical determinations of collected samples and data insertion in the IFN system, a further 14 consultants were hired for a period of 100 days by the GEF project in support of IFN (FAO). Therefore, during the months of October, November and December 2018, these consultants joined the FIP consultants team, totalizing 26 consultants working together to identify, catalog and digitize the botanical samples.

The monitoring program for deforestation of the Cerrado biome, with the support of the FIP/Monitoring Project, is based on previous deforestation maps produced with the support provided under bilateral agreements. A Forest Reference Emission Level for the Cerrado Biome presented to the UNFCCC was based on biennial activity maps (deforestation) for the period 2000 to 2010. This data series was funded by the German government (BMU Ministry) and implementation was brokered by GIZ and MMA and led by INPE, which coordinated the contracted consultants to produce reference level maps. Other deforestation maps for the years 2013 and 2015 were produced with the support of the British government (DEFRA), which funded the FUNCATE Foundation to produce the maps under the technical coordination of INPE. The data generated by the FIP/Monitoring Project will complement the historical deforestation data series for the period 2001-2020. In order to complete the monitoring of vegetation cover all over Brazil, in 2018 the monitoring of the Caatinga, Pampa, Pantanal and Mata Atlântica Biomes was initiated with financial support from the Amazon Fund, a partnership between the Brazilian, Norwegian and German governments under the administration of the Bank BNDES.

The implementation of the FIP/Landscape Project is coordinated by the Brazilian Forest Service (SFB) of the Ministry of Agriculture, Livestock and Food Supply (MAPA) and is supported by the World Bank and a partnership with the German Technical Cooperation Agency (GIZ). the Ministry of Science, Technology, Innovation and Communications (MCTIC), through the National Institute of Space Research (INPE), EMBRAPA and the National Rural Learning Service (SENAR).

2. Please describe how the (formal and informal) private sector actors have taken up good practices demonstrated through FIP. Please describe challenges encountered in involving the private sector in FIP.

The FIP/ABC Project is aimed at the private sector - cattle ranchers with degraded pastures. The disseminated techniques were adopted in 89 thousand hectares. For every $ 1 invested by the FIP/ABC project in technical assistance actions, the owners invested $ 6 to 8 in stock to reclaim their pasture. This is because the project financed the transfer of technology through training and technical assistance. All implantation was by investments of the producer. For the investment to occur it is necessary to demonstrate to the producer the economic benefits in its implementation. Demonstration areas and field days will serve to exemplify these actions.

3. Please describe how civil society organizations and other stakeholders have been involved in FIP implementation.

In the FIP/ABC Project, partnerships were held with the farmers' union to mobilize rural owners to participate in the training. The sectoral institution responsible for the dissemination and training of issues related to the agricultural sector - SENAR - took over all the stages of training of rural landowners, as well as the provision of technical assistance. Other partnerships were carried out throughout the project according to local needs. Projects that seek equivalent results have joined efforts to boost the deployment of technologies on properties as well as the development of research that benefits the entire region. The video shown in the following link is an example of this: https://youtu.be/vLEAqyD8ifo.

The FIP/CAR Project, in a long-term partnership with UFLA, developed SICAR and trained environmental technicians of the OEMAs in the CAR enrollment module and in the use and implementation of the analysis module, both in the EAD platform and in face-to-face training.

The FIP/IFN Project has built partnerships with the private sector and universities for the development of allometric equations as well as herbariums and a botanical identification research center.

IFN partnered with the two largest herbs in the Cerrado biome, the University of Brasilia herbarium (UnB) and the CEN herbarium of Embrapa Genetic Resources and Biotechnology - CENARGEN, both in Brasília/DF. In addition to having the largest collections, around 300 thousand and 100 thousand exsicatas, respectively, are institutions with many taxonomists within the institution and with frequent visits by specialists from Brazil and abroad. Whenever possible, these professionals contribute the IFN to the botanical identifications, which gives more scientific support to IFN's work.

Figure 40: Digitization of plant exsicata collected at IFN Cerrado, CEN herbarium, Embrapa Cenargen, Brasília).

Figure 41: Center for the sorting of botanical samples collected by IFN Cerrado, Embrapa Cenargen

Figure 42: Storage of exsicates of plants collected by IFN Cerrado in sliding files purchased with FIP/IDB resources, UB herbarium, UnB

In relation to the FIP/Monitoring Project, the initiative to implement a program to monitor deforestation in the Cerrado has been closely monitored by two sectors: soy producers and beef producers. Both sectors have established compliance rules for the entire production chain and large buyers of these commodities, who are already using the cartographic information on the deforestation process to exclude from their list of suppliers those that are not complying with national environmental standards such as the Code Forestry. The use by these sectors of deforestation data for this purpose has already been successfully carried out for some years in the Amazon Biome and the same impact is expected in the commodity compliance chains in the Cerrado Biome.

FIP FORM 3.4 - THEME 3.4: LINK OF DEDICATED GRANT MECHANISM FOR INDIGENOUS PEOPLES AND LOCAL COMMUNITIES (DGM) TO INVESTMENTS FROM GOVERNMENT'S POINT OF VIEW

Level: Investment Plan

Please provide comments on the complementarity of DGM and its contribution to the FIP investment plan. What have been the collaboration and synergies between the FIP focal point office and DGM?

The Dedicated Grant Mechanism for Indigenous Peoples and Local Communities is an initiative established under the Forest Investment Program (FIP) to provide grants to improve the capacity of Indigenous Peoples, The program aims to strengthen the discussion on reducing deforestation and forest degradation (REDD +) at the local, national and global levels and is present in fourteen countries of the world: Brazil, Burikina Faso, Congo, Costa Rica Ivory Coast, Ecuador, Ghana, Guatemala, Indonesia, Laos, Mexico, Mozambique, Nepal, Peru and the Democratic Republic of Congo.

The Cerrado biome in Brazil is a large global biodiversity center and home to 15% of the Brazilian population. Communities in the region rely on the Cerrado's abundant natural resources for their daily lives and livelihoods, but these resources are threatened by rapid deforestation and forest degradation. Given the necessary capacity and opportunity, ITCPs can play an important role in reversing these trends.

The DGM/FIP/Brazil Project is a unique global initiative to support the specific activities and initiatives of the ITCPs, which have a long history of use and management of Brazilian Cerrado resources in the development of investment strategies, establishing synergy with FIP programs and other REDD + processes at local, national and global levels, encouraging the promotion of sustainable and adapted livelihoods. The DGM Brazil was developed with two main objectives: (i) to strengthen the engagement of Indigenous Peoples and traditional communities of the Cerrado biome in the FIP, REDD + and similar programs oriented to climate change at local, national and global level; and (ii) contribute to the improvement of livelihoods, land use and sustainable forest management in their territories.

The CAA-NM is the National Executing Agency (AEN) of the DGM Project, an initiative established under the Forest Investment Program (FIP), one of the three programs that make up the Climate Investment Fund (CIF) and which exists in 14 countries of the world. In Brazil, the DGM will last 5 years (from 2015 to 2020) and its action is specifically aimed at indigenous peoples, quilombola communities and traditional Brazilian Cerrado. DGM Brazil was designed to support ITCPs in this role through some important interventions:

• Support to subprojects implemented by communities and their representative organizations that target natural resource management, respond to immediate threats to community resources and livelihoods, and strengthen market-oriented production;
• Training directed to organizations of indigenous peoples and traditional communities;
• Use of an online project management tool for quick and easy communication between the managing committee, executing agency and subproject implementers, despite the vast area of project implementation in the Cerrado.

DGM Brasil has a National Steering Committee (CGN) composed of 12 representatives of organizations of indigenous peoples, quilombolas and traditional communities of the Brazilian Cerrado, whose role is to outline the DGM/Brazil guidelines and three governmental representatives (Ministry of the Environment; FUNAI and a representative of FIP/Brazil).

Figure 43 - National Management Committee DGM Brazil Project

Sixty community initiatives are supported in 10 states of the Cerrado (BA, DF, GO, MA, MG, MT, MS, PI, TO and SP) with several proposals, such as replenishment of the Cerrado with native species, recovery of springs and degraded areas (15); agroecological production (10); small agro-industries, processing and marketing of products from the socio-biodiversity of the Cerrado (15); surveillance and territorial and environmental management (11); strengthening artisanal production (5); (4), and institutional strengthening of representative organizations and support to indigenous peoples, quilombola communities and traditional communities (4).

The first 45 subprojects of DGM Brazil, which were approved in September 2016, began to be implemented between May 2017 and March 2018, and the DGM communication team has highlighted its successes through social media. While these were starting, the project also selected its second set of subprojects. Of the 106 proposals received, 19 were pre-selected by CGN.

The DGM Brazil adopted the strategy of selecting the subprojects in two different but complementary moments. The first phase, called pre-selection, consisted in the launch of a public announcement for potential beneficiaries to present a Statement of Interest, with the objective of proposers presenting in a simple and objective way the set of Activities and costs to be supported. The second moment was the final selection and elaboration of the technical project. This process was organized as follows: Stage I - Qualification: it was a screening process, where it was verified that the proposal presented met the qualification criteria, according to the documentation and the criteria detailed in the Protocol Call. Stage II - The pre-selection consisted of 2 phases:

• Phase 1: prepare an opinion adopting the Justified Scoring method and the MIs that reached the cut-off point were presented to the CGN for pre-selection.
• Phase 2: Pre-selected MIs were visited to apply the social and environmental safeguards required by the World Bank, discuss adjustments needed to adjust the proposal and apply zero mark to beneficiary families. Subprojects Step III - Final Selection: approval of IMs by CGN and elaboration of the technical project.

By the middle of 2019, DGM Brazil covers a total of 34,780 beneficiaries involved, including 11,041 women (51,28), 9,925 young people and 3,326 seniors. The subprojects of both calls will end in February 2020.

DGM Brazil's priorities in the first half of 2019 included completing field visits, applying safeguards, establishing baselines, managing workshops for new subprojects, including contracting, implementing monitoring modules, purchasing the management system and execution of all 64 subprojects.

Figure 44 - Geographical distribution of DGM Brazil projects

Components

The activities of DGM Brazil are structured according to the following three components:

Component 1: Adaptive and Sustainable Community Initiatives - The first component of DGM Brazil supports the provision of grants to the ITCPs to create organizations to promote sustainable systems of forest management and land use, more resilient livelihoods, ethno-development and adaptation to climate-related changes. Within this component, part of the budget is reserved as funding for the community's own initiatives, which are designed, proposed and (through the CGN) evaluated by Indigenous Peoples and traditional communities. Eligible activities include:

- Sustainable community-based forest management and land use and forest restoration systems;
- Production of seedlings for the maintenance of native and threatened species and varieties;
- Agroforestry production systems and agroecological farming practices, through the application of traditional knowledge and new technologies;
- Collection, value-added processing and marketing of non-agricultural and agricultural products;

• Indigenous and traditional practices of water, soil and landscape management, including restoration of degraded areas and protection of water sources;
• Diversification of livelihoods to improve nutrition, food security and quality of life; and
• Revitalization of cultural values and traditional knowledge.

The remainder of Component 1 funding will support the technical and managerial capacity of beneficiary organizations as well as technical assistance to support participatory project preparation, implementation and monitoring.

Component 2: Capacity Building and Institutional Strengthening - The second component of DGM Brazil will finance the capacity building of ITCP organizations. Training activities should be designed in response to the identified needs of these organizations. Examples of potential support may include:
• Improve leadership and negotiation skills and active participation in initiatives related to natural resource-based mitigation and adaptation to climate change;
• Promote a better understanding of REDD + mechanisms, forest management and adaptation programs to climate change;
• Increase knowledge and access to public policies, credit lines and financial resources related to forest adaptation;
• Improve financial management skills;
• Improve knowledge about new methodologies for participatory land and environmental management, vulnerability mapping, planning and implementation of strategies to address and adapt to climate change, forest practices and sustainable forest management, and forest fire prevention;
• Expand technical skills for the adoption of new technologies for productive activities, diversification of livelihoods, environmental conservation and land monitoring.

Component 3: Project Management, Monitoring and Evaluation - The final component of DGM Brazil supports the effective governance of the project, financing the operational costs of the AEN. The responsibilities of the AEN include:
• Provide secretarial services to CGN;
• Technical coordination, monitoring and evaluation, and reports to the World Bank and Global Management Committee (CGG);
• Financial management, acquisition and auditing;
• Operation of the Complaints Repair Mechanism;
• Supervise the implementation of community initiatives and outcome assessments.

Monitoring

The monitoring of a project is the monitoring of the execution and results of its activities. From the beginning of its execution, the subprojects are monitored and evaluated by the AEN, based on the information rendered half-yearly by those responsible for each subproject. Each subproject was designed to address one or more of the problems faced by PICTs. To solve these problems or part of them, it was thought by the representative or support organizations, a set of activities that, when executed, will lead to results that make it possible to minimize or solve these problems. But to know if the results have really been achieved it is necessary that the subprojects be accompanied, and their activities and results recorded. The analysis of these records will measure whether the activities being performed are within the expected results. If yes, it means that the subproject is performing well. If not, it is possible to evaluate the execution and promote the correct course corrections, aiming at improving the management of the subproject and obtaining the results expected by the communities. These course corrections need to occur before the project ends. In this way monitoring and evaluations are of great importance for the

success of each subproject, and the beneficiary institutions should provide information on the DGM indicators, as well as the record of activities and results of progress achieved. One of the forms of monitoring and evaluation carried out by the AEN is through reports (semester and final) that inform the progress of the activities, as well as the results achieved in each of the execution stages.

SIGCAA was developed as an online tool to facilitate and support activities for DGM Brazil and its subprojects, as well as the monitoring and analysis of results. The tool is hosted on the AEN website and includes a panel module where the technical and financial performance and progress of each subproject and the DGM as a whole can be seen; a registration module with date on community entities; the technical project subdivided into a logical structure and a work plan, and an entity module, in which the subprojects can report all the activities in the subproject, including a request on the appropriateness of the budget. Also, in the entity module, there is a semiannual report, which is a summary of the physical and financial execution, generated by SIGCAA itself; evaluation of the subproject in the period. It also includes a bidding and purchasing module, where you can download budget sheets, view the complete report, and download reports in Word for each supported subproject. SIGCAA is an interactive system where the subprojects record all the activities carried out and demonstrate how they were developed through visual media (videos and/or photos), documents or text plans, as well as presence lists for activities carried out. Tools have also been created for access control and system security, and video tutorials have been developed for representative entities supporting subprojects. The system is maintained by the AEN and is interactive, receiving continuous updates from the beneficiary organizations and the AEN.

As of June 2019, 12 subprojects have completed more than 50% of physical execution, with 1 having already completed 100%. 95% sent Semi-Annual Report and 100% have already been analyzed.

Financial Management and Bids

One of the major ongoing challenges for DGM Brazil is the implementation of subprojects in accordance with the rules established by the World Bank, particularly the operationalization of procurement and contracting processes. Examples include drawing up a letter of consent, developing terms of reference for hiring an individual consultant, requesting quotations for contracting services or inputs, also performs the subprojects financially, among others. In response, during the second half of 2018, the project's technical team sought to support and train subproject managers to prepare the necessary documentation, update schedules of activities, adjust budgets, etc. To ensure the flow of documentation and information, the technical team also advised subproject managers on the use and entry of subproject management systems. It was also necessary to increase the purchasing team to improve project performance. Today, the bidding and financial management teams have 12 employees dedicated exclusively to the DGM Brazil project.

2018-2020 Training Plan

In order to reach the goals included in the Logical and Methodological Matrix of the DGM Brazil Project, a participatory strategy for the empowerment of the PICTs of the Cerrado was included in the second component of the DGM Brazil Project, "Capacity Building and Institutional Strengthening". An important challenge to be faced to reach effective and potentiated results in the subprojects is to qualify, according to the needs, its members guaranteeing the success of the social process triggered by them. This task is based on overcoming the following bottlenecks: a) cultural diversity of participants' schooling; b) territorial dispersion of the groups supported; c) little experience of project management and organization.

Such a reality, if not faced, could result in wasted investment, due to the misuse or underutilization of the equipment and technologies provided by the subprojects, and the difficulty of the peoples of the communities were adapted to the management techniques. The DGM focuses on supporting projects that are preferably developed directly by traditional peoples and communities and their organic organizations, which deserved our attention in terms of the need to qualify this public. Not to mention the experience of more than 25 years of the Center of Alternative Agriculture of the North of Minas, in the training of farmers and traditional peoples, in the subject Agroecology and socio-political and productive organization, which helps a lot in the confrontation of the question the formation of the DGM to improve its performance and contribute to the strengthening of traditional peoples and communities.

In order to obtain results in the short and medium term, and at the same time, to equate a training policy for DGM members that brings their participants closer to the educational process, and a critical understanding of the patterns of traditional peoples and communities, climate change, which are considered focal points of the DGM Brazil, the training intends to reach the demands presented by the CGN projects and representatives whose requirements to understand these scenarios and the management field itself will be larger and much more complex.

The challenge is to empower the formation of traditional peoples and communities with a methodology that breaks with the traditional conception of empowerment and incorporates global and specific training. An efficient training proposal aimed at broadening the possibilities of CGN, partners and subproject members, which provides a set of skills that enable those involved to carry out project management as an educational, political and critical experience is the purpose.

It is necessary to ensure that all those taking part in the courses acquire the following competences: understanding the meaning of citizenship and the role of traditional peoples and communities in addressing global and local environmental problems; have a basis in the themes; develop capacities that contribute to the strengthening and defense of traditional peoples and communities in society, such as cooperation, teamwork, among others; familiarize themselves with new technical/digital concepts related to project management, such as management, planning and communication systems.

For the structuring of the courses, DGM Brazil priority themes and themes related to the projects were adopted. However, it is important to consider the appropriateness of content, strategies and teaching methodologies to the nature of each theme, to different clienteles and regions, and partnerships based on the perspective of traditional peoples and communities, climate change and socio-biodiversity.

Identification: a participatory capacity building and institutional strengthening strategy that aims to empower the PICTs of the Cerrado, as well as to promote understanding of the ethnodevelopment process to reduce social, cultural, environmental and climatic vulnerabilities.

Objectives: 1) to improve organizational, technical, managerial, political and communication skills; 2) to increase the capacity of ccess to different sources of financial resources for investments in activities geared to territorial, forest and environmental management by PICTs; 3) strengthen and qualify the action of the CGN and subprojects; 4) make it possible to create a space for reflection and dialogue on the most important themes of the DGM; 5) involve local/regional and national partners, according to themes and networks already established.

Programmatic structure: the training was structured in five thematic axes, being organized in 10 courses and one event.

Axis 1: Legal basis and social control
Course 1: Socioenvironmental sustainability and political incidence (4 modules)
Axis 2: Conservation and environment
Course 2: Climate change and the REDD +
Course 3: Restoration of degraded areas of the cerrado
Course 4: Photovoltaic energy (solar)
Axis 3: Production and market
Course 5: Agroecological production
Course 6: Agro-industrialization for solidarity-based economic enterprises
Course 7: Market diversification
Axis 4: Leadership training and project management
Course 8: Training and leadership for women
Course 9: Development of projects and management system DGM Brazil (SIGCAA)
Course 10: Communication
Axis 5: Events and seminars
Event 1: International PICT's Colloquium

Course 9: Development of projects and management system DGM Brazil (SIGCAA)

Between September 24 and November 5, 2018, there were training workshops for the use of the online management system of the AEN (SIGCAA), with which all 64 subprojects of DGM Brazil are managed. Five workshops were held, each lasting 5 days. 41 organizations participated in the workshops. For others, a training was enabled for their representatives, either visiting their organizations or through virtual assistance. One lesson learned was the need for training in the use of the SIGCAA management system by those responsible for the subprojects and the technical and administrative team (financial/contracting) of the DGM project, thus allowing the NSC to monitor the actions. In addition, ensure the flow of information within the deadlines established for the progress of the procurement and contracting processes until its completion. To support this need, the AEN plans to develop a manual for the use of SIGCAA, in addition to the technical support already provided by the AEN with the subprojects.

Figure 45 - Course 9: Development of projects and management system Brazil DGM – SIGCAA

Leadership of 14 subprojects of indigenous peoples, quilombola communities and traditional communities of the Brazilian Cerrado supported in the first announcement of DGM Brazil participated in a training workshop of the Project Management System (SIGCAA) in Montes Claros (MG). Created by the Centro de Agricultura Alternativa do Norte de Minas (CAA/NM), the national executing agency of the project, SIGCAA will facilitate the monitoring of subproject activities.

The representatives of the subprojects were divided into two groups and participated in workshops from October 5 to 11, 2018. At that time, the groups had the opportunity to adjust their work and communication plans, as well as to adjust the dates of the activities that they had not yet been carried out. With these six days of workshops, DGM Brazil completed the presentation phase of SIGCAA and sub-project readjustments.

Course 3: Restoration of degraded areas of the cerrado

Representatives of the initiatives of indigenous peoples, quilombola communities and traditional communities of the Brazilian Cerrado supported in the 1st and 2nd edicts of the DGM Brasil project participated, from February 13 to 15, 2019, in Brasília (DF), of the course of Restoration of Areas Degraded in the Cerrado.

The activity was carried out by the Centro de Agricultura Alternativa do Norte de Minas (CAA/NM), the national executing agency of DGM Brazil, together with the Bem Diverso Project, which is the result of a partnership between the Brazilian Agricultural Research Corporation (Embrapa) United Nations Development Program (UNDP).

Figure 46 - Course 3: Restoration of degraded areas of the cerrado

At the time, the groups had the opportunity to work from photographs of their own regions, being encouraged to diagnose and recommend recovery methods. The next moment they constructed restoration methods to be used in subprojects with poster exposure, presenting the advantages and risks of each alternative.

The end of the activity was with a field visit to three different areas of restoration projects: impoverished soil area formerly intended for livestock, a deep soil cultivated area with previous soybean plantation and an area with no exotic component with potential for fruit and timber native.

The activity was finalized with an evaluation done by the participants and a dynamic involving the representatives of the subprojects and the entire team of the National Steering Committee of DGM Brazil, which also had an agenda in Brasilia.

Course 6: Agro-industrialization for solidarity-based economic enterprises

Between May 13 and 15, 2019, the Agroindustry course was held in Montes Claros, aimed at organizations from all Brazilian Cerrado that are part of the DGM/FIP/Brazil Project. The meeting took place in the Experimental Area in Agroecology, located at 33km of Montes Claros, and has a field visit at the fruit pulping and oil processing plant at Cooperativa Grande Sertão. The course is a partnership between the executing agency of the project, Centro de Agricultura Alternativa de Norte de Minas, in partnership with Cooperativa Grande Sertão, Cooperativa Central do Cerrado and Empresa Brasileira de Pesquisa Agropecuária (Embrapa).

The objective of the activity was to present possibilities of aggregating value to primary production for organizations and groups, as well as developing skills to plan, organize and carry out the processing for commercialization of Brazilian socio-biodiversity products. The course sought to train the participants in line with maintaining the resilience characteristic of the modes of production of indigenous peoples, quilombolas and traditional communities and identifying safe routes for the correct positioning of these products in the market. About 35 people participated in the activity, linked to the DGM Brazil subprojects.

Figure 47 - Course 6: Agroindustrialization for solidarity-based economic enterprises

The collaborations and synergies between FIP and DGM projects are:

a) Rural Environmental Registry (CAR) by the SFB of territories of traditional peoples and communities, mainly quilombolas and babaçu coconut breakers;
b) The DGM initiated conversations with the FIP/IFN Project to increase integration between traditional communities and the Forest Inventory for the Cerrado;
c) Incorporation at the national level of indigenous communities, quilombolas and other traditional communities in the dialogue for the implementation of environmental public policies, projecting the governance of these communities, favoring the social control of government actions.

FIP FORM 3.5 - THEME 3.5: HIGHLIGHTS/SHOWCASES OF PARTICULARLY OUTSTANDING AND ACHIEVEMENT(S) TO SHARE

Level: Investment Plan

1. Please provide examples of particularly outstanding achievements or key successes.

The FIP Investment Plan in Brazil, due to the portfolio of 8 projects, has different remarkable results in 2018.

The FIP/ABC Project recovered 89 thousand hectares of pastures in 1,957 rural properties. The project also stimulated private investment in the recovery of its pastures at a ratio of 1: 6-8, ie for every dollar invested in the technical assistance project, the owner invested $ 6 to $ 8 to recover their pasture. The project also produced videos:

https://www.youtube.com/embed/6qgg7yaTk2w?feature=oembed
https://www.youtube.com/embed/IfHBnnZY4C4?feature=oembed
https://www.youtube.com/embed/vLEAqyD8ifo?feature=oembed

The FIP/CAR Project expanded the capacity of the georeferenced system of environmental assets and liabilities of rural properties compatible with 27 OEMAs (Figures 48 and 49). In addition, he trained technicians for the CAR enrollment and analysis module. Also included in the Project were the best lessons learned from the Federal Savings Project funded by DEFRA, making the funded initiative gain scale and favor vulnerable populations such as small farmers and traditional communities.

In 2018, the FIP/IFN Project carried out a detailed survey of primary vegetation data at 2,620 points, totaling 3,846 points measured to date. The data are in the systematisation phase and correspond to a total area of 163.4 million hectares, or 78.9% of the area of the entire Cerrado biome.

In addition, up to 2018, 6,457 soil samples with stored carbon data were analyzed. The field data collected by the National Forestry Inventory in the Cerrado biome have subsidized the FAO/UN FRA - Global Forest Resource Assessments, which will be launched in 2020, with information on the carbon stored in the aerial part and roots of the Cerrado forests. For the first time this information was generated from the primary data collected in the field and with such a high number of collection points, which gives more reliability to the information of the country.

The deforestation information from the Cerrado (PRODES 2016, PRODES 2017, PRODES 2018) complements the historical series of deforestation mappings from 2000 to 2018 (Figure 50) produced by other projects with different sources of financing: MCTIC, MMA, KfW and GIZ Agencies German and British Government through DEFRA. This project is producing maps of deforestation and degradation of the Cerrado for the years 2016-2019. This is the first time we have maps of the Cerrado deforestation with updated, transparent, reliable and consistent information in a time series that covers the period 2001-2019. Products can be accessed in http://terrabrasilis.dpi.inpe.br/app/dashboard/deforestation/biomes/cerrado/increments.

Figure 48 - Implementation of the CAR Analysis Module in the state of Paraná, held in December 2018

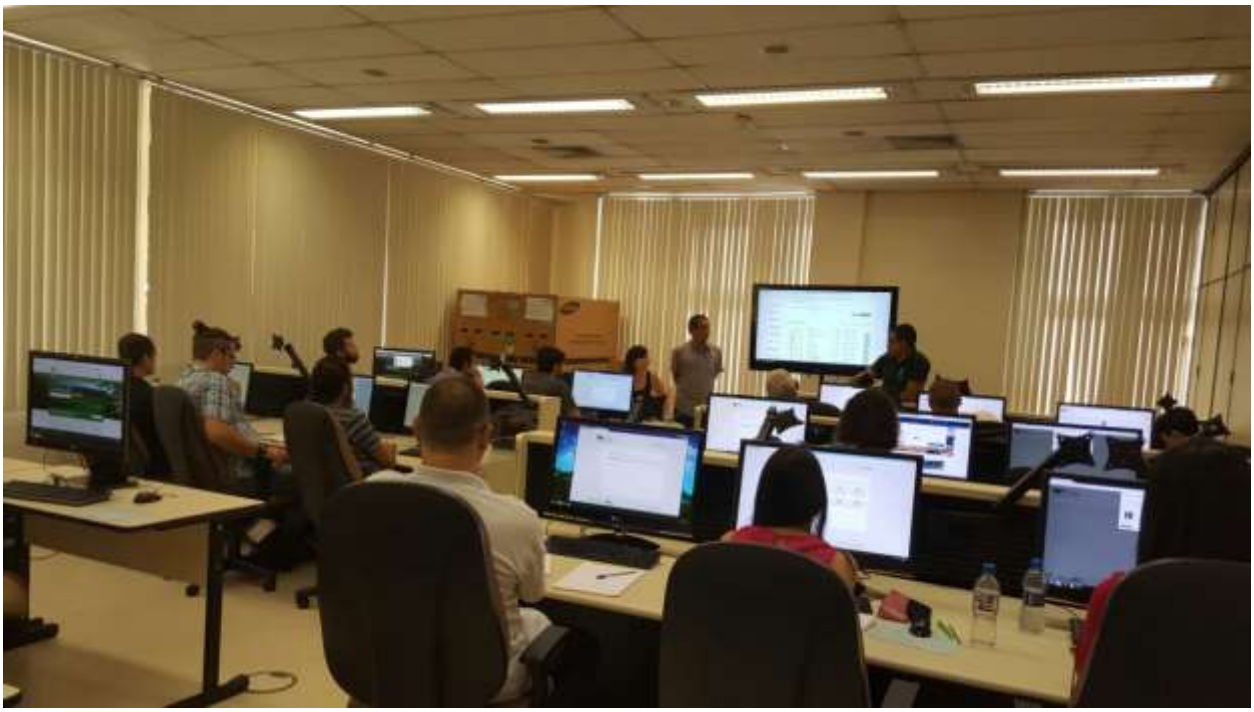


Figure 49 - Assisted Implementation of the CAR Analysis Module in the state of Paraná, held in November 2018

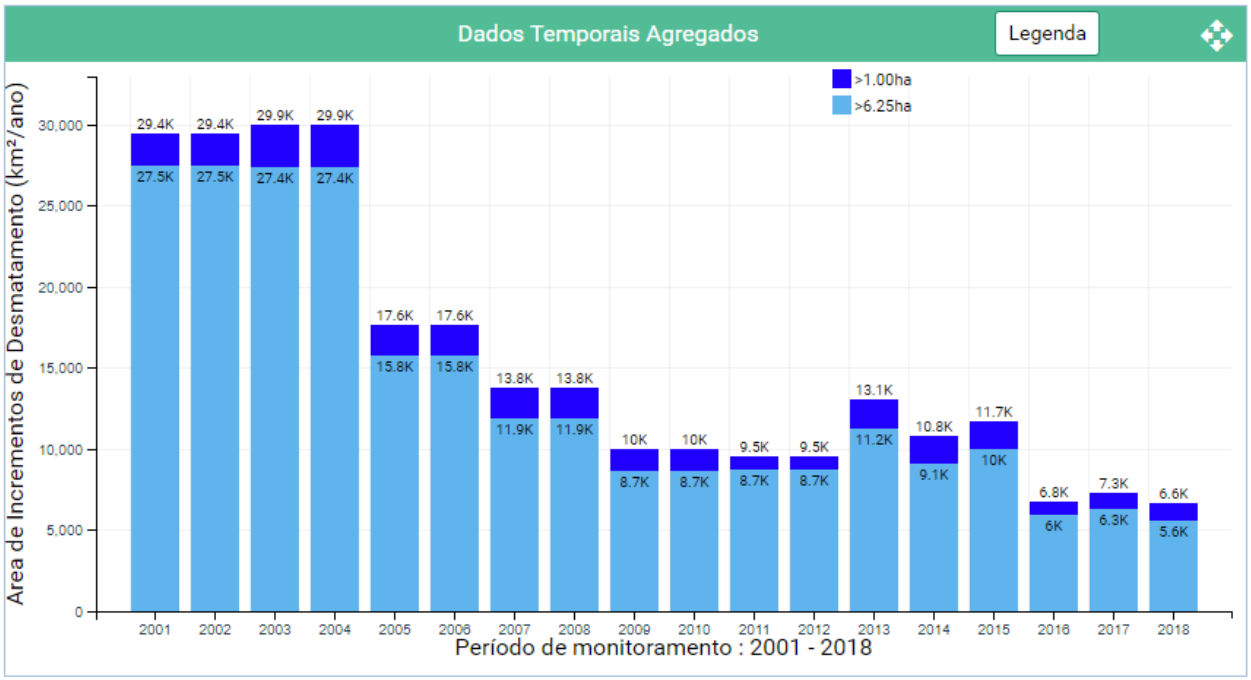


Figure 50 - Increase in deforestation in the Cerrado in the period 2001-2018
(http://www.dpi.inpe.br/fipcerrado/dashboard/cerrado-rates.html)
http://terrabrasilis.dpi.inpe.br/app/dashboard/deforestation/biomes/cerrado/increments

2. Please provide examples of outstanding achievements in gender mainstreaming:

- **What have been the most important achievements and impacts in terms of gender mainstreaming in FIP investments?**

The gender issue was highlighted in the FIP Brazil Investment Plan in the following ways:

a) In the FIP/IFN Project, interviews were conducted with the objective of obtaining information on the use of forest services that can be disaggregated by gender.
b)) In the FIP/CAR Project, a greater number of female technicians of the OEMAs were observed in training and workshops.
c) In the FIP/Monitoring Project there is no gender control in hiring, but it was verified that in the total in 2018, 44.4% are women.

- **Are there any lessons learned or good practices regarding integration of gender into these investments?**

A good practice observed refers to the FIP/IFN Project that controls the field interviews so that the number of women and men is the same.

FIP FORM 4.1 – CATEGORY 4: OTHER REPORTING TYPES

Level: Investment Plan

Please attach or provide links to photos, videos, events, publications and/or creative media and platforms, such as blogs, videos or webinars, illustrating responses to the following questions:

1. What are the main achievements of the country program coordination and synergies between different FIP investments?

The FIP Investment Plan Coordination in Brazil organized a workshop in June 2017 with the participation of 20 institutions to discuss the 2016 report.

The FIP/Landscape Project, proposed in 2016, had the support of the Coordination for its development and presentation to the FIP. The project architecture includes the synergy and complementation of actions between institutions that coordinate FIP/CAR, FIP/ABC and FIP/IFN.

2. What are the main achievements of the ongoing stakeholder participation/involvement?

In the FIP/ABC Project, leaflets (Figure 51) were developed by MAPA, EMBRAPA and SENAR for training courses in the following areas: degraded pasture recovery, crop-livestock-forest integration, no-tillage system and planted forests.

Figura 51 - Folhetos e outros materiais utilizados nos cursos de formação em recuperação de pastagens

In the FIP/CAR Project, there is a replication of a successful initiative for the registration of small rural properties.

In the FIP/IFN Project, the Forest Inventory of the Federal District was published. The Forestry Inventory of the state of Paraná is in the process of being concluded.

In the FIP/Monitoring Project, all products are the enhancement of previous initiatives aimed at the Amazon forest and meet the expectations of government institutions, civil society and the private sector in the context of policies to combat deforestation, environmental monitoring, REDD + , Strategies for Monitoring the Brazilian Biomes (11/27/2015) and other environmental policies. The ministries of MMA, MCTIC and MAPA are interested in deforestation data to develop public policies related to land use and the production of science and knowledge. Fire sources have diverse stakeholders, since the information responds to demands of the private sector (monitoring of fires in private properties), civil society (monitoring of fires in areas of relevant interest) and government (monitoring of fires in protected areas, energy and other strategic areas).

Several courses were conducted to train the actors involved with environmental issues regarding the use of fire risk products and tools produced in the project (http://www.inpe.br/queimadas/portal/eventos/home). There have also been courses on shaping land use change and biodiversity related to the modeling of fire propagation, one of the project's products (http://csr.ufmg.br/fipcerrado/).

In addition, workshops were organized to present the technologies and services developed within the scope of the project to disseminate data and information to all users interested in the environmental monitoring of the Cerrado Biome. During the workshop held in September 2018, the experts presented the first results of the project and trained people on the tools used to view and analyze the data. During the workshop, the methodological aspects of the project were presented, as well as maps and deforestation data produced for the years 2016 and 2017 and the technologies developed to produce deforestation data and their dissemination to society in general.

The TerraBrasilis system was launched, and throughout the event demonstrations were carried out on how to view and analyze deforestation data published on this web platform. On the project website (http://www.obt.inpe.br/cerrado) you can access the video tutorial TerraBrasilis, available for download at http://www.obt.inpe.br/cerrado/downloads.html. Some photos of the event are shown below.

Figure 52 - Workshop held in September 2018 to present the first results of the PRODES, DETER and TerraBrasilis

3. How is the investment plan implemented in the contexto of broader national policies?

The FIP/ABC Project is part of MAPA's portfolio of ongoing initiatives in the Low Carbon Agriculture Plan.

The FIP/CAR Project will be one of the instruments for the implementation of environmental regulation, as established in the Forest Code, which requires the rural environmental registry of all rural properties as the first step in the process and corroborates with the government by supporting the records of small rural properties and territory of traditional peoples and communities. The CAR can help distinguish between legal and illegal deforestation and facilitate land use planning by integrating environmental regularization actions in accordance with current legislation in the country. In addition, it may subsidize policies, programs, projects and activities of control, monitoring, environmental and economic planning and combating illegal deforestation.

The FIP/IFN Project contributes to the implementation of some requirements of the Forest Code, such as the construction of a forest information system and the forest inventory of the biomes.

The FIP/Monitoring Project is mainly linked to national CPP policies, the PMABB strategy, the REDD + strategy and international agreements to reduce GHG emissions set out in the Nationally Determined Contribution (NDC). Other important information for public policies can be considered through synergies between the FIP/Monitoring Project and other FIP projects.

4. What are the outstanding achievements in terms of knowledge Exchange and management ?

The FIP/ABC Project held three workshops to map the lessons learned (impact assessment on training strategies, dissemination videos and financial feasibility study). These lessons are being incorporated by the institutions involved in the project and disseminated to technical assistance providers.

Event held in 2017.
https://youtu.be/dDDiKHjItCI

The FIP/CAR Project held a meeting with all OEMAs located in the Cerrado biome, supporting the use of standardized system (SICAR), and data for the registration of rural property.

In 2018, the FIP/Monitoring Project produced annual deforestation data for the years 2016, 2017 and 2018, complementing the 2001-2018 historical series. This information is publicly available (http://www.obt.inpe.br/cerrado/) and can be used to improve integrated actions between different governmental institutions and their respective public policies and between projects developed under the support of the FIP that present synergies. As an example, FIP/CAR Project data can be integrated with deforestation data to update its environmental liabilities monitoring actions on rural properties, and deforestation data can be integrated with FIP/ABC Project data to analyze changes in land use. land on properties supported by the ABC Plan. During the Synergy Meeting (held on November 26, 2011) organized by the FIP/Coordination Project, the synergies between the FIP projects were identified and consolidated.

5. Is there any analytical work or public communications (evaluative studies, evidence-based learning, articles etc) about your FIP investment plan to share?

In 2018, the FIP/IFN Project's field work and the FIP/IFN Project's publicity actions were continued through the Diário de Campo and the availability of these images, after editing and treatment, on the Flickr of the SFB (https://flic.kr/s/aHsmmT8ScN). The communication activities also involved the production of clipping with the news published by the press, production of releases and update of the progress of the execution of IFN and other contents on the website of the Brazilian Forest Service.

SUMMARY OF THE FIP ANNUAL STAKEHOLDER WORKSHOP (2019)

1. Which stakeholder groups were invited to the anual workshop (organizations and umber of people for each)? Please attach the list of participants, including the name of the organizations they represent.

Nº	Organization/Entity	Number of people invited	Number of People in the Workshop
1	ABEMA	2	0
2	ANAMMA	2	0
3	ANEEL	2	0
4	BNDES	4	0
5	BVRio Institute	2	0
6	CAA/NM	2	0
7	CBMTO	1	0
8	CEDEC SP	1	0
9	CEDEC/SP - CGE/SP	2	0
10	CEMADEN	1	0
11	CEMAF/UFT	1	0
12	CENSIPAM (SIPAM)	1	0
13	Central do Cerrado	1	0
14	CIMAN	1	1
15	Climate Policy Initiative	1	0
16	Conservation International	2	0
17	CONAQ	2	0
18	Defesa Civil	2	0
19	DGM Management Committee	3	1
20	Embassy of Canada	1	0
21	Embassy of Germany	1	1
22	Embassy of Japan	1	0
23	Embassy of Norway	1	0
24	Embassy of the United Kingdom	1	0
25	Embassy of the United States	1	0
26	EMBRAPA	13	4
27	FORÇA NACIONAL	1	0
28	FUNAI	4	2
29	FUNATURA	1	2
30	FUNTAC	1	0
31	GIZ	3	1
32	IADB	2	0
33	IBAMA	2	0
34	IBGE	1	0
35	IBRAM-DF	2	0
36	ICMBIO	2	0
37	IBRD	4	2
38	IEF/MG	1	0
39	International Institute of Education of Brazil - IIEB	2	0
40	IMASUL	1	0
41	INEMA	1	0
42	Institute of Socioeconomic Studies - INESC	1	0
43	INOCAS	1	0
44	INCRA	2	1
45	INPE	1	2
46	IPAM	3	1
47	ISA	1	0
48	ISPN	1	0

49	KFW	2	0
50	MAPA	11	7
51	MAPBIOMAS	1	0
52	MCTIC	4	1
53	MDA	2	0
54	MECONOMIA	3	2
55	MIQCB	2	0
56	MMA	11	9
57	MOPIC	1	0
58	NATURATINS	5	0
59	OEMA of the State of Bahia	1	0
60	OEMA of the State of DF	1	0
61	OEMA of State of São Paulo	2	0
62	OEMA of the State of Goiás	2	0
63	OEMA of the State of Maranhão	1	0
64	OEMA of the State of Mato Grosso	2	0
65	OEMA of the State of Minas	1	0
66	OEMA of the State of Piauí	2	0
67	OEMA of the State of Tocantins	2	0
68	OEMA of the State of Para	1	0
69	ONS	1	0
70	Policia Ambiental/SP	1	0
71	Rede Cerrado	2	0
72	SEAD/SFA/CGAPS	2	0
73	Seeg/MapBiomas	1	0
74	SEI/BA	1	0
75	SENAR	3	1
76	The Nature Conservancy - TNC	1	1
77	UNB	4	2
78	UFG	1	0
79	USAID	2	0
80	WWF	2	1
	TOTAL	**168**	**42**

See attached list of event participants in Annex 5.

2. How did you ensure stakeholder participation in the workshop? Which methodologies were used to integrate all stakeholders' views during the workshop? (For example, did you break down the stakeholders into groups to discuss a topic depending on their expertise? How did you reach a consensus for the reported data?)

One hundred and sixty-eight people, representing eighty institutions, were invited, who received formal invitations explaining the purpose of the workshop and the importance of participation as a stakeholder. However, only forty-two people from nineteen institutions were present.

The methodology used included presentations on the FIP, the Brazilian Investment Plan (BIP) for the FIP and the objectives and progress of each of the projects that make up the BIP/FIP (Figures 53 e 54).

Seminar Schedule

Schedule	Activity
14:00-14:30	**Opening and welcome**
14:30-15:00	**General presentation of BIP/FIP** Question and answer session on BIP/FIP.
15:00-16:00	**Round table: BIP/FIP projects (session 1)** 1. FIP/ABC Project 2. FIP/CAR project 3. FIP/Monitoring Project Questions and answers
16:00-16:20	**Snack interval**
16:20-17:20	**Round table: BIP/FIP projects (session 2)** 1. FIP/IFN Project 2. FIP/Landscape Project 3. FIP/DGM project 4. FIP/Coordination Project Questions and answers
17:20-18:00	**Suggestions panel to the FIP M&R 2018 Report**
18:00-18:15	**Evaluation and closure of the Seminar**

Figure 53 - Photographic record of the Workshop on BIP/FIP Stakeholders

Figure 54 - Photographic record of the Workshop on BIP/FIP Stakeholders

Participants were invited to participate in a dialogue in groups of three people to answer the following guiding questions:
1. In relation to the results presented: what could be added or changed?
2. What are our suggestions for improvements to project continuity?

After the discussion, the responses were recorded on the cards (Figure 55).

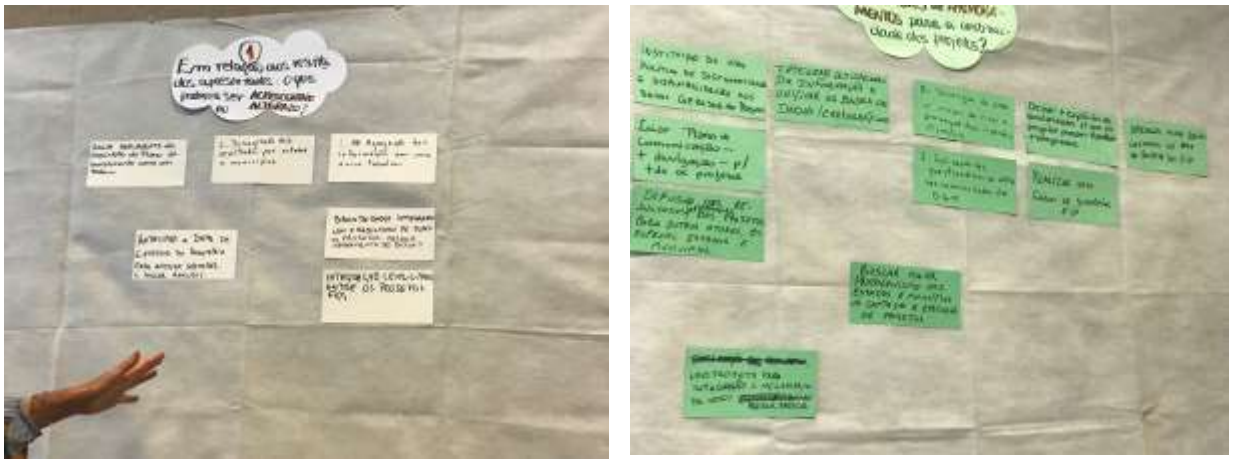


Figure 55 - Photographic record of the Workshop on BIP/FIP Stakeholders

After the discussion, the moderator of the event grouped the issues raised by theme and asked the participants to clarify their notes and suggestions for registration.

Before closing, the participants evaluated the event and methodology used to present the report.

3. What were the key issues raised during the workshop?

With regard to the results presented: what could be added or changed?

- To create indicators of execution of the Investment Plan of Brazil (BIP/FIP) as a whole.
- Disaggregate the results by States and Municipalities. This would allow the elaboration of richer readings by these entities, which is in fact where products and results of the projects are realized.
- Add the information in a single table.
- Encourage and make explicit the integration between BIP/FIP projects.
- Elaborate Database with the results of all the projects, in a way to facilitate the disclosure of the data and its access by the society.
- Anticipate the delivery date of the M & R FIP Report to assist managers and streamline analyzes.

What are the suggestions for improvement for the continuity of projects?

- Institution of a policy of systematization and availability of the data generated within the projects. It is important to disseminate in a broader way the results achieved ('leave the thesis'), including for States and Municipalities to seize and make use of them. In this sense, it is essential to draw up a Communication Plan.
- Integrate the information systems and unify the databases/cartographic used by the projects, to enrich the analysis and generation of knowledge.

- Synergy of the IFN with risk maps and propagation of forest fires.
- Application of the IFN questionnaires in DGM communities.
- Integrate new MMA management teams within the scope of FIP.
- Seek greater involvement of States and Municipalities in the capture and execution of projects.
- Make explicit the similarities so that the projects can work integrated. It is important to consider potential synergies with projects that are not in the FIP Brazil portfolio. This should be considered, even when the new FIP synergies forum is held, it is necessary to increase the participation of other institutions that are not part of this portfolio of projects. Consider data integration, efforts and actions.
- New project for integration and improvement of new results from the products generated by the current projects.

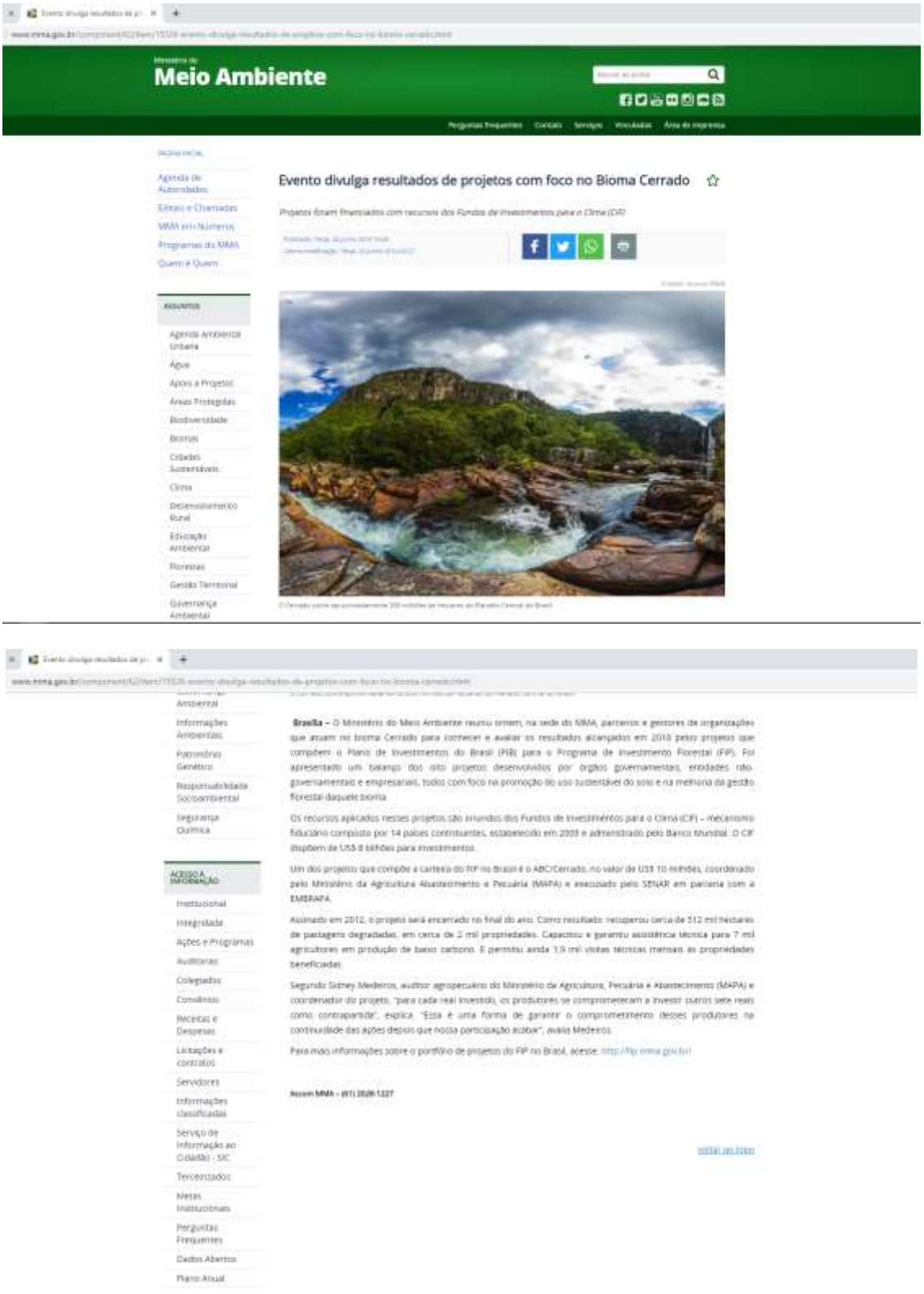


Figure 56 - News about the Seminar of the Stakeholders of BIP/FIP

Annex 1 – Monitoring Report of the FIP/Macaúba Project

The FIP/Macaúba Project was born with the purpose of generating an alternative to palm oil by promoting the production chain of macaúba as a source of sustainable vegetable oils. The macaúba is a palm tree native to the cerrado biome (Figure 57) that can be cultivated in a silvopastoral system with the introduction of a productive 2nd floor in the pastures, without loss of pasture yield, which allows the production of large quantities of vegetable oil without any of the negative impacts associated with the production of conventional vegetable oil, such as deforestation and land use change.

Figure 57 - Macaúba: native species of Brazilian cerrado

The project is located in the cerrado biome region of Alto Paranaíba, Minas Gerais, Brazil, with three main objectives: i) planting 2,000 hectares of macaúba in a silvopastoral system, in areas of degraded pasture in partnership with smallholder farmers, with potential for sequestration of 600,000 tons of CO^2; ii) to promote the extractive collection of up to 1,500 tons of native palm fruits per year; and iii) to develop a model oil mill for the processing of macaúba fruits.

From a replicable, scalable and profitable business model, the FIP/Macaúba Project aims to encourage the reproduction of this new concept of planting by other cattle ranchers. Pastures of the cerrado biome consortium with macaúba palm trees could generate twice the global production of palm oil without the need for deforestation, while recovering pastures and soil fertility, facilitating the introduction of pasture rotation systems and generating habitats and food for the native species of the cerrado. This was confirmed by a large-scale study, funded by the European Union and conducted by Leuphana University (Germany), between 2011 and 2014, which testified to the technical, economic and social feasibility of the Project and pointed to macaúba as an alternative capable of becoming the main source of sustainable vegetable oil in the world.

The three pillars supporting the FIP/Macaúba Project include the planting, extractivism and processing industry of macaúba (Figure 58). In planting, INOCAS, the company executing the project, assumes the necessary investments for macaúba planting and technical assistance to the smallholder farmers, and the smallholder farmers provides the land and the labor for the cultural treatments. The harvesting of macaúba fruits is scheduled for the 5th year of planting and is divided between the producer and INOCAS. In addition to the regular technical assistance, are expected to draw up a manual of good macaúba farming practices and materials and training days for smallholder farmers. In the

extractivism, the collectors are being trained for the correct handling during the harvest. The project has a good interface with public policies of the Brazilian federal government capable of leveraging the macaúba value chain and increasing the income of smallholders, such as the *Selo Combustível Social*, which provides incentives for biofuel producers who acquire raw material from smallholders and the *Política de Garantia do Preço Mínimo para Produtos da Sociobiodiversidade (PGPM-Bio),* which subsidizes the sale of macaúba by extractivists.

The FIP/Macaúba Project already has a small oil mill in operation for the processing of macaúba fruits in laboratory dimensions (50 Kg/h) for research and development, from which two kinds of oil and two types of pressing cake (both of the pulp and the kernel) and granulate of the endocarp are obtained. The first samples have already been sent to potential customers in Brazil, the US and Europe and local and national sales have reached good levels.

The extractive activities of 1,500 tons of native fruits per year demand a medium-sized plant (500 kg/h), whose construction should start in the second half of 2019. The planting of 2,000 hectares will generate a production of approximately 50,000 tons per year in 10 years, which will require a new large plant (6,000 kg/h).

By the end of 2018, 29,000 palm trees were planted on 93 hectares, based on 8 agricultural partnership contracts signed with smallholder farmers. About 19,000 macaúba seedlings were produced by the project's partner nursery and 43 tons of native fruits were collected.

Figure 58 - The oil production model of the FIP/Macaúba Project

In addition to being highly attractive economically to investors, the Macaúba Pilot Project, through its economic, social and environmental tripod and its pioneering spirit, inserts INOCAS and its partners in a select group of companies aligned with fundamental and internationally accepted values in the areas of human rights (increase in income and access to public policies by family farmers), sustainable agriculture (intensification and diversification of production, improvement of pasture microclimate, erosion prevention) and environment (carbon sequestration, habitat guarantee for native species, reducing deforestation) and which contribute through their business practices to achieve the Sustainable Development Goals (SDGs) of the United Nations (UN).

It is estimated that 200,000 people work in the coffee harvest in Minas Gerais and after their termination unemployment rates increase significantly. This seasonal effect can be reduced, since the macaúba harvesting happens exactly in the offspring of the coffee. As shown by the Leuphana University feasibility study, harvest workers can earn more than double the minimum wage by harvesting macaúba, making this new activity an attractive and diversified source of income. It is expected that the FIP/Macaúba Project will bring social, environmental and economic direct benefits to at least:

- 100 farmers and their families, through the planting of macaúba in a silvopastoral system;
- 300 extractivists and harvesters per year;
- 20 direct workers working at the macaúba oil mill;
- 80 direct workers working at the macaúba plantations;
- 500 indirect workers acting in the provision of services and supply of inputs related to planting, extractivism or macaúba processing plant.

These numbers are expected to multiply proportionally as the project is replicated by other initiatives in the region and in the biome cerrado as a whole.

The FIP/Macaúba Project was awarded by the World Bank's Forest Investment Program with the 1st place in global competition in 2014 and is financed by the Inter-American Development Bank (IDB). Recently, it was awarded by the Initiative 20x20 as project of the year 2019.

Annex 2 – Results of the Satisfaction Survey on the FIP/Coordination Project

SUMMARY OF FIP PROJECT COORDINATION ACTIVITIES FOR THE FINANCIAL YEAR 2018

In 2018, the Project coordinated efforts to create an electronic website where it is possible to find all the main information about each of the projects that make up the Brazilian Investment Plan for the FIP - objectives, indicators, results achieved, physical execution financial, among others -, subject to daily updating. In addition, he articulated with those responsible for the other projects that make up the Brazilian Investment Plan for formatting the script and defining locations for the preparation of a film to publicize the Plan.

Both initiatives aim to broaden the dissemination of projects, strengthen social control mechanisms and consolidate the image of the Investment Plan as a coordinated instrument of a larger set of policies, reinforcing the idea that the projects are not implemented in isolation but are part of a comprehensive country-driven plan in which each complement and is complemented by the others.

In parallel, the FIP Coordination team worked with the Cerrado National Forest Inventory Project team with COFIEX, the IDB and the CIF to extend its deadline.

Also worthy of note are the technical visits carried out by the FIP Project Coordination to all Brazilian Investment Plan Projects for the collection of information on the execution, including the Macaúba FIP Project, in the interior of Minas Gerais, to learn more about the objectives and scope of the Project, which is executed by the private sector.

The Synergy Seminar was an important step to increase clarity about the importance of the theme and provided a privileged space for discussing aspects that may allow greater integration between the projects of the Brazilian Investment Plan.

It should be emphasized the importance of the work carried out by the Consultant hired by FUNATURA to support the actions necessary for a good progress of the Project, especially regarding: i) the planning and preparation of the FIP M & R Reports, the Report Validation Seminars the implementation of the Brazilian Investment Plan and the meetings of the Interministerial Executive Committee; ii) the planning and monitoring of the services contracted by FUNATURA; iii) permanent articulation with managers of other portfolio projects.

The consultant was available to the project in the period between May 2018 and January 2019, and the evaluation of the PMU of the project is that its performance was very relevant to the achievement of the goals for the year, highlighting the improvement of the quality of the project. Monitoring report delivered to the administrative unit of the CIF, increased supervision of the activities developed by FUNATURA and the strengthening of the process of interlocution between the projects.

Some challenges, however, still need to be overcome to achieve the objectives of the FIP Coordination as idealized in the project documents.

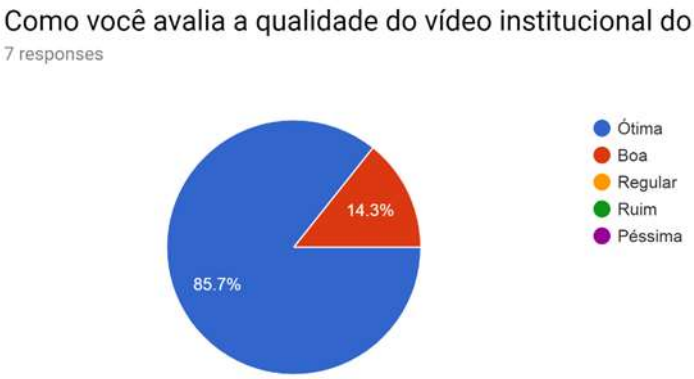
It is planned to establish a communication plan at the beginning of the implementation of the FIP Coordination project, to be elaborated in conjunction with the projects and with the communication and thematic communication or publicity initiatives of each body. Such a plan should contain tools such as a

website dedicated to Brazilian Investment Plan, annual reports, dissemination activities, stakeholder engagement and knowledge management. In 2018, although specific initiatives - such as the development of the hotsite - were executed, it was not possible to carry out a structured planning, materialized in a plan, where well-established purposes and flows of dissemination and exchange of information between projects.

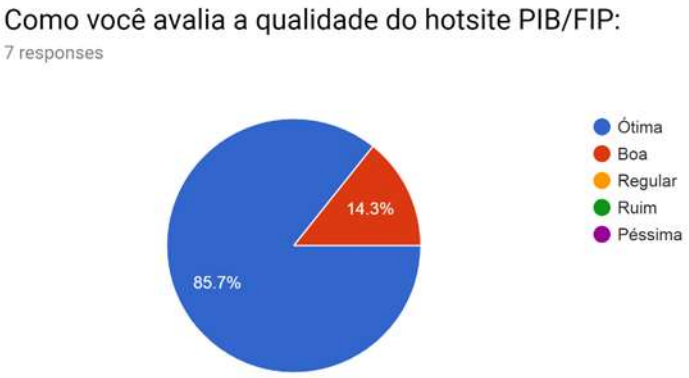
The situation of untimely delivery of the annual report to the CIF Administrative Unit has also been repeated, as in previous years, with many discrepancies between the numbers described therein and the numbers reported by the implementing agencies. We believe that these issues are due to a lack of greater project planning regarding the coordination of data collection and information exchange work. It is expected that, in the following years, the processes for preparing the M & R FIP Reports will be more systematic and predictable, to allow not only their delivery to occur by June 30, but also that the quality of the reports will be improved, consistency of the data and information presented.

RESPONSES TO THE SATISFACTION RESEARCH CARRIED OUT TO EVALUATE THE PERFORMANCE OF THE FIP/COORDINATION PROJECT IN THE YEAR 2018 AND RAISE INPUTS TO ENHANCE THEIR IMPLEMENTATION IN 2019 (ANONYMOUS ANSWERS)

Has the selected Project Management Specialist assisted in the process of articulating the projects?
7 answers
85,7%: yes
14,3%: reasonably



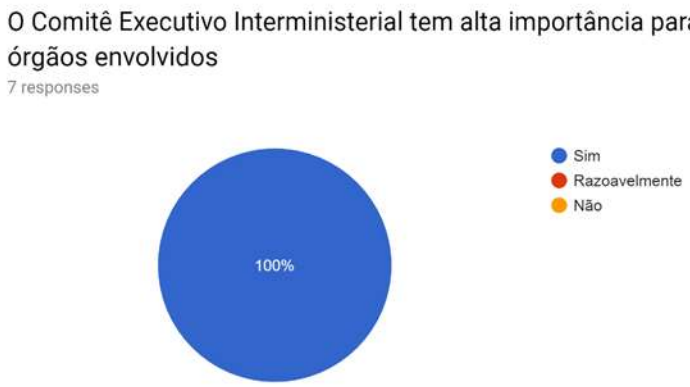
How do you evaluate the quality of the institutional video of the Brazilian Investment Plan for the FIP?
7 answers
85,7%: great
14,3%: good



How do you evaluate the quality of the hotsite of the Brazilian Investment Plan for the FIP?
7 answers
85,7%: great
14,3%: good

Is the communication between the projects that make up the Brazilian Investment Plan for FIP effective?
7 answers
57,1%: yes
42,9%: reasonably

Are the projects that make up the Brazilian Investment Plan for FIP being implemented in a synergistic and organized way?
7 answers
57,1%: yes
42,9%: reasonably



The Interministerial Executive Committee is of high importance for projects
7 answers
100%: yes

How do you rate your satisfaction with the performance of the FIP Project Coordination?
7 answers
100%: satisfied

Use the space below to make criticisms, propositions for improvement and/or other considerations about the performance of the FIP Project Coordination in the year 2018. 7 responses

There is not.

Keep the home page always up-to-date.

The FIP Coordination was very important to increase the integration among the projects, to give them greater visibility and to provide support in the search for solutions to problems faced by specific projects, such as the need to extend deadlines and articulation with the CIF.

More objective meetings of the BPI Committee, when the objective is the monitoring of the execution of the projects. Technical discussions, and more details on specific subjects, can be held at other types of events, such as workshops and seminars.

Communication and organization of actions can be more effective. I believe that once the site is being supplied with the real information of the projects and sending quick news about the actions of the projects (at least every 2 months), this can contribute to a better monitoring and science of actions of each project.

Synergy actions between projects should be monitored

The FIP Coordination needs more operational agility to use resources. Institutional shackles of government prevent good management practices.

What are your expectations about the FIP Project Coordination for the year 2019? 7 responses

That is active and operative to support and coordinate the implementation of the Brazilian Investment Plan.

Expand the dissemination of results.

May it continue to articulate the projects and hold more meetings to discuss possible synergies.

Definition of the person responsible for its implementation, due to the reorganization of the Federal Public Administration, promoted by MP 870/2019.

Expectation of more exchanges between projects through news of the progress of each one's actions.

Consolidation of synergy actions among the Brazilian Investment Plan projects

Greater agility in the use of resources.

Annex 3 – List of Links

- **FIP/ABC Project**

Success stories

Brasília de Minas/MG
Theme: iLP (dairy farming)
https://youtu.be/J5d4WHWKUcs
Highlight: partnership of the project with the city hall made possible the availability of soil preparation machines and water and soil conservation operations.
Subtitles in English.

Cachoeira Alta/GO
Theme: RPD (milk and dairy farming)
https://youtu.be/Rxh4IUTL7FU
Highlight: family succession.
Subtitles in English.

São João da Ponte/MG
Topic: RPD (beef cattle)
https://youtu.be/2ki_koaGB-0
Highlight: water and soil conservation practices (terraces and barrages)
Subtitles in English.

Arinos/MG
Topic: RPD (beef cattle)
https://www.youtube.com/watch?v=2EfSlNyZC80
Highlight: drought resilience through the production of grass silage and the adoption of water and soil conservation practices.
Subtitles in English.

Bacabal/MA
Theme: iLPF (beef cattle and milk)
https://youtu.be/vLEAqyD8ifo
Highlight: improvement in zootechnical performance and property management.
Subtitles in English

Peritoró/MA
Topic: iLP (beef cattle)
https://www.youtube.com/embed/6qgg7yaTk2w?feature=oembed
Highlight: improvement in property management.
Subtitles in English.

Alto Alegre/MA
Theme: iLP (beef cattle and milk)
https://www.youtube.com/embed/IfHBnnZY4C4?feature=oembed
Highlighting: fixing the man in the field.
Subtitles in English.

Brejolândia/BA
Theme: RPD (dairy farming)
https://youtu.be/KHpklOxgeEU
Highlight: training of rural producers as a stimulus to the adoption of low carbon technologies and conservation practices.
Subtitles in English.

Reports

World Bank Mission – Paranaíba e São Gabriel do Oeste/MS
Topic: RPD (beef cattle)
https://youtu.be/T6_BfqUHxlw
Highlight: environmental co-benefits.
Subtitles in English.

Rio Verde/GO
Topic: ABC Cerrado Field Day (Direct Planting System)
https://youtu.be/3vgVXWUgylk
Highlight: overview of the ABC Cerrado project in the state of Goiás.
Subtitles in English.

Brasília/DF
Theme: Lesson learned workshop 2018.
https://youtu.be/dDDiKHjItCI
Highlight: results achieved by the project until the beginning of 2018.

Porto Nacional/TO
Theme: RPD (dairy farming)
https://youtu.be/pqXm2UTbGv8
Highlight: Voisin system with irrigation (rotational grazing).

Monte Santo do Tocantins/TO
Topic: RPD (beef cattle and milk)
https://youtu.be/oi5i6vXnp8Y
Highlight: rural property has become a technology reference unit.

- **FIP/CAR Project**

  http://www.florestal.gov.br/projeto-fip-car

- **FIP/IFN Project**

  - Report of the IFN of the *Distrito Federal:*
  http://www.florestal.gov.br/documentos/publicacoes/1635-relatorio-ifn-df/file

  - National Forest Information System (SNIF)
  www.florestal.gov.br/snif/

- **FIP/FM Project**

  - Video tutorial TerraBrasilis:
  http://www.obt.inpe.br/cerrado/downloads .html

  - Video field work at MATOPIBA (08/31/2018):
  http://terrabrasilis.dpi.inpe.br/download/fip/Campo-31082018.mp4.

  - Video field work for DETER validation
  http://terrabrasilis.dpi.inpe.br/download/fip/FIP_Cerrado_filme_kernel_do_desmatamento.mp4

  - Risk of forest fires:
  http://www.inpe.br/queimadas/portal/risco-de-fogo-meteorologia (July-December 2018; 27,091 views)
  http://www.inpe.br/queimadas/portal/informacoes/eventos-realizados

  - Fire Spreading Model:
  http://csr.ufmg.br/fipcerrado/

  - TerraBrasilis Platform:
  http://terrabrasilis.dpi.inpe.br/

  - Deforestation maps:
  http://terrabrasilis.dpi.inpe.br/app/map/deforestation?hl=pt-br

  - Early warnings:
  http://terrabrasilis.dpi.inpe.br/app/dashboard/alerts/legal/amazon/daily/#

  - Annual deforestation data for the years 2001- 2018:
  http://terrabrasilis.dpi.inpe.br/app/dashboard/deforestation/biomes/amazon/increments

  - Workshop (27-27/setembro) presentations:
  http://www.obt.inpe.br/cerrado/apresentacoes-workshop.html

  TerraAmazon - system used to produce the deforestation maps:
  http://www.obt.inpe.br/OBT/assuntos/projetos/terraamazon

  - FIP project's site at INPE (14,377 views in 2018):
  http://www.obt.inpe.br/cerrado/

  - Modeling of changes in land use and biodiversity related to the modeling of fire spreading:
  http://csr.ufmg.br/fipcerrado/

News:

http://agenciabrasil.ebc.com.br/geral/noticia/2018-06/desmatamento-no-cerrado-diminui-mas-perda-ainda-atinge-51-da-regiao

https://oglobo.globo.com/sociedade/desmatamento-do-cerrado-recua-mas-50-do-bioma-nao-existe-mais-22806553

https://www.noticiasagricolas.com.br/noticias/meio-ambiente/226695-desmatamento-no-cerrado-em-2018-e-o-menor-ja-registrado-pela-serie-historica-do-mma.html#.XOZ6m1NKjUo

https://noticias.uol.com.br/meio-ambiente/ultimas-noticias/redacao/2018/12/11/desmatamento-no-cerrado-cai-mas-ainda-equivale-a-4-cidades-de-sp-diz-mma.htm

https://www.greenpeace.org/brasil/blog/desmatamento-no-cerrado-aumentou-9-no-ultimo-ano/

http://www.brasil.gov.br/noticias/meio-ambiente/2018/09/desmatamento-no-cerrado-comeca-a-ser-acompanhado-em-tempo-real

http://www.mctic.gov.br/mctic/opencms/salaImprensa/noticias/arquivos/2018/09/Inpe_usa_tecnologia_de_ponta_para_monitorar_desmatamento_e_incendios_florestais_no_Cerrado.html

- Giovanna Girardi, Desmatamento no cerrado Recua, mas em 7 anos é 60% maior que perda da Amazônia. Estado de São Paulo, 21 de junho de 2018: https://sustentabilidade.estadao.com.br/noticias/geral,desmatamento-no-cerrado-recua-mas-em-7-anos-e-60-maior-que-perda-da-amazonia,70002359710

- Governo divulga desmatamento no Cerrado: http://www.mma.gov.br/informma/item/14836-noticia-acom-2018-06-3066.html

- Brasil atinge metas de redução de emissões: http://www.mma.gov.br/informma/item/15310-brasil-atinge-meta-de-redução-de-emissões.html

- Divulgação da revisão 2000-2015 e dos dados 2016 e 2017 dos dados do PRODES Cerrado: http://www.obt.inpe.br/OBT/noticias/inpe-divulga-dados-sobre-o-desmatamento-do-bioma-cerrado

- Divulgação dos dados 2018 dos dados do PRODES Cerrado: http://www.inpe.br/noticias/noticia.php?Cod_Noticia=4975

Annex 4 – List of publications

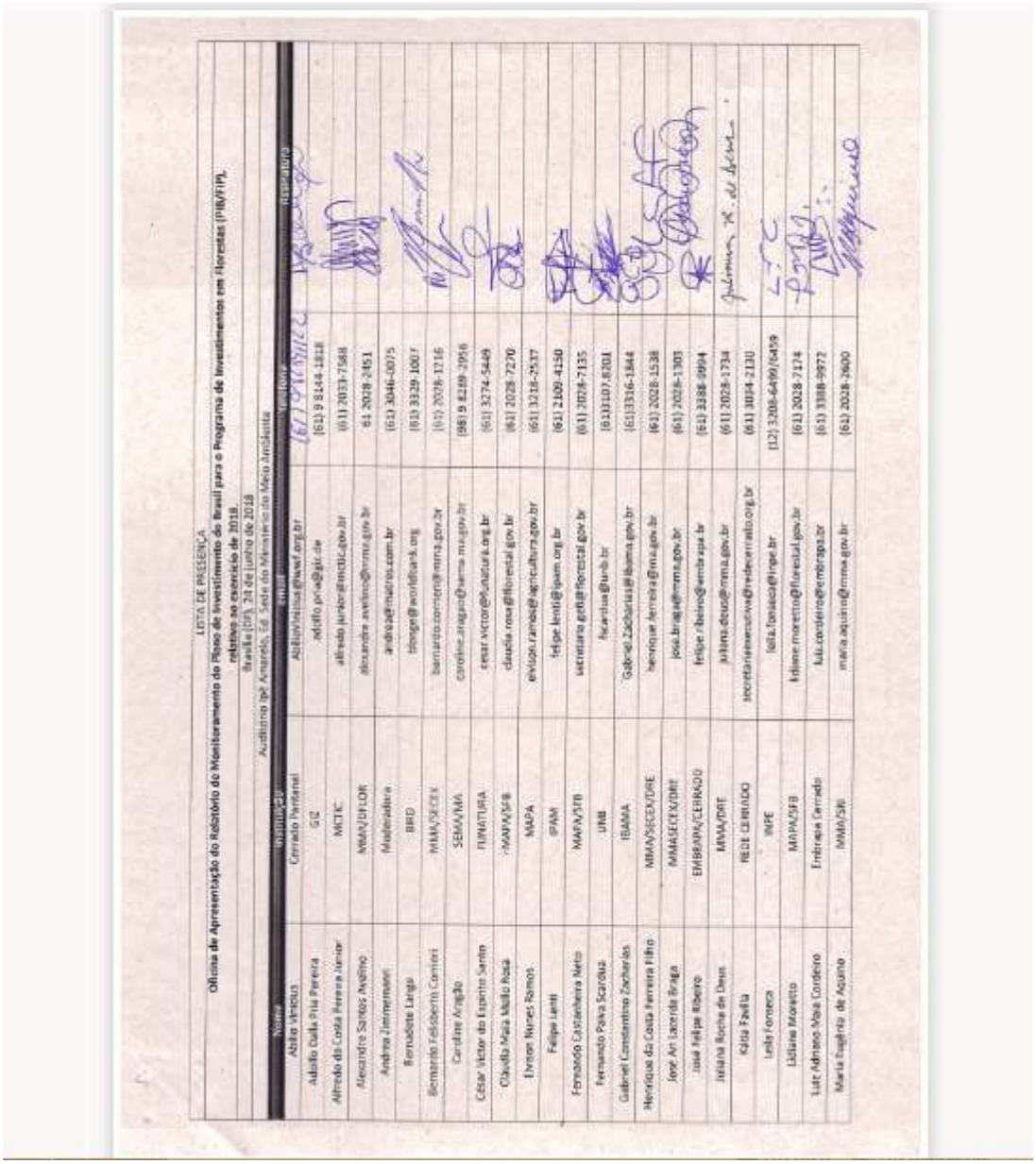
- **FIP/FM Project**

Technical-scientific publications, accepted for publication and in preparation

- DE BRITO, A.; JACON, A.; QUEIROZ, J.; VALERIANO, D. (2017): Mapping the main vegetation types of Cerrado biome in the year 2000, link to GIS files. PANGAEA. https://doi.org/10.1594/PANGAEA.882605. in: 19 nov. 2018.
- DE BRITO, A.; JACON, A.; QUEIROZ, J.; VALERIANO, D. Image classification to improve the estimation of GHG missions through mapping of archetypical vegetation in the savannahs of Brazil. In: Joint Conference on Forests and Water 2018, Valdivia. Proceedings Book... Valdivia: UACh, 2018. <http://forestsandwater2018.cl/programa/programa/proceeding-book/> in: 19 nov. 2018.
- H. N. Bendini, L. M. G. Fonseca, M. Schwieder, T. S. Körting, P. Rufin, I. D. A. Sanches, Leitao, and P. Hostert, "Detailed Agricultural Land Classification in the Brazilian Cerrado based on Phenological Information from Dense Satellite Image Iime Series," International Journal of Applied Earth Observation and Geoinformation (in press), 2019. https://doi.org/10.1016/j.jag.2019.05.005
- H. N. Bendini, L. M. G. Fonseca, M. Schwieder, T. S. Körting, P. Rufin, I. D. A. Sanches, Leitao, and P. Hostert, Comparing Phenometrics Extracted from Dense Landsat-like image Time Series for Crop Classification. In: Proceedings of IGARSS 2019. Yokohama-Japan (in press).
- Hugo N. Bendini; Leila M. G. Fonseca; Alan de Brito; Felipe E. B. Lenti; Alana K. Neves; Raquel Trevizam; Magaly G. de Oliveira; Raian V. Maretto; Thales S. Körting; Dalton de M. Valeriano. Assessing Satellite-Derived Phenological Metrics and Terrain data as a Proxy for Vegetation Dynamics Along the Brazilian Savanna Corridor. In: Proceedings of *Pecora 21*/ISRSE 38. Baltimore-USA 2019 (in press).
- Schwieder, M., Leitão, J.P., Rufin, P., Rabe, A., Bendini, H., Ferreira, L.G., Bustamante, M.M. and Hostert, P. Land surface phenological archetypes of the Cerrado. (Being prepared for submission 2019).
- MARETTO, RAIAN VARGAS et al. Técnicas de DeepLearning para detecção de desmatamento na Amazônia e Cerrado. (Being prepared for submission 2019).
- DE BRITO, A.; JACON, A.; QUEIROZ, J.; OLIVEIRA, M.; TREVISAN, R.; VALERIANO, Dalton. Mapping and validation the main vegetation types of Cerrado biome in the year 2000. Remote Sensing of Environment Journal (Being prepared for submission 2019).
- ASSIS, L.F.; FERREIRA, K.R.; VINHAS, L.; PINHEIRO, L.M.; ALMEIDA, C.A.; NASCIMENTO, J.R.; CARVALHO, A.; CAMARGO, C; MACIEL, A.M. A Demonstration of TerraBrasilis: Using Micro-services to create a Spatial Data Infrastructure for thematic mapping projects in Brazil. Submmited to GEOINFO 2018, 5 a 7 de dezembro, Campina Grande, Paraíba, Brasil (Demonstration).
- Luiz Fernando Ferreira Gomes de Assis; Karine Reis Ferreira; Lúbia Vinhas; Luis Maurano et al. TERRABRASILIS: A SPATIAL DATA INFRASTRUCTURE FOR DISSEMINATING DEFORESTATION DATA FROM BRAZIL. In: ANAIS DO XIX SIMPóSIO BRASILEIRO DE SENSORIAMENTO REMOTO, 2019, Santos. **Anais eletrônicos...** Campinas, GALOÁ, 2019. Disponível em: <https://proceedings.science/sbsr-2019/papers/terrabrasilis--a-spatial-data-infrastructure-for-disseminating-deforestation-data-from-brazil>. Access in: 23 mai. 2019.
- Girolamo Neto, C.; Fonseca, Fonseca, L.M.G.; Korting, T.; Soares, A. R. Mapping Brazilian Savanna Physiognomies using WorldView-2 Imagery and Geographic Object Based Image Analysis. GEOBIA 2018, At Montpellier, France, Volume: 1, June 2018.

- Thales Sehn Korting, Hugo Bendini, Anderson Soares, Leila Fonseca. Remote Sensing time series for land cover classification (Being prepared for submission 2019)
- MARTINS, G.; NOGUEIRA, J. M. P.; SETZER, A. W.; MORELLI, F. Seasonal fire dynamics in Brazilian biomes in the last years. In: EGU General Assembly, 2019, Viena.
- Martins, G.; Nogueira, J.; Setzer, A.; Morelli, F. Fire patterns in the Brazilian Cerrado: an approach comparing different input datasets in the fire risk modelling. In: **7 WildFire**, 2019, Campo Grande.
- Nogueira, J.; Martins, G.; Setzer, A.; Morelli, F. A comparison of land cover maps to define vegetation classes of fire risk in Brazil. In: 7 WildFire, 2019, Campo Grande (submitted).
- JUSTINO, F. B.; SILVA, A.S.; SETZER, A.; ÁVILA, A. Improvement of the Potential Weather Fire Index on nn Extratropical Perspective (submitted).
- Alana Kasahara Neves, Thales Sehn Korting, Cesare di Girolamo Neto, Anderson Reis Soares and Leila Maria Garcia Fonseca. HIERARCHICAL CLASSIFICATION OF BRAZILIAN SAVANNA PHYSIOGNOMIES USING VERY HIGH-RESOLUTION IMAGE, SUPERPIXEL AND OBJECT-BASED INFORMATION In: Proceedings of IGARSS 2019. Yokohama-Japan (in press).
- Raian Vargas Maretto, Thales Sehn Korting, Leila Maria Garcia Fonseca. AN EXTENSIBLE AND EASY-TO-USE TOOLBOX FOR DEEP LEARNING BASED ANALYSIS OF REMOTE SENSING IMAGES. In: Proceedings of IGARSS 2019. Yokohama-Japan (in press).
- Hugo Bendini, Leila Fonseca, Marcel Schwieder, Thales Körting, Philippe Rufin, Ieda Sanches, Pedro Leitão, Patrick Hostert. COMPARING PHENOMETRICS EXTRACTED FROM DENSE LANDSAT-LIKE IMAGE TIME SERIES FOR CROP CLASSIFICATION. In: Proceedings of IGARSS 2019. Yokohama-Japan (in press).
- Thales Sehn Korting, Hugo Bendini, Anderson Soares, Leila Fonseca. Polar representation of Remote Sensing time series for land cover classification. (Submitted to GRSL/SIBGRAPI)

Annex 5 – List of Stakeholders Workshop participants



LISTA DE PRESENÇA

Oficina de Apresentação do Relatório de Monitoramento do Plano de Investimento do Brasil para o Programa de Investimentos em Florestas (PIB/FIP), relativo ao exercício de 2018.

Brasília (DF), 24 de junho de 2018

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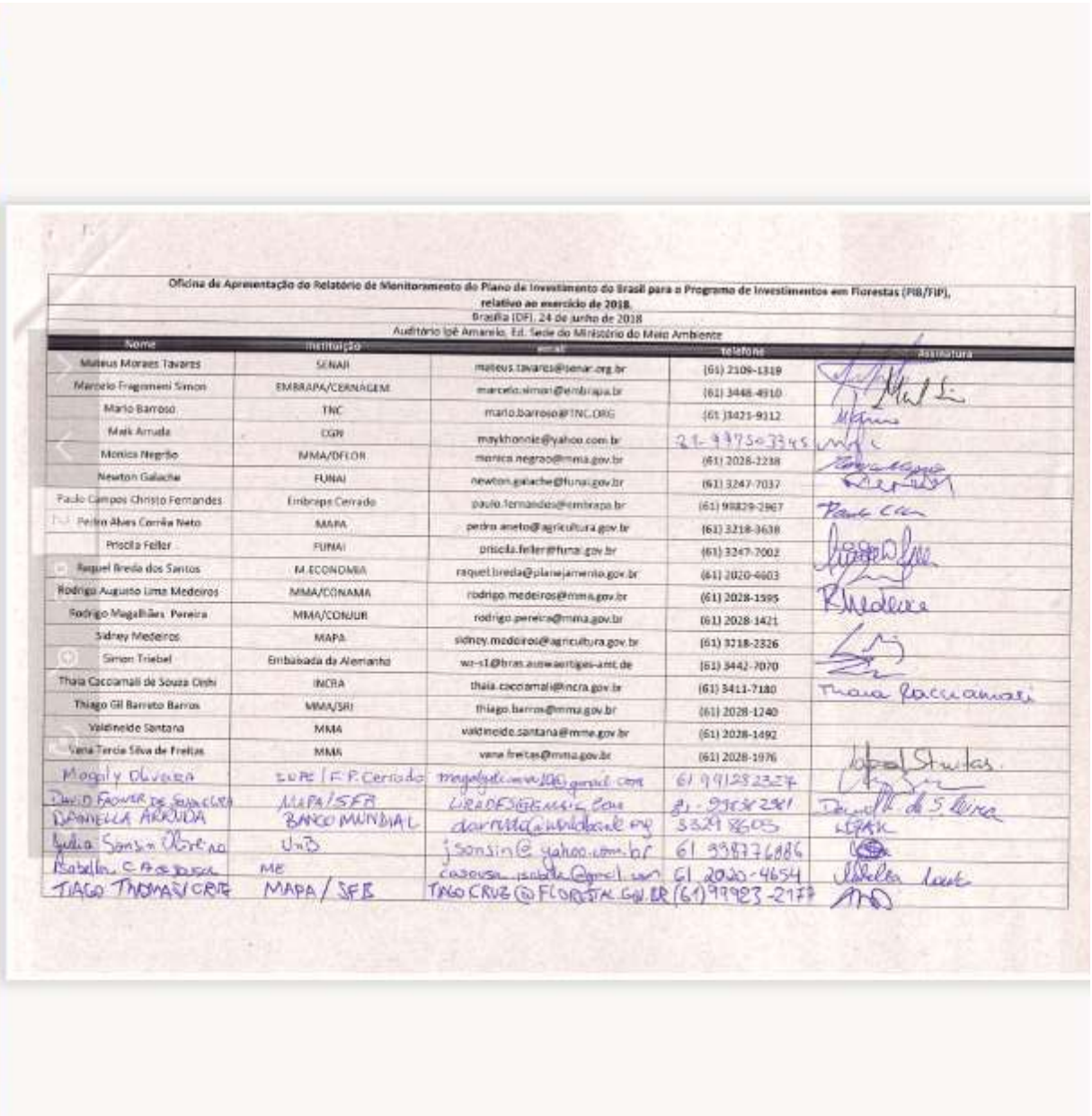

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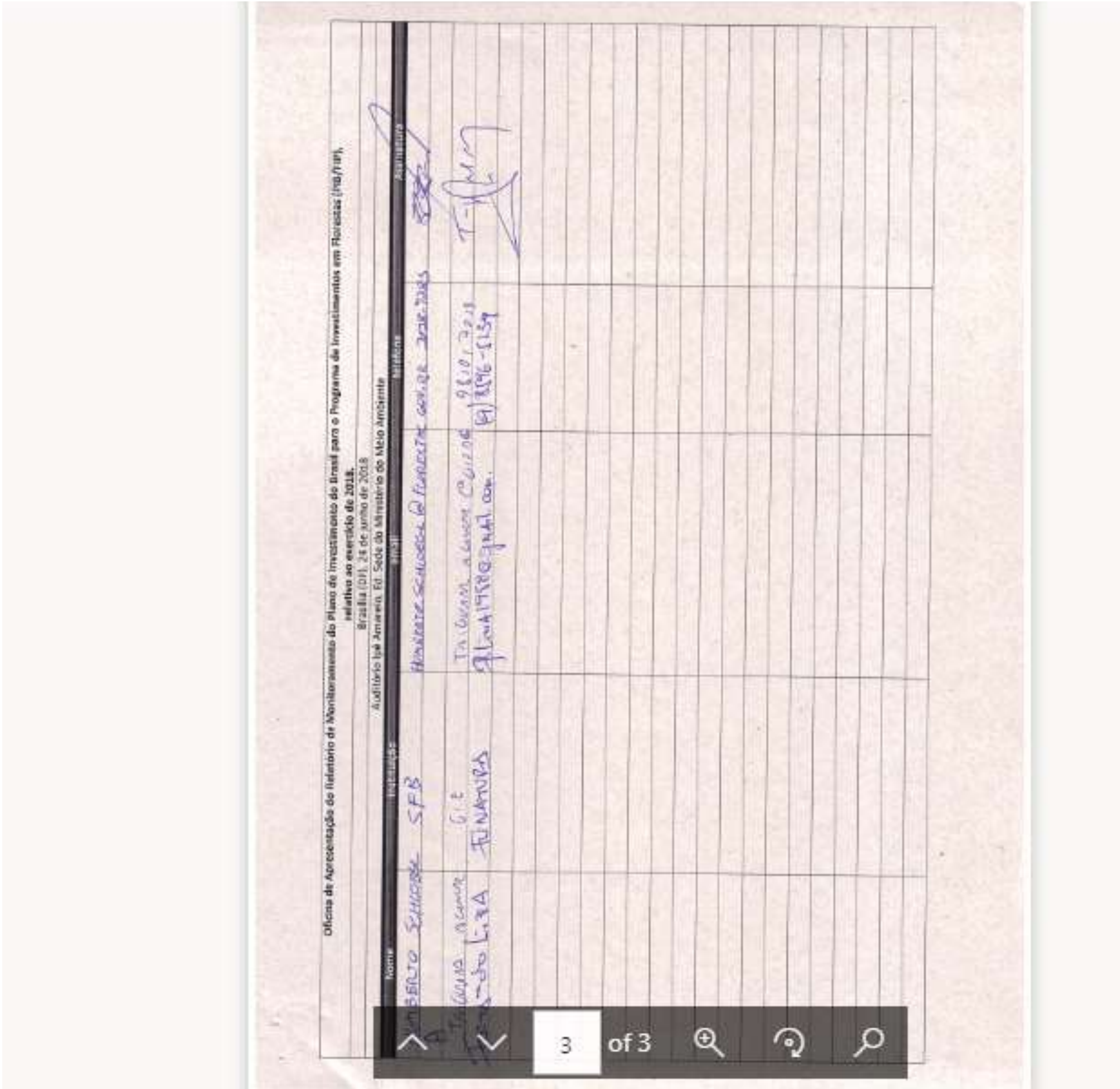

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